

Shallow Land Disposal Area

2015

Record of Decision Amendment

Written Comments

*verbal comments are recorded in the Public Hearing transcript.

To view the transcript click [HERE](#)

COMMENTS: I AM FROM ALLEGHENY TOWNSHIP
WITH "RIVERFRONT ACCESS TOURISM SUPPORT"
I AM CONCERNED WITH SEISMIC ACTIVITY,
BECAUSE OF DRILLING IN OUR TOWNSHIP
3 MILES OF PARKS TOWNSHIP SITE.

COMMENTS: There should be a 25 MILE RADIUS
FRACKING BAN UNTIL THIS PROJECT
IS COMPLETE! OKLAHOMA
HAS HAD EARTHQUAKES FROM
FRACKING 22 MILES AWAY!
Thank You,

COMMENTS: I WOULD LIKE TO SEE THE MATERIAL
MOVED OUT OF THE AREA & THE PROJECT COMPLETED
AS POSSIBLE,

COMMENTS: LEAVE THE MATERIAL THERE. IT IS
NOT HARMING THE COMMUNITY AND
COSTS TOO MUCH TO REMOVE. YOU SHOULD
SEAL IT WHERE IT IS



COMMENTS: As a third-generation resident of the Kapple Hill/
Riverview section of Parks Twp. — and the parents of 4th & 5th
generation residents of this area that is impacted by the
shallow land fill Nuneec/Babcock Wilcox dump project, we feel
it is imperative that efforts continue to remove all questionable
materials from the site permanently. I am 67 yrs old — both my
parents, a brother + I are cancer victims — as are a great ~~big~~
majority of our local relatives + our neighbors (past + present).

To face a possibility of radioactive and chemical contaminants being
left in the ground — with questionable future problems ~~not to~~ ^{not to}
mention the degrading effects on our property values + state of mind —
is completely unacceptable.

PS = We (the public here) have come to trust the Army Corps of Eng.
With them — we are hopeful the clean-up will be carried out safely and
completely — as ~~promis~~ promised.

COMMENTS: When will the solicitation
for the Project Be issued?

February 3, 2015



**Vikki Cooper
& Associates**

Mr. Michael Helbling
SLDA Project Manager
U.S. Army Corps of Engineers, Pittsburgh District
2200 William S. Moorhead Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222

Re: SLDA Proposed ROD Amendment

Dear Mr. Helbling:

On December 31, 2014, the Pittsburgh District office of the U.S. Corps of Engineers (Corps) issued a proposal for a ROD amendment for SLDA. As lead federal agency for the SLDA, the Corps proposes to excavate radiologically contaminated soil and debris and then have it moved to an off-site facility for disposal.

We are very concerned about the transportation of the contaminated materials. In the past, SLDA radioactive waste was shipped by container and then offloaded into gondola rail cars at a facility in Wampum, Pennsylvania. This method added unnecessary risk by requiring additional handling of contaminated materials along with an increased chance of airborne release. Furthermore, past material handling procedures pose an additional security risk and they present needless exposure risks to offsite recipients.

Therefore, in light of the risks noted above, we call for the Corps to add a stipulation within the ROD amendment that would require any packaged waste from SLDA project remain sealed until it is received at the disposal facility.

Kind regards,

A handwritten signature in black ink that reads "Vikki Cooper". The signature is written in a cursive, flowing style with a prominent "V" and "C".

Vikki Cooper
President

Vikki Cooper & Associates
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TESTIMONY

Of

PATRICIA J. AMENO

Chairperson

CITIZEN'S ACTION for a SAFE ENVIRONMENT

On

THE AMENDMENT TO THE RECORD OF DECISION

And

THE AMENDMENT TO THE FEASIBILITY STUDY

A PUBLIC HEARING BEFORE THE CITIZENRY of the Kiski Valley

Held By

THE UNITED STATES ARMY CORPS OF ENGINEERS

Pittsburgh District

January 27, 2015

Parks Township, Pennsylvania

“There are risks and costs to action. But they are far less than the long range risks of comfortable inaction.”

--President John F. Kennedy

TO THE: President of the United States, Barack Obama;

And to the:

U.S. Army Corps of Engineers; U.S. Nuclear Regulatory Commission; U.S. Environmental Protection Agency; U.S. Department of Energy; U.S. Department of Justice; Pennsylvania Department of Environmental Protection and ALL other governmental agencies involved with the cleanup and the issues of SECURITY of the Parks Township Shallow Land Disposal Area (SLDA), in Parks Township, Pa.

We ask the following with respect to the Amendment to the Record of Decision:

1.) That the cleanup of the SLDA move forward without delay, for the 'Total' removal of the nuclear and chemical waste to an Off-Site Licensed Facility.

2.) That the cleanup of the SLDA be a concentrated effort by ALL the numerous agencies involved, working in concert for Total Removal to an Off-Site Licensed Facility.

3.) That while Security is a Priority, it shall not delay, over-shadow or render anyone or anything 'fearful' to move forward with the cleanup.

4.) That the Health & Safety of All the People be the Highest Priority and matching that of National Security: For the People ARE our country's number one resource.

5.) That the Totality of the Original Deeded and Licensed property that came under AEC/NRC License number: SNM-414, DURING THE YEARS THAT THE BURIALS TOOK PLACE, TO INCLUDE THE ABANDONED COAL MINE BENEATH-- BE QUALITATIVELY AND QUANTITATIVELY INVESTIGATED AND TESTED to ensure present and future Public Health and Safety and the Safety of the Public that would come under National Security.

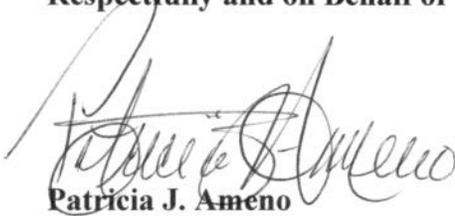
6.) That the Standards of ALLOWABLE RESIDUAL LIMITS to remain, be MORE stringent than what was allowed to be left at the former NUMEC site in Apollo, Pa., AEC/NRC license number: SNM-145.

7.) That a Temporary Containment Building be erected around 'dig areas' for the purpose of: Health & Safety---minimizing on fugitive dust; minimizing on water run-offs from watering down soil; and for National Security---to keep to the minimum, the possibility of 'prying eyes' by those who may want to hurt us.

Just because the Nuclear Legacy of OUR past has been filled with pain, suffering and loss, does NOT mean that OUR future cannot be better than what we have previously been shown.

So, in the name of everything that is good and very good, LET'S GET THIS DONE WITH A POSITIVE MIND-SET FOR POSITIVE RESULTS for the PEOPLE of this area: past, present and future--and for the safety of our nation.

Respectfully and on Behalf of the Citizenry---



Patricia J. Ameno

Founder and Chairperson

Citizen's Action for a Safe Environment

*This statement will be further expanded on in writing to all respective agencies to include the Executive Branch

Atlantic Richfield Company
4 Centerpointe Drive
LaPalma, CA 90623-1066

Babcock & Wilcox Government and Nuclear Operations, Inc.
2016 Mt. Athos Road
Lynchburg, VA 24504

April 3, 2015

VIA FEDEX AND EMAIL

Michael Helbling
SLDA Project Manager
U.S. Army Corps of Engineers, Pittsburgh District
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Re: Comments on FS Addendum and Draft ROD Amendment

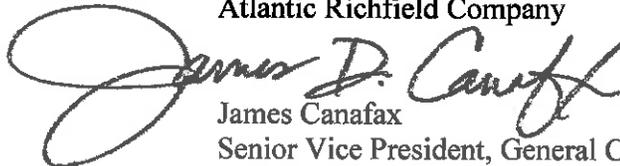
Dear Mr. Helbling:

Enclosed please find the comments of the Atlantic Richfield Company and Babcock & Wilcox Government and Nuclear Operations, Inc. on the U.S. Army Corps of Engineers' Feasibility Study Addendum and Draft Record of Decision Amendment for the Shallow Land Disposal Area.

Sincerely,



Roy Thun
Strategy Manager
Atlantic Richfield Company



James Canifax
Senior Vice President, General Counsel and
Corporate Secretary
Babcock & Wilcox Government and Nuclear
Operations, Inc.

Enclosure

Comments on Feasibility Study Addendum and Draft Record of Decision Amendment

*Atlantic Richfield Company
Babcock & Wilcox Government and Nuclear Operations, Inc.*

Atlantic Richfield Company (“Atlantic Richfield”) and Babcock & Wilcox Government and Nuclear Operations, Inc. (“B&W GNO”) respectfully offer the following comments on the U.S. Army Corps of Engineers’ (“USACE”) Feasibility Study Addendum (“FSA”) and Draft Record of Decision Amendment (“RODA”) for the Shallow Land Disposal Area (“SLDA”) in Parks Township, Pennsylvania.

The RODA affirms the excavation and removal remedy that USACE selected in its initial 2007 Record of Decision for the SLDA, but the RODA establishes that this remedy is now anticipated to cost approximately \$412 million instead of the originally-estimated \$45 million. Much of the change in estimated costs appears to be related to significantly more complex excavation and materials-handling processes, changed site security requirements, multiple additional levels of federal agency involvement and oversight, and other procedural and methodological changes in the approach to excavation. Although USACE now expects the SLDA remedy to cost nearly ten times what it originally anticipated, the FSA and RODA do not provide a substantive and meaningful evaluation of remedial alternatives. Moreover, the FSA and RODA are so devoid of detail that we have been unable to ascertain the specific facts which underlie USACE’s general assertions that changed procedures will result in an increase in remedy costs by nearly an order of magnitude. To ensure selection of an appropriate remedy and to satisfy the requirements of the National Contingency Plan, the FSA and RODA must reflect a genuine, thorough, and open re-evaluation of remedial options for the SLDA rather than simply affirming an excavation remedy that now appears to pose significant additional implementation challenges.

I. THE FSA AND RODA FAIL TO UNDERTAKE A SUBSTANTIVE AND MEANINGFUL REEVALUATION OF REMEDIAL ALTERNATIVES.

A. The FSA and RODA Fail to Reconsider Remedial Options with Care Appropriate to the Scale and Complexity of the Anticipated Remedy.

The selection of a remedy for the SLDA under the Formerly Used Sites Remedial Action Program (“FUSRAP”) is subject to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”). The National Contingency Plan (“NCP”) contains a set of implementing regulations that govern the selection of a CERCLA remedy. Under the NCP, the lead agency must first conduct a thorough feasibility study, which involves identifying potential remedial alternatives, screening those alternatives against a number of criteria, and finally thoroughly evaluating the retained remedial alternatives against a set of nine established criteria. *See* 40 C.F.R. § 300.430. To be selected, a remedy must (a) protect human health and the environment; and (b) comply with applicable or relevant and appropriate regulatory requirements (“ARARs”). When one or more remedial alternatives meet these first two threshold criteria, the lead agency must evaluate each such alternative against five “balancing” criteria which include long-term effectiveness; reduction in toxicity, mobility, and

volume; short-term effectiveness; implementability; and cost. *Id.* State and community acceptance are also considerations. *Id.* In conducting this evaluation, the NCP specifically requires the lead agency to conduct a “cost-effectiveness” evaluation and provides that “[a] remedy shall be cost-effective if its costs are proportional to its overall effectiveness.” 40 C.F.R. § 300.430(f).

When a lead agency publishes an amendment to a previous Record of Decision (“ROD”) which results in an estimated overall increase in the cost of the proposed remedy by approximately \$370 million, the amendment to the Record of Decision cannot rely on the underlying initial cost-effectiveness evaluation. It must, instead, conduct a thorough and rigorous cost-effectiveness evaluation in light of the magnitude of changes in costs. Because cost-effectiveness is a part of a balancing evaluation that should be applied to all remedial alternatives that meet the threshold criteria, all retained remedial alternatives should be examined with care and a rigorous analysis should be conducted of whether any such retained alternatives might be *more* cost effective than the originally-selected remedy. The RODA and FSA do not demonstrate that a thorough cost-effectiveness evaluation of the selected remedial option has been undertaken, much less that a similar analysis with respect to other remedial alternatives has also been performed. Indeed, Section 2.4.7 of the FSA, which addresses “Costs,” contains a general description of how the costs have been calculated for a number of alternatives, including a description of some of the contingencies that are components of the cost estimates, but it does not contain any actual “cost-effectiveness” evaluation. The RODA similarly contains no significant discussion of the cost-effectiveness of the selected remedy or of how such “cost-effectiveness” is evaluated in light of the balancing criteria required by the NCP.

B. The FSA Relied on Invalid Bases to Exclude Alternatives 2 and 3 from Detailed Evaluation.

Both the RODA and the FSA reiterate the 2007 ROD’s conclusion that Alternatives 2 and 3 did not warrant a “detailed evaluation” against the NCP’s nine mandated criteria. To reach this conclusion, the RODA and FSA adopt the reasoning set forth in the underlying 2006 Feasibility Study (“FS”) -- a document that is nearly ten years old. Thus, the FSA states that neither Alternative 2 nor Alternative 3 “could be assured to provide protection of human health and the environment over the 1,000-year performance period due to the uncertain stability of the abandoned mine workings beneath the upper trench area.” *Id.* It appears from the FSA that USACE based this conclusion on concerns regarding the potential that old coal mines underneath the SLDA disposal trenches might subside, resulting in future impacts to groundwater. Without identifying what specific information or studies USACE relied upon to reach these conclusions, the FSA further summarily rejects the possibility of grouting mine openings, by concluding that grouting creates a potential heaving concern.

This dismissal of Alternatives 2 and 3 (a) ignores the fact that actual subsidence risk has not been fully and rigorously evaluated for the SLDA, particularly since many of these mines are approximately 80 years old and have shown no evidence of current subsidence; (b) ignores the fact that grouting, shoring, filling, and other mine stabilization technologies have improved since any previous studies of the SLDA were conducted; and (c) mistakenly rests on the assumption that a 1,000-year protectiveness standard must be applied to this Site.

1. *Alternatives 2 and 3 were improperly rejected based on alleged subsidence risk without fully evaluating that risk.*

Neither the RODA nor the FSA provide or reference a thorough analysis of the actual stability of the abandoned mine tunnels beneath the SLDA site, nor do the documents collect or address any evidence obtained after the initial preliminary analysis of the tunnels that was conducted in 1990. The FSA cites no authority to support its claims of trench instability, instead merely asserting that a review of available information “was conducted.” Furthermore, the FSA identifies no evidence that subsidence, were it to occur, would cause a release to the groundwater.

Existing data, which are not identified or discussed in either the FSA or the RODA, indicate that the trenches have been stable, and that there have been no off-site impacts. For example, data from recent SLDA monitoring events demonstrate that the trenches have not shifted since survey markers were installed in 1990. Additionally, voluminous groundwater data neither identify any off-site groundwater issues originating from the SLDA, nor indicate that the presence of radioactive material within the disposal trenches has resulted in any off-site impacts.

Further, estimating subsidence risk for the Site is not “impossible.” We understand that techniques have been developed recently which would permit subsidence risk to be assessed. In particular, we understand that advanced computer modeling techniques combined with data obtained via video scoping could give a more complete picture of subsidence risk. To further understand this issue, Atlantic Richfield asked coal mine stability experts Dr. Quanzhong Gu and Dr. John Stankus to conduct an initial evaluation of the SLDA site. Their preliminary modeling suggests that the site has a limited and identifiable potential for subsidence that could be addressed and reasonably mitigated by a number of different state-of-the-art engineering solutions. This evaluation is preliminary, and Drs. Gu and Stankus conclude that further data collection, modeling, and evaluation would be necessary to allow a deeper understanding of how to manage and resolve subsidence issues. But the analysis does not suggest that potential mine subsidence issues are the sort of unmanageable or irresolvable risk that could provide a rationale for rejecting Alternatives 2 and 3 at the screening-level stage.

In light of what appear to be significant changes in the complexity, short-term effectiveness, and implementability of the selected remedy, as well as the collection of additional site-related data, the dismissal of Alternatives 2 and 3 is a critical decision point. The FSA should not reject those alternatives without a comprehensive analysis of subsidence risk.

2. *The FSA does not appropriately consider the feasibility and effectiveness of modern mine stabilization and other techniques that could reduce the potential for radionuclide migration.*

The FSA states that Alternatives 2 and 3 were “re-evaluated for this FSA” and “still did not meet the threshold criteria” because of mine stabilization issues. FSA at 4. But other than a passing reference to a “review of . . . current technology related to mine stabilization,” the FSA contains no evidence that USACE conducted any kind of analysis -- even the kind normally

conducted during an FS screening process -- of any specific technologies capable of addressing mine stabilization. FSA at 4.¹

Even the FSA's cursory discussion of mine stabilization issues recognizes that "[a] grouting program to stabilize the mine workings beneath the trenches could be developed" and that "the technology of grouting mine openings is proven, and has been used successfully by the U.S. Department of the Interior, Office of Surface Mining." FSA at 5. The FSA further notes that grouting the mine openings would "stabilize the ground and reduce the probability of future subsidence for the next 1,000 years." *Id.* But the FSA then dismisses stabilizing the mine workings because grouting "may cause heave of ground" and "would most likely change the groundwater levels and flow regime in the rock strata." *Id.*

Neither of these rationalizations -- for which there does not appear to be any engineering analysis in the FSA or in the administrative record -- is a compelling reason to reject remedial alternatives that include mine stabilization. The idea that grouting *might* induce heaving, without any analysis of whether grouting *would* induce heaving, is little more than speculation, not analysis. And this speculation appears to ignore both the successful use of mine stabilization techniques at other sites as well as the improvement in those techniques in recent years that substantially mitigate or eliminate heaving risks. As detailed in Dr. Gu and Dr. Stankus' report, modern backfilling techniques now allow mine tunnels to be filled in a variety of ways so that the fill material can be more uniformly distributed and placed to address heaving and caving issues.

Similarly, the fact that mine stabilization may result in changed patterns of groundwater flow and changed groundwater elevations cannot, in itself, serve as a basis for rejecting alternatives that include mine stabilization. Stating that groundwater patterns will change is not the same as concluding that those groundwater patterns would change in a way that would increase the risk of contaminant transport from the SLDA disposal trenches. While the FSA speculates as to the first proposition, it offers no support for the second. Moreover, there is extensive groundwater data, much of which has been collected since the initial 2007 ROD. Given the extensive site-related groundwater data, well-established groundwater flow and contaminant transport models (that are used at CERCLA sites across the United States) can be used to evaluate how mine stabilization would change groundwater flow patterns and elevations and whether such changes would increase the risk of contaminant transport from the SLDA trenches. The FSA contains no indication that this kind of analysis has been done.

Finally, even if mine stabilization resulted in groundwater flow patterns or elevations that increased the risk of contaminant transport from the trenches, there are numerous well-established remedial techniques that can be used to alter groundwater flow and elevations. These techniques -- including capping to address recharge, grouted underground walls or barriers, and soil solidification to change permeability of in situ soils -- have all been applied at other

¹ It is unclear what USACE may have been relying on for its "reevaluation" of mine stabilization issues. To the extent USACE was relying on 20-year-old studies cited in the original FS, it would appear that USACE may have been relying on dated research.

CERCLA sites. It is not clear whether USACE considered the possibility that any of these relevant technologies could be used at the SLDA.

In light of the substantial changes in Alternative 5, as well as the existence of proven remedial techniques to address mine stabilization and groundwater flow, the FSA should not have rejected Alternatives 2 and 3 at the screening stage but should have conducted a full analysis of these alternatives.

3. *The FSA improperly uses a 1,000-year protectiveness standard as a basis for rejecting Alternatives 2 and 3.*

The FSA also states that Alternatives 2 and 3 cannot be carried beyond a screening level evaluation because “neither alternative could be assured to provide protection of human health and the environment over the 1,000-year performance period” The FSA notes that the 1,000-year performance period “is consistent with the time frame identified in 10 CFR 20.1401(d).” The cited provision is not, however, a provision specifying appropriate protectiveness periods but rather a provision explaining how to calculate the total effective dose equivalent (“TEDE”) -- which is to be based on “the peak annual TEDE expected within the first 1000 years after decommissioning.” Thus, the cited provision is not an ARAR that should be used to evaluate Alternatives 2 and 3.

Rather, the appropriate regulatory provision addressing post-closure standards provides that disposal areas shall be designed “to provide reasonable assurance of control of radiological hazards to . . . [b]e effective for one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years” 40 C.F.R. § 192.32(b)(1)(i). Similarly, the regulation establishing standards for control of residual radioactive materials provides that control shall be designed to be effective for “up to one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years.” 40 C.F.R. § 192.02(a). The Nuclear Regulatory Commission’s (“NRC”) regulations providing for disposal of byproduct material also contain a similar effectiveness requirement. *See* 10 C.F.R. Part 40 App’x A criterion 6(1); *see also* 10 C.F.R. §§ 61.7(a)(2), (b); 61.52; 61.59 (establishing NRC standards of construction and maintenance for disposal facilities containing varying classes of radioactive waste).

Indeed, as permitted under these ARARs, it appears that USACE has relied on the timeframe of at least 200 years to evaluate long-term remedial effectiveness at other FUSRAP sites. At the Seaway FUSRAP site, for example, USACE identified the regulations cited above as ARARs; the 2009 Seaway ROD states that the remedy for that site would “[p]rovide reasonable assurance of control of radiological hazards to be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years.” Record of Decision for the Seaway Site (October 2009), at 8-2. Similarly, at the Niagara Falls Storage Site, USACE noted that a waste containment structure would adequately mitigate off-site contaminant migration for 200 years. *See* USACE, LOOW & NFSS Frequently Asked Questions (FAQs), *available at* <http://www.lrb.usace.army.mil/Missions/HTRW/FUSRAP/NiagaraFallsStorageSite/NFSSLOOWFAQs.aspx#A5>. At the White Mesa Uranium Mill site in Utah, the design objective of a reclamation plan involving material from FUSRAP sites was “to be effective for up to one thousand years, to the extent reasonable, and, in any case for at least 200 years.” 65 Fed. Reg. at 308-09 (January 4, 2000).

Under the correct ARARs, then, the remedial alternatives for the Site must be evaluated against an effectiveness standard which mandates effectiveness for at least 200 years and seeks to achieve effectiveness for up to 1,000 years to the extent reasonably achievable. It does not appear that USACE has conducted an evaluation of whether the 1,000-year effectiveness criteria is “reasonably achievable.” The FSA contains no indication that this kind of analysis has been conducted in light of either (a) the substantial changes in the selected alternative that have required an amended ROD or (b) recent improvements in mine stabilization technologies that may improve the effectiveness of other alternatives.

4. *The FSA fails to consider the cost of the separate, duplicative remediation structure that USACE implies will be required in an excavation remedy.*

The initial 2007 ROD interpreted the underlying federal statute authorizing USACE to remediate the SLDA under the FUSRAP program as precluding USACE from remediating non-radioactive contamination that was not commingled with radioactive waste: “Any chemical that is not co-mingled with radioactive waste cannot be addressed by the U.S. Army Corps of Engineers (USACE) under FUSRAP by the authority provided in Section 8143 of Public Law 107-117.” In the initial ROD, the initial excavation, and, it appears, the RODA, USACE has interpreted “radioactive waste” to consist only of that material meeting or exceeding derived concentration guideline limits (“DCGLs”), rather than material above background levels of radioactivity. These interpretations constrain USACE’s authority to remediate soils and materials from the SLDA.

As an initial matter, USACE’s legal interpretation of the scope of its remedial authority is unconvincing. The statute authorizing SLDA remediation does not prohibit USACE from remediating non-radioactive waste. Generally, “hazardous substances” associated with “Atomic Energy Commission . . . activities” -- including hazardous substances associated with “beryllium work” -- are “considered within the scope of FUSRAP cleanup activities.” USACE, Formerly Utilized Sites Remedial Action Program: Engineer Regulation, ER 200-1-4 (August 29, 2014). The authorizing statute for the SLDA also does not require USACE to define radioactive material narrowly, so as to exclude material exhibiting concentrations of target radioactive materials above background levels but below DCGLs. Furthermore, even assuming, *arguendo*, that the statute authorizes only the cleanup of material co-mingled with material exceeding DCGLs, the statute would not prevent USACE from taking the sensible position that all material buried in a trench alongside radioactive material must be considered to be “co-mingled” with that radioactive material. USACE appears to have taken a more pragmatic approach to the issue of the scope of material falling within FUSRAP remediation parameters at the Luckey Site, a former beryllium production facility where USACE not only addressed “AEC-related constituents” including beryllium, but also non-AEC-related constituents *co-located* with AEC-related constituents. *See* Luckey Site, Final Feasibility Study Report (2003), at ES-1-2.

At SLDA, USACE’s interpretation of the scope of its remedial authority effectively requires the property owner to develop an additional and overlapping set of remedial operations to address any material that USACE classifies as (a) not radioactive waste because it does not exceed the DCGLs and (b) not co-mingled with radioactive waste. Some of the material USACE excavates from the disposal trenches and then determines it will not further address may require

off-site disposal under the Resource Conservation and Recovery Act or applicable Pennsylvania law. Depending on levels of radioactivity and chemical contamination, BWXT may be forced to send such waste to a low-level radioactive waste facility or a mixed-waste low-level radioactive waste facility, the very same types of disposal facilities being utilized by USACE. We expect that these concurrent and overlapping materials characterization, handling, and disposal processes being operated by USACE and BWXT will substantially increase overall remedial costs and will be unnecessarily duplicative. The cost increase may be particularly large if USACE utilizes a contractor without an NRC license, since BWXT -- which must utilize a licensed contractor -- would be required to rely on an entirely separate contractor. Neither the FSA nor the RODA provide information on how these two remedial structures will be coordinated, and they also fail to evaluate these concurrent and overlapping remedial processes with respect to short-term effectiveness, implementability, cost, or any of the other criteria by which a remedy must be evaluated.

If USACE maintains its narrow interpretations of its own authority, it must consider the cost of these concurrent remedial structures in its evaluation of remedial options. The NCP requires the lead agency to consider costs in evaluating remedial alternatives. *See* 40 C.F.R. § 300.430(e)(9)(iii)(G). The regulations provide no basis for ignoring costs simply because those costs will not be incurred by the lead agency. Failing to consider these costs in the remedial evaluation results in both an insufficient evaluation of Remedial Alternative 5 and a biased comparison of that remedial alternative with other remedial alternatives.

C. USACE Has Not Sufficiently Considered Alternative 4.

1. The FSA's analysis of Alternative 4's "implementability" overemphasizes the difficulty of managing administrative issues as part of Alternative 4.

The FSA concludes that the difference in cost between Alternative 4 and Alternative 5 is offset by Alternative 4's "lower implementability, which appears to be related to "the uncertainty in obtaining regulatory concurrence for, and community and owner acceptance of, construction of an on-site disposal cell" as well as "the uncertainty and potential delay in obtaining real estate interests and long-term operation and maintenance requirements for 1,000 years." FSA at 16. As further explanation, in its assessment of implementability, the FSA states that Alternative 4 would face "significant administrative challenges," in part because regulatory approvals would be required. *See* FSA at 10.

To support these conclusions, the FSA notes that, prior to implementation of Alternative 4, a new memorandum of understanding between federal agencies would be required. The fact that some additional time might be required for the executive branch of the federal government to resolve an appropriate division of responsibilities among its various agencies is not a rational basis for concluding that there are implementability issues with a particular remedial alternative. This is particularly so when we are aware of no legal basis that would preclude federal participation in and oversight of Alternative 4. Finally, as with the analysis of Alternatives 2 and 3, the FSA's analysis of long-term operation and maintenance requirements is predicated on the erroneous use of the mandatory 1,000-year longevity requirement as an ARAR. (See Section I.B.3 above).

2. *USACE has failed to recognize that an onsite disposal cell could have a high level of effectiveness.*

The FSA asserts that “Alternative 5 is determined to provide a higher degree of effectiveness [than Alternative 4] because of complete removal of all material.” FSA at 8. This conclusion fails to recognize that an on-site disposal cell can be designed to provide long-term protection for human health and the environment. Notwithstanding the FSA’s references to sampling and analysis costs, sampling should not be a barrier to use of a disposal cell; we understand that such sampling can be carried out in the early stages of the project with minimal impacts on costs and schedules. *See* FSA at 11. On-site disposal cells have been effectively utilized at numerous sites throughout the United States, including at the Hanford, Savannah River, and Fernald Sites. At the Oak Ridge site, federal officials estimated that an on-site disposal facility “could save \$1 billion in on-site versus off-site costs.” John Huotari, New DOE landfill could cost \$1 billion, including construction, operation (February 23, 2015) *available at* <http://oakridgetoday.com/2015/02/13/new-doe-landfill-cost-1-billion-including-construction-operations/>. The FSA fails to explain why an on-site disposal cell is effective at other FUSRAP sites, but would not be at the SLDA.

D. The FSA Mischaracterizes the Risks Associated with Alternative 5 and Overstates Alternative 5’s Short-Term Effectiveness and Implementability.

1. *The FSA underestimates the transportation risk associated with Alternative 5.*

The FSA states that the transportation risk created by Alternatives 4 and 5 are “considered effectively the same.” FSA at 10. Alternative 5 requires the hauling of radioactive material on U.S. roads and railroads while Alternative 4 would avoid the transportation of radioactive waste off-site. The transportation risks of the two alternatives are thus fundamentally different. Alternative 5’s transportation risk exceeds that of Alternative 4 (and, likely, that of Alternatives 2 and 3).

2. *The FSA ranks Alternative 5’s implementability too favorably.*

The FSA has ranked the implementability of Alternative 5 as Medium/High. This rating is unsupported by the record. Alternative 5 is now projected to cost nearly ten times more than prior cost estimates, apparently due to challenges in implementing the remedy as originally planned. Notwithstanding these apparent implementation difficulties, the FSA has given Alternative 5 an implementability rating of Medium/High. This is a more favorable rating than that contained in the original FS and ROD, which ranked the Alternative’s implementability as Medium, while estimating its cost as \$35.5 million. *See* FS at Table 4-5, ROD at 34 (Table 5). Meanwhile, Alternative 1, the No Action Alternative, received a High rating. It is dubious that a complex excavation remedy, involving exhaustive characterization and handling procedures, multiple agency oversight, extensive security precautions, and long-distance transportation of radioactive material, could fairly be considered similar in implementability to the No Action Alternative. It is also unlikely that the implementability of Alternative 5 could fairly be considered to have improved even as its cost and complexity have vastly increased. On the other hand, the implementability challenges associated with Alternative 5 -- including retrieval and

characterization of material, as well as long-distance transportation of radioactive material via public roadways or railroads -- arguably exceed those of Alternative 4, which the FSA rates as Low for implementability.

E. The FSA Has Ignored at Least Two Potentially-Viable Remedial Alternatives.

The NCP provides that “[t]he development and evaluation of alternatives shall reflect the scope and complexity of the remediation action under consideration.” 40 C.F.R. § 300.430(e)(1). Additionally, the NCP states that “[t]he number and type of alternatives to be analyzed shall be determined at each site, taking into account the scope, characteristics, and complexity of the site problem that is being addressed.” *Id.* at § 300.430(e)(2). In light of the substantial changes to the complexity, cost, and approach to Alternative 5, the FSA should have considered other potentially-viable alternatives such as the ones set forth below.

1. *The FSA did not consider combining Alternatives 2 and 3 in a hybrid remedy.*

One potentially viable remedy not evaluated in the FSA is a combination of remedial approaches set forth in Alternatives 2 and 3. This hybrid “Remedy 2.5” approach would consist of long-term monitoring of groundwater and site stability, combined with provisions for installing protective measures on an as-needed basis in the event of potential threats to groundwater. Such a remedy would be as protective of human health and the environment as either Alternative 2 or 3; consistent with ARARs; more implementable than Alternative 3; and more cost-effective than Alternatives 3, 4, or 5.

2. *The FSA did not consider combining Alternatives 4 and 5 in a hybrid remedy.*

Similarly, the FSA does not consider a hybrid remedy that would combine components of Alternative 4 with components of Alternative 5. This hybrid “Remedy 4.5” approach would consist of off-site disposal of higher-level radioactive material, combined with disposal of lower-level radioactive material in an on-site cell. This type of hybrid approach has been used effectively at other FUSRAP sites, including the Fernald, Hanford and Oak Ridge sites. At the Fernald Site in Ohio, where the chosen remedy combines off-site disposal of higher-level radioactive material with on-site containment of lower-level radioactive material, DOE has described the disposal plan as a “balanced approach.” Fernald Performance Management Plan (November 2003) available at http://www.lm.doe.gov/land/sites/oh/fernalld_orig/NewsUpdate/FPMP_PDFs/FPMP_11-03/08%20-%20Strategic%20Initiative%20-%20OSDF%20-%2011-03%20pgs%2017-18.pdf.

II. BOTH THE FSA AND THE RODA FAIL TO PROVIDE CRITICAL INFORMATION NECESSARY TO EVALUATE AND COMMENT ON CERTAIN ASPECTS OF ALTERNATIVE 5.

A. The RODA Appears to Base Remedy Selection on Evidence Not in the Administrative Record.

1. *The administrative record should contain the complete information on which remedy selection has been based.*

CERCLA requires the agency managing a response action to establish an administrative record, which must contain the information it relies on to select a remedy, as well as other materials that influenced or might have influenced the agency. *See* 42 U.S.C. § 9613(k)(1). The agency's selection of a response action must be based on this administrative record, which must be available to the public at or near the facility at issue.² *See id.*; *Cooper Indus., Inc. v. U.S. Evt'l Prot. Agency*, 775 F. Supp. 1027, 1032 (W.D. Mich. 1991).

Likewise, the NCP requires the lead agency to "establish an administrative record that contains the documents that form the basis for the selection of a response action." 40 C.F.R. § 300.800(a). When it selects a remedial action, the responsible agency must document "all facts, analyses of facts, and site-specific policy determinations" considered in the remedy-selection process. *Id.* at § 300.430(f)(5)(i). As noted above, this information must be included in a "record of decision, in a level of detail appropriate to the site situation." *Id.*

2. *The selection of Alternative 5 appears to be based on "new information" that is not part of the public administrative record.*

The FSA and RODA appear to rely on unspecified "new information" in the selection of Alternative 5 as the preferred remedy. The final paragraph of the FSA states, "[u]pon reevaluation of the remedial alternatives identified in the FS Report (DA, 2006a), *when considered in light of the new information gained from the implementation of the selected remedy*, the preferred alternative continues to be Alternative 5." FSA at 16 (emphasis added). Neither the FSA nor the RODA, however, explains what this "new information" is.

At several points, the FSA and RODA appear to suggest that the "new information" driving the changes in the complexity, procedures, magnitude, and cost of Alternative 5 was discovered during the remedial work that USACE began at the site in August 2011. This work was abruptly halted, without explanation, on September 30, 2011. The closest the FSA and RODA come to an explanation of the work stoppage is the RODA's statement that the Corps "encountered materials that were difficult to characterize, which caused an unanticipated and

² In addition to the NCP's requirement of local record availability, the E-Government Act of 2002 requires, to the extent practicable, that agencies make available on a publicly available Federal Government website all documents required to be made available to the public by the advance notice and comment procedures of the Administrative Procedures Act. *See* Pub. L. No. 107-347, § 207(d)(1).

immediate need for fundamental changes to site operations, project work plans, waste disposal options, and site infrastructure.” RODA at 4. Although this statement attributes major changes in the planned remediation to the September 2011 incident, it does not explain what the incident was, why the incident “caused an unanticipated and immediate need” for major changes to the remedy, or what “materials” may have been involved. Neither does it explain *how* the major changes in Alternative 5 set forth in the RODA are rationally related to an encounter with materials that were “difficult to characterize.” Without an understanding of what USACE identified in its prior excavation, it is impossible to offer evidence-based analysis of the selected alternative or to evaluate the consistency of that alternative with CERCLA criteria. *See* 40 C.F.R. § 300.430(e)(9)(iii).

At public information meetings, the Corps has taken the position that information regarding the 2011 incident is confidential, and perhaps classified. If the Corps has based the proposed RODA and FSA on such purportedly confidential information, the RODA and FSA are silent on the issue. Namely, there is no indication that any confidential or classified information is necessary to understand USACE’s remedy selection. Yet, if the Corps seeks to rely on any confidential material, the Corps must follow NCP requirements and procedures. Under the NCP, confidential information on which a remedy is based must be summarized in the administrative record “in such a way as to make it disclosable,” and that confidential information “shall be placed in the confidential portion of the administrative record file.” 40 C.F.R. § 300.810(d). If information cannot be summarized publicly, the NCP requires that such detail be placed in a confidential portion of the administrative record and that the information be listed in the index to the administrative record file. *Id.* There is no such listing, however, of any such documents in the administrative record. Neither is there any evidence of a confidential portion of the administrative record.

Notably, neither the FSA nor the RODA states that any material encountered in 2011 was more hazardous or radioactive than anticipated. Indeed, neither document states that the excavation actually encountered anything unexpected. Instead, the documents merely note that the excavation encountered materials that were “difficult to characterize.” It is unclear from this language whether the reported characterization difficulty arose from the nature of the material encountered or from inadequate characterization procedures. This leaves open the possibility that USACE’s 2011 “discovery” was not a discovery of a new or unexpected type of material in a disposal trench, but was rather a failure of the contractor’s procedures.

Whatever the case, the community, stakeholders and PRPs cannot evaluate USACE’s response to the “new information” obtained in 2011 without knowing what that information was. As it stands, the FSA and RODA have failed to provide sufficient information to support the conclusion that remediating less than the original volume of material will now cost nearly ten times the original project budget and will require major modifications to remedial techniques. This absence of basic information is not consistent with CERCLA or the NCP.

3. *The FSA and RODA appear to rely on evidence regarding geotechnical stability that is not in the administrative record.*

As discussed above, the FSA and RODA rely on assertions about subsidence risk to justify the elimination of Alternatives 2 and 3 at the screening stage. To the extent that USACE

considered any up-to-date evidence in making this determination, that evidence is not contained in the administrative record.

In this regard, the FSA states that “[a] review of available information regarding the abandoned mines and current technology related to mine stabilization was conducted for this FSA.” On the basis of this review, the FSA concluded that “[t]o date, no scientific consensus exists on an accurate method to predict when and where sinkhole subsidence and trough subsidence will occur for a shallow mine with remnant coal pillars.” FSA at 4-5. The FSA’s statement that a review was conducted “for this FSA” and its use of the words “to date” suggest that USACE conducted an analysis recently and relied on new information. But USACE has neither identified this information nor included it in the record. Indeed, apart from the RODA, FSA, and associated materials, the only documents USACE has added to the administrative record since the September 2011 incident are news releases, transcripts from public meetings, a plan for a beryllium-related program, and a set of groundwater and surface water monitoring data.

B. The FSA and RODA Do Not Describe with Specificity the Planned Changes to the Selected Remedy or the Need for Those Changes.

1. *The NCP requires the record to contain information supporting a decision to fundamentally alter a remedy.*

The NCP requires that the agency responsible for a remediation under CERCLA “[p]ropose an amendment to the ROD if the differences in the remedial . . . action . . . fundamentally alter the basic features of the selected remedy with respect to scope, performance, or cost.” 40 C.F.R. § 300.435(c)(2)(ii). In such case, the responsible agency must “make the proposed amendment to the ROD *and information supporting the decision* available for public comment.” *Id.* at § 300.435(c)(2)(ii)(B) (emphasis added). As noted above, the NCP requires that a ROD provide “all facts, analyses of facts, and site-specific policy determinations considered in the course of carrying out activities in this section,” and must document its decision “in a level of detail appropriate to the situation . . .” *Id.* at § 300.430(f)(5)(i).

2. *New excavation methodologies and procedures are set forth in the FSA and RODA in a generic and superficial manner.*

The RODA states that USACE has “devoted the greater part of the last two years [to] considering best methods and practices for the characterization, excavation, and management of trench materials associated with future on-site activities.” RODA at 4. The FSA and RODA do not, however, (a) identify the methods and practices evaluated with any specificity; (b) provide sufficient detail regarding the methods and practices selected as part of Alternative 5; or (c) identify the information relied on in selecting those methods and practices. The FSA and RODA therefore do not contain sufficient information to evaluate whether the characterization, excavation, and management methods and practices that form the basic substance of Alternative 5 are, in fact, appropriate constituents of that alternative.

As an example, Page 12 of the RODA states: “the methodologies and procedures necessary to safely remediate the contamination is [sic] markedly different than the response

initially planned.” But the RODA never explains how these “methodologies and procedures” are “markedly different” or why the methodologies and procedures need to be “markedly different.” Similarly, the draft RODA states that additional efforts are necessary for nuclear criticality safety support, health physics support, and project management, but does not identify what, specifically, those additional efforts are, let alone why they are necessary. In addition, the RODA calls for approximately 18 additional labor discipline teams to execute the remediation, but it does not explain what disciplines are involved or what these teams would be doing, let alone why they are required or how they would contribute to safe and effective implementation of Alternative 5. In light of this lack of specific information, it is not possible to ascertain from the FSA and RODA what *specific* changes to Alternative 5 are, in fact, being proposed and whether those changes are consistent with the NCP.

3. *Certain changes to Alternative 5 appear to be facially unsupported.*

In certain instances, the RODA describes an anticipated change that seems to be of questionable necessity and does not appear to be supported by the administrative record. For example, the RODA notes that the wastewater treatment plant will need to be expanded to four times its original capacity and significantly re-designed, resulting in a fifteen-fold increase in cost. The RODA claims that the original wastewater treatment plant was not cost-effective and had to be re-designed. But neither the FSA nor the RODA explain how the new wastewater treatment plant, *which will be fifteen times more expensive*, will be more cost-effective. Just as importantly, the FSA and RODA fail to explain why wastewater volume is now expected to increase from 50 to 200 gallons per minute -- especially given that the amount of material to be remediated is only 90% of that present at the time of the prior ROD and the pace of the planned remediation is expected to be approximately 50% slower.

Similarly, the RODA states that the number of confirmatory samples to be collected is increasing by a factor of three. Because the RODA does not explain why this increase is necessary, it is impossible to evaluate the appropriateness or cost-effectiveness of the new sampling regimen. Even without supporting information, though, it is difficult to understand how the revised sampling plan could be cost-effective, since the RODA anticipates that the planned tripling of samples will lead to a 2,200% increase in sampling costs.

Oversight and security costs are also unexplained in the FSA and RODA. The documents indicate that this category of costs will account for \$39 million going forward -- only \$5.5 million less than the initial ROD's estimate of total remedial costs. Moreover, this cost category lumps together “all labor, equipment and materials associated with Corps supervision, administration, and construction management during implementation of the remedial action, as well as physical security measures employed at the SLDA, for the duration of the project.” RODA at 10. Given the catchall nature of this cost category, it is not possible to determine the approximate amount projected to be spent on physical site security, let alone what security measures are anticipated, whether such measures are appropriate, and whether more cost-effective alternatives exist.

4. *The FSA and RODA fail to provide information necessary to understand the evaluation of costs and contingencies.*

The RODA states that, in estimating costs, USACE relied on a cost and schedule risk analysis (“CSRA”) to estimate costs and contingencies. The FSA and RODA do not, however, provide the inputs and other parameters utilized during the CSRA. Without this foundational information, it is impossible to evaluate the validity of the CSRA’s conclusions.

A significant figure apparently yielded by the CSRA process is the estimate of a \$122,745,000 contingency. The contingency is the single largest contributor to the overall cost increase, adding a 54% premium on top of non-contingency costs. The contingency estimate alone is more than 300% of the cost estimate in the initial ROD for the entire remediation. Although the RODA provides the ultimate contingency estimate, it provides no substantive explanation of underlying major risk drivers. And it appears that the administrative record does not contain either the CSRA or any underlying risk register identifying anticipated risks and the potential associated mitigation actions and costs. Furthermore, the FSA and RODA contain no discussion of the strategies that might be employed to mitigate risks, and the administrative record does not appear to contain a risk management plan. Without this kind of information, it is unclear whether either USACE’s contingency calculation or its approach to addressing and managing risks are consistent with the NCP and appropriate for this site.

5. *The FSA and RODA fail to explain what techniques will be used to screen for anomalies.*

There are numerous methods of screening radioactive material for anomalies and characterizing, isolating, treating, and disposing of unidentified materials. The costs of dealing with unidentified materials can vary widely depending on the strategies used to manage the material, the degree of conservatism employed, judgments made regarding how much characterization is needed, decisions on whether or how to retrieve an item, and decisions about what further treatment or packaging of an item is required prior to disposal. For example, greater efficiencies can sometimes be achieved by treating unidentified materials as worst-case without extensive, time-consuming, and costly characterization. The FSA and RODA do not provide sufficient information for interested parties to determine the fundamental approach USACE plans to take in response to any unidentified items.

6. *The FSA and RODA provide no evidence that uncertainty regarding trench contents has increased.*

The RODA states that the crucial information gained during 2011 remedial activities “emphasized the uncertainty associated with the reported trench waste materials.” RODA at 4. Despite this assertion, neither the FSA nor the RODA contain evidence that uncertainty has increased. In fact, given that 10 percent of material has been characterized and removed, it seems that uncertainty regarding trench contents might be expected to have decreased.

The 2007 ROD established cleanup goals for eight Radionuclides of Concern: americium-241 (Am-241), plutonium-239 (Pu-239), plutonium-241 (Pu-241), radium-228 (Ra-228), thorium-232 (Th-232), uranium-234 (U-234), uranium-235 (U-235), and uranium-238 (U-

238). The 2007 ROD also recognized the presence of non-radioactive contaminants. In response to a comment asking about “other contaminants (beryllium) buried with the radioactive materials” at the site, USACE stated that “[t]he Corps is aware of these contaminants and will ensure the safe handling of all materials at the site during cleanup activities.” ROD App’x A at 16. Therefore, neither the presence of radionuclides for which cleanup goals were set in 2007 nor the “documented presence of beryllium wastes” -- noted in the RODA -- should be the basis for an increase in uncertainty. RODA at 8. To the extent that there is any basis for concluding that uncertainty has increased, the FSA and RODA should explain what that basis is. Moreover, if increased uncertainty is accounting for significant cost increases, the FSA should have considered whether additional pre-mobilization sampling could reduce uncertainty. Such sampling also could provide information that would allow USACE to plan future excavation procedures more effectively.

7. *The RODA delays development of elevated measurement criteria until after remedy selection is complete.*

The NCP requires the responsible agency, when it selects a remedy, to establish final remediation goals, which “shall establish acceptable exposure levels that are protective of human health and the environment” 40 C.F.R. § 300.430(e)(i). However, the RODA states that elevated measurement criteria, referred to as DCGL_{emcS}, “will be developed to ensure no localized areas of elevated radioactivity will remain that could potentially produce an unacceptable risk.” RODA at 3. The RODA states that DCGL_{emcS} “will be presented in the FSSP.” In light of this delayed determination of DCGL_{emcS}, it is difficult to evaluate the protectiveness or the cost-effectiveness of the selected remedy, since the DCGL_{emcS} will in part determine the extent of required cleanup activity.

CONCLUSION

The current FSA and RODA fall short of the requirements of CERCLA and the National Contingency Plan. The FSA and RODA should be revised and reissued after a thorough and substantive evaluation of remedial alternatives consistent with CERCLA and the NCP has been conducted. The fundamental changes in Alternative 5 require a re-examination not only of the means and methods of implementing Alternative 5 but also of whether Alternative 5 should remain the selected alternative under the nine criteria for remedy selection set forth in the NCP. And that broader re-evaluation requires a more methodical and comprehensive examination of remedial options than is contained in either the FSA or the RODA. The FSA and RODA are insufficient -- both legally and practically -- for a remediation of any scale, but fall particularly short of the mark here, where the remedy may turn out to be one of the larger remedies undertaken pursuant to FUSRAP.