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Specific Comments on PEA for Potentially Reusable Uranium Materials (EA-1393)

This memorandum is a continuation of the letter I sent you on May 29, 2002 that contained my General Comments on the above PEA. This letter provides my Specific Comments on the PEA. I hope you will accept these comments even though the comment period closed several days ago.

Specific Comments

- P2-1, 1st Paragraph. Broaden this paragraph to cover UO_3 and state why UF_6 is not included. This sets the stage for the NEPA document.
- Table 2.1 on P 2-2 should be expanded to include other uranium materials stored for reuse or disposition.
- P 2-3 states most of the uranium is in the form of uranium metal. Where is this covered in the EA? How much of the 14,200 MTU is metal. EA should provide a table that provides the breakdown of the inventory into it associated form.
- In the fourth paragraph on P 2-3 the SRS inventory is described as contained in wooden boxes, cardboard boxes for metal and drums for LEU Oxide. I was never able to determine if the EA contained environmental consequences from repackaging of that inventory. Later the EA discusses storage of drums and steel boxes.
- Figure 2.1 shows example storage of metal boxes and drum storage. This figure is unclear in the printed version of the EA. It is basically a black photo with a large white box in the center. When I looked at the electronic version, it was legible. Should be legible in all forms of the EA. The title of the figure should specify the multi-stack storage being discussed when the figure was called out.
- The No Action alternative described in Section 2.2 on P 2-9 should provide clarify the small site storage. How many sites are assumed to store this uranium and for how long? The last sentence says the uranium would not be dispositioned. In my mind this means very long term consequences and none were discussed in the EA.
- As already pointed out the scope of the EA needs be expanded to discuss the other uranium being stored and discusses in fifth paragraph on P 2-9.

- The last paragraph on P 2-9 says the analysis associated with the action alternatives discusses the bounding assumption associated with disposition. There is very little additional information in the EA on the bounding assumptions.
- P 2-10 in Section 2.3.2 says that DOE has not selected a commercial site for uranium consolidation in this alternative but for analysis purposes, a western and an eastern site were selected for the transportation analysis. Does the selection of Utah and South Carolina maximize transportation consequences? The justification for this selection should be given a few more sentences of description to convince the reader that this assumption is reasonable.
- The alternative for interim partially consolidated storage by physical form described on P 2-11 in paragraph 2.3.6 calls for SRS to be the metal storage site. I could find no information to support metal storage at SRS. In my technical judgment, metal storage has much larger consequence that does storage of oxides. As I indicated in my earlier letter, metal has a unique hazard, not analyses in this EA, of metal fire potential which is exaggerated in long time storage.
- Paragraph 2.4 discusses DOE's belief that uranium storage is a government asset. Two sentences later it says DOE might declare other inventory a waste. This seems to be a two-forked statement. This paragraph should be rewritten to eliminate this apparently inconsistency. I would really like to know what it is saying. What makes some uranium a national asset and other uranium a waste product?
- Section 3 discusses the affected environment at Portsmouth, Paducah, Y-12, K-25 (both in Oak Ridge), and Savannah River Site. There is no mention of the other sites that currently store some of the uranium or those planned as alternatives for possible storing and managing uranium within this EA. These sites should be discussed in this section, but probably not in the detail of the five major sites.
- The Method's section (P 4-1 in Section 4.1) says that 14 people are required for managing the uranium inventory. This seems like a low staffing level to manage 243,000 square foot of storage space with ~71,900 containers in storage. I could find no further information on what these personnel were assumed to do. If this uranium is a true national asset, it probably has the lowest surveillance staff of any of our national treasurers. The uranium management staffing should be reexamined.
- In the fourth paragraph of Section 4.1, I find the statement "worst case assumptions ..... are employed". As I have said, I do not think this statement is correct. One such statement is that 14 people can manage this uranium. I will point out other assumptions I do not think appropriate as I proceed with these comments.
- The EA should analyze and present sabotage scenarios. These might range from theft of uranium (remember it is a national asset) for its value to those that would blow it up to disperse the radionuclides and cause bad publicity. Those 14 people would not be able to prevent either.
- The third paragraph on P 4-2 lists K_d units as L/kg. Please correct the units on this term.
- P 4-6 Table 4-3 lists PORT upgrade cost as $8.4M and the second paragraph says it is considered to be $10.9M. Please correct all tables listing the earlier value. The other values in the table for PORT should also be corrected.

- P 4-6. It is obvious that DOE from major sites other than PORTS and also at the minor site have not been consulted on this EA. I make this judgment based upon the many tables in this section have say space availability is unknown. This lack of communication with other DOE site personnel should be eliminated and the same level of knowledge applied for each site. The lead statement in the third paragraph on this page confirms the lack of communication.
- Table 4.5 (P 4-7), Table 4.7 and Appendix B need units added for the two columns giving transportation fatalities. Are these fatalities per year or per activity?
- Section 4.7 on P 4-17 is a very weak analysis for disposition. As I indicated earlier in this set of comments and in my General Comments, the section talks about bounding conditions and impacts then makes an arbitrary statement that all they did was double the impacts of storage. If these are bounding, please explain how you know since no analysis was performed.
- Third bullet on P 4-19 gives the $8.4M that was later changed to $10.5M. (See P4-6 comment.)
- Combine the fourth and fifth bullets on P 4-19. They seem to be saying the same thing.
- Expand the sixth bullet. It is not clear where the judgment came from. It says that commercial sites are less efficient than DOE sites. I continually hear from DOE that they want to do things using commercial approaches since it is more efficient than the DOE system. At best what does this add?
- Section A.2 describes overpacking all containers prior to shipping. Where are the environmental impacts of this action included in the EA. If they are not included, why not?
- The last sentence on P A-2 says worker dose commitment from surveillance and maintenance of this uranium is expected to be less than detectable. I doubt this is a correct statement. The top paragraph on P A-4 goes on to describe the expected radiation dose from containers. These doses were detectable. The last sentence of this top paragraph goes on to make an unsupported conclusion. It says "these dose rates are considered negligible to any receptor". What about doses to workers who purified this uranium and developed illnesses that DOE (or the government) is now paying for?
- Second paragraph in Section A.3.1 on P A-4 uses a slang approach (1E-6) with no description of what is meant by that notation. Use the proper scientific notation then describe what it means.
- As I read Section A.3.1.1 on P A-5 particularly the last couple of sentences, I do not know what conclusion you are trying to make.
- Section A.3.1.2 on PA-6 describes a single container breach as being a bounding accident. This same event could breach multiple containers on adjacent pallets. Why then is a single breach bounding?
- The next to last sentence in Section A.3.1.2 says that container breach is insignificant compares with a fire. Multiple drum ruptures are speculated above. The logic that shows fire is more significant than rupture should be clearly made or both analysis given.
- The basis for the frequencies given in Table A.7 should be given.

- How can the frequencies for tornadoes at all sites be the same as shown on Table A.7? I likewise have the same comment for earthquakes.
- P A-7. Describe your judgment of how long seismically damaged facilities will be left in the damaged condition while personnel repair other higher risk damaged facilities. This duration of exposure to the elements should be included in the analysis for these facilities.
- P A-7 second paragraph references reinforced concrete and structural steel debris as fire mitigation. All storage facilities will not be constructed of concrete thus the concrete and steel should not be relied upon as a fire mitigator. It is unclear from the text of that paragraph how much reliance is afforded by this building material.
- The second paragraph on page A-8 seems to use the MAR yet MAR is not given on Table A.8.
- The DR's in Table A.8 seem to be totally subjective. Support for the values used should be provided in this appendix.
- The ARF x RF values given in Table A.8 should be referenced.
- Add a section describing storage facilities (similar to that given in Section 2 of the EA) to this appendix on page A-9 to support the analysis given in Section A.3.3.2.
- U metal is pyrophoric and when ignited, I would expect that all of the metal would be at risk. U fires are not easily extinguished.
- The source terms discussed in the second paragraph are very subjective. Add information so your reader will understand why the values were picked. References, showing why values were picked, are always beneficial.
- The frequency of facility fires is stated to be unlikely. Be more quantitative. Is this one chance in 10 years or a frequency of 0.1/year. My judgment says it is a frequency of 10^{-4} to 10^{-6} is unlikely. DOE experience of fires is probably in the range of 10^{-2} to 10^{-3} and with the number of facilities described in this EA fires can be expected to occur during the time interval for this uranium storage.
- In section A.3.3.3 include the long-term consequences as well as short term consequences. Material lost from containment during a seismic event will probably remain in an exposed condition (to the environment) for weeks and some of it will be transported to surface streams before the low priority uranium cleanup can be accomplished.
- Identify the basis for the 10% and 15% of drums forcasted to be dislodged from the storage array in the first bullet on P A-9.
- The third bullet identifies 25% of the material spilled. What is the basis for value? If spilled what is assumed on cleanup and when.
- Again metal fires should be considered in a seismic event consequences.
- The second line on P A-10 uses the term conditional probability to reduce the risk from seismic event by a factor of 10. What is the basis for this factor of ten reduction. The arbietariness of all of these values leaves the EA reader questioning the analysis. Try to support conclusions and not make them so arbitrary.
- Near the middle of P A-10, duration of 1 hour is assumed for airborne release. The longer-term aspects of resuspension of released material should be included for the time the material has not been cleaned up.

- The third bullet, on P A-13, assumes the facility workers will be exposed for 10 seconds. This seems very short for workers who are trying to mitigate consequences or to a worker who is hurt from a seismic event and cannot escape.
- The conclusions given in Tables A.11 and A.12 that facility workers will receive negligible dose and maximum consequence seems inconsistent with co-located workers and the public receiving doses. Calculated values should be given in the Appendix so reviewers can make their own judgment as to its significance.
- Appendix C is very difficult to understand. It is full of technical terms and it is not written so it can be understood by a technically trained stakeholder and I do not think it is of any value to a decision maker or to the general public.
- On P C-2, in Section C.2.1.1, need to say why Stability Category F was assumed.
- In section C.2.2.2, why was the assumption made that uranium was deposited in a pond with an average depth of 2 meters. It would seem to me to be worse to deposit it in surface creeks that allow easy access to animals and other ecological system varmints.
- Section C.3, on P C-9, makes the judgment that residential exposure is considered implausible under current site conditions. It is unclear that this is a reasonable judgment. Obviously if one can limit exposure, the consequence of this EA are negligible. This condition should be proven by reasonable analysis not assumed away.
- The table set up of the summary tables (Table C.20 and C.21 is poor. I presume that the last three columns are Radiation Exposure. Likewise three columns are Chemical Exposure. Fix the tables so this differentiation is clear. Add units to the table.
- My conclusion is that calculated data should be given in tables in the appendix so the reader can see the results of calculations. Information in the Appendix should not be decided to be low or negligible. That conversion is not appropriate here nor in Section 4 until the analysis is being summarizing. (This EA did not summarize the analysis in Section 4 nor did it have a Summary.

If you would like to discuss any of these comments, please call me on (803) 642-7297

Sincerely

W. Lee Poe, Jr.