



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
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MAY 30 2013

REPLY TO THE ATTENTION OF:

E-19J

Mary T. Adams
Conversion, Deconversion, and MOX Branch
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Draft Environmental Assessment for the Proposed Decommissioning Plan for Ponds B, C, D, and E at the Honeywell Metropolis Works, Metropolis, Illinois

Dear Ms. Adams:

The U.S. Environmental Protection Agency (U.S. EPA) has reviewed the draft Environmental Assessment (EA) for the above mentioned project prepared by the Nuclear Regulatory Commission (NRC). Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 C.F.R. § 1500-1508), and Section 309 of the Clean Air Act.

Honeywell Corporation (the applicant) operates the Honeywell Metropolis Works (MTW) facility in Metropolis, Illinois, adjacent to the Ohio River. The facility converts enriched uranium to uranium hexafluoride to be used in the fuel cycle for energy generation at nuclear power facilities. As a result of the process, a waste that consisted of calcium fluoride (CaF_2) and other components was discharged to five surface impoundments at the MTW facility. The waste discharged to the surface impoundments was determined to be Resource Conservation and Recovery Act (RCRA) hazardous waste because it exhibited the characteristic of corrosivity at the time of placement. Therefore, the surface impoundments are regulated under RCRA. The facility previously removed the contents of one of the surface impoundments, Pond A, for disposal at an licensed off-site facility consistent with the requirements of its RCRA permit and the conditions of a waiver U.S. EPA issued in 1987 from certain RCRA design requirements.

The applicant is seeking a partial site release and license termination for the remaining four surface impoundments: Ponds B, C, D, and E. The proposed federal action is to amend the applicant's decommissioning plan, authorizing it to perform the necessary decommissioning activities. The applicant proposes to close the ponds by stabilizing the contents and constructing

an engineered cover that meets RCRA Subtitle C cover design criteria and NRC dose criteria for future unrestricted use. Alternatives include the following:

1. No Action;
2. Removal and disposal of the pond contents at a licensed facility, followed by closure of Ponds B through E (removal alternative);
3. Removal and recycling of the pond contents at a licensed facility, followed by closure of Ponds B through E;
4. In-situ closure of Ponds B through E leaving contents in the current condition; and
5. In-situ stabilization followed by closure of Ponds B through E (preferred alternative or in-situ stabilization alternative).

Only Alternatives 2 and 5 were analyzed in the draft EA.

RCRA imposes additional design criteria. In 1987, U.S. EPA issued the facility a waiver from a liner and contiguous drainage layer required by RCRA (the 1987 Waiver). The 1987 Waiver requires the pond materials to be removed by 2020. These conditions were also imposed in the facility's RCRA permit issued by Illinois Environmental Protection Agency (IEPA). If Alternative 1, 4, or 5 is selected by NRC and the applicant, it will require a change to both the IEPA permit and the 1987 Waiver, which provides relief from the RCRA liner requirements.

U.S. EPA appreciates the extension to the draft EA comment period granted by NRC. During the comment period, we initiated additional analysis of the modeling presented in the draft EA, which was not complete by the close of the comment period. Therefore, the enclosed comments do not reflect our full review of the document. U.S. EPA reserves the right to provide additional comments at a later date and under separate processes.

U.S. EPA strongly encourages NRC not to issue a finding of no significant impact (FONSI) until the remaining issues are resolved. U.S. EPA believes a FONSI based on the provided draft EA is not appropriate at this time. Regulations at 40 C.F.R. § 1508.27 identify factors to consider in evaluating the significance of a project in terms of context and intensity. Moreover, because of the potential for significant impacts to public health and the environment and the degree to which effects on the quality of the human environment are likely to be highly controversial, U.S. EPA believes that NRC should consider preparation of an Environmental Impact Statement to inform its decommissioning decision.

Enclosed are detailed comments on the provided draft EA and reference material. Thank you in advance for your consideration of our comments. Please send us a copy of the further NEPA documentation once they become available.

We note that NRC's proposed decision is premature. NRC should defer to IEPA and U.S. EPA until decisions are made on any modifications to the RCRA permit and the 1987 Waiver. Without such decisions, an analysis of the range of alternatives and environmental impacts in a

NEPA document cannot be appropriately reviewed by resource agencies and used to make informed decisions.

If you have any questions, feel free to contact me or Elizabeth Poole of my staff at 312-353-2087 or poole.elizabeth@epa.gov.

Sincerely,



Kenneth A. Westlake
Chief, NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure (1): Detailed Comments

cc: Kelly Horn, Illinois Emergency Management Agency
Kelly Huser, Illinois Environmental Protection Agency

**U.S. EPA's Detailed Comments on the Draft Environmental Assessment for the Closure of
Ponds B through E, Honeywell Metropolis Works Site, Metropolis, Illinois
May 2013**

Purpose and Need

The draft EA indicates that the purpose of the document is to assess “non-radiological environmental impacts of the proposed licensing amendment.” The draft EA does not clarify how this is accomplished when the purpose of the proposed action by the NRC is limited to the applicant’s decommissioning plan, which has the sole intent of meeting the “radiological criteria for license determination.” Given the decommissioning plan’s intent, it is unclear whether non-radiological environmental impacts were considered in determining which action is the environmentally preferred action.

Recommendation: The final EA should explain how non-radiological environmental impacts were considered when the purpose of the decommissioning plan is to meet radiological criteria.

Alternatives

U.S. EPA is concerned that additional alternatives were not included in the range of alternatives. As mentioned to the applicant on January 31, 2013, U.S. EPA believes another alternative is ex-situ stabilization followed by on-site disposal in a properly designed, newly permitted landfill. However, this alternative should only be considered if the pond materials are determined not to be source material (see discussion under *Radiation*). This alternative was not considered among the range of alternatives, nor was it mentioned as an alternative removed from further consideration.

Recommendation: U.S. EPA encourages the applicant and NRC to consider ex-situ stabilization followed by on-site disposal in a properly designed, newly permitted landfill as an alternative if, and only if, the pond materials are determined not to be source material. NRC should include an analysis of this alternative in the final EA. If this alternative was previously considered and dismissed, the final EA should indicate why.

The draft EA includes a list of regulations¹ under which the proposed action is regulated. The list needs to include statutory requirements, such as RCRA Section 3004(o)(1)(A), 42 U.S.C. § 6924(o)(1)(A), and identify the U.S. EPA 1987 RCRA Section 3005(j)(4) waiver (the 1987 Waiver) as also imposing requirements.

Recommendation: The final EA should specifically mention the 1987 Waiver and its requirements and other statutory requirements. This section should also be updated to include which parts of the 1987 Waiver the applicant is seeking to alter.

¹ Draft EA page 8

The draft EA does not include a clear argument as to why Alternative 2 is not the environmentally preferred alternative. The conclusion to dismiss this alternative appears to be based on economic reasons, rather than environmental impacts.

Recommendations: The final EA should provide additional details and justification on why Alternative 2, removal and disposal at a licensed facility was dismissed.

The draft EA includes general language regarding performance measures and controls required by IEPA as part of the closure of the ponds. Reliance on these measures is speculative, given that IEPA has yet to issue a decision. Therefore, NRC and the applicant should not presume which measures will be incorporated into the project, nor imply in the draft EA that they are foregone conclusions. Further, U.S. EPA notes that the 1987 Waiver of the RCRA-required liner and contiguous drainage layer expires in 2020. The 1987 Waiver, which requires removal of pond contents, has not been changed to date.

Recommendation: U.S. EPA recommends language clarifying the requirements waived, listing the current conditions of the 1987 Waiver and the RCRA permit, and the requested changes. The final EA should note that no changes to the permit or the 1987 Waiver have been approved by IEPA or U.S. EPA.

U.S. EPA notes the proposed action is to “close the retention ponds by stabilizing the contents of the ponds and constructing an engineered cover system that meets RCRA Title C design criteria and NRC dose criteria for unrestricted release.”² The draft EA does not reference minimum technological requirements for liners and leachate collection systems required by RCRA Section 3004(o)(1)(A) and its implementing regulations and suggests that the proposed option will meet RCRA cover system and closure requirements. As discussed above, the 1987 Waiver and the IEPA RCRA permit require removal of the contents as part of RCRA closure. The ponds would not meet RCRA design standards, since they are currently missing an additional liner and a contiguous leachate drainage layer underneath the ponds waived in the 1987 Waiver. U.S. EPA finds the discussion of the engineered cover system misleading, as currently written. Further, the discussion on page 4 references “RCRA Title C,” rather than the correct “RCRA Subtitle C.”

Recommendations: The discussion on page 4 should be narrowed to reflect that MTW proposes to stabilize some of the contents in place and put a cap on the ponds, which will continue to require a relief from the liner requirements of RCRA, the 1987 Waiver, and the RCRA permit. The final EA should also clarify that the proposed action would not meet current design standards of RCRA Subtitle C. Finally, the statement on page 4 should be amended to reflect the correct “Subtitle C”, rather than “Title C”.

The draft EA does not indicate that Alternative 1 (*No Action*), Alternative 4 (*In-Situ Closure of Ponds B through E leaving the contents in the current condition*), and Alternative 5 (*In-situ*

² Draft EA, page 4

stabilization followed by closure of Ponds B through E) would all require modifications to the U.S. EPA 1987 Waiver and the IEPA RCRA permit.

Recommendation: The final EA should reflect that Alternatives 1, 4, and 5 would all require changes to the RCRA liner requirements, the 1987 Waiver, and the RCRA permit.

Hazardous Waste

U.S. EPA disagrees with NRC's conclusion that the pond contents are no longer characteristically hazardous. Neither IEPA nor U.S. EPA has determined that the waste in the RCRA permitted surface impoundments is not hazardous waste. U.S. EPA has reviewed IEPA's letter date May 16, 2013. We agree with IEPA's conclusions regarding the current status of the hazardous waste classification. U.S. EPA finds the information pertaining to the hazardous waste classification in the draft EA or referenced documents, detailed below, to be misleading. The final EA should be updated to reflect each of the following issues.

- The waste, when placed in the units, was characterized as hazardous waste due to its characteristic of corrosivity, which carries the hazardous waste code of D002 and remains regulated under RCRA. Because the surface impoundments remain RCRA permitted surface impoundments, the ponds contents continue to be regulated as hazardous waste. Further, they must undergo RCRA closure and post-closure, if applicable, pursuant to 40 C.F.R. Part 264 Subpart K (see discussion under *Pond Closure and Post-Closure*).
- The Pond Characterization Report claims that because pond samples comprise less than 20% free liquids they therefore cannot be considered "aqueous." Nevertheless, Honeywell reported measured pH for the pond samples and over half of all pond samples exhibited pH measurements greater than the RCRA standard for corrosivity of 12.5 pH.

Pond D continues to be used as a polishing pond for wastewater treatment; it is unclear how solids from this pond, containing water, could be less than 20% free liquids. Pond D and the other remaining ponds are subject to rainfall infiltration; it is unclear how they could be considered non-aqueous with water mixing with the contents at every rain event. Lastly, leachate collected from leaks through the synthetic liner in the ponds routinely exhibits a pH of greater than 12.5. Because, among other things, the contents of the ponds can be measured for pH, are higher than 12.5, are routinely mixed with or exposed to water, and cause leachate to have a pH higher than 12.5, U.S EPA cannot support a finding that the pond residues are not hazardous waste.

- The draft EA indicates the contents of the pond are both too moist to contribute to dust emissions³ and too dry to qualify as a RCRA corrosive material⁴.

³ Draft EA page 34

Recommendations: The final EA should be amended to reflect that the ponds contents are indeed characteristic hazardous waste and that neither IEPA nor U.S. EPA has made a determination that the pond contents are no longer hazardous waste. The final EA should reflect that RCRA permit requirements are still in place. If any modeling or analysis considered the pond contents to not be hazardous waste, these studies should be updated. Findings in the draft EA that suggest that the pond contents are no longer hazardous waste should be deleted.

Pond Closure and Post-Closure

The draft EA does not specify whether the existing leachate collection system will remain in place after the ponds have been capped. U.S. EPA remains concerned about: 1) side-gradient infiltration of precipitation into the leachate collection system, and 2) pond content solids leaking through the synthetic liner to the leachate collect system. The draft EA does not specify whether leaks of pond content material will be recovered by continued operation of the leachate collection system. Further, the draft EA states that the National Pollution Discharge Elimination System (NPDES) outfall will be closed. If leachate will continue to be collected, the draft EA is unclear what will be done with the leachate, given that the outfall is closed.

Recommendation: The final EA should address whether the leachate collection system will continue to operate, particularly if side-gradient infiltration and liner leaks remain concerns. The final EA should also consider what will be done with any leachate, if the collection system continues to operate, given that the NPDES outfall will be closed.

The phrase “act as an effective frost barrier⁵” is unsupported by the draft EA, which contains no specific information about the actual thresholds of the cover regarding temperature changes.

Recommendation: We recommend more information is provided about the strength of the proposed cap, given the increase range and frequency of temperature changes, particularly under climate change scenarios.

U.S. EPA is concerned with the use of deed restrictions and associated land use restrictions as means of institutional controls of the closed pond area. The draft EA relies on deed restrictions as a method to both satisfy the RCRA permit controls and the definition of an unrestricted area under NRC’s license termination (see below discussion). Institutional controls, such as deed restrictions, may not suffice and may not be enforceable in perpetuity.

Recommendation: The final EA should detail additional, appropriate institutional controls and other measures that are protective of human health and the environment from both the radiological and hazardous waste components of the pond contents and satisfy the requirements of RCRA and permits under Alternative 5.

⁴ Pond Characterization Report, Section 3.5, page 10

⁵ Draft EA page 6

The RCRA permit and the 1987 Waiver require RCRA closure that removes the contents of the Ponds. Additional closure and post-closure requirements are found in 35 Ill. Admin. Code §§ 724.217 - 724.220 and 40 C.F.R. § 264.228(b). If waste residues or contaminated materials are left in place at final closure, the owner or operator may have to comply with post-closure requirements contained in 35 Ill. Admin. Code §§ 724.217 - 724.220 [40 C.F.R. §§ 264.117 - 264.120], including maintenance and monitoring through the post-closure care period. The applicant proposes to leave one-foot layer of untreated, characteristically hazardous waste at the bottom of the liner. The applicant proposes “minimal or no maintenance⁶.” Therefore, it appears that the proposed project is not consistent with the RCRA post-closure care requirements

Recommendations: The final EA should clarify how the applicant will comply with closure and post-closure requirements, given that untreated pond contents will stay in place, with minimal or no maintenance.

Radiation

U.S. EPA has reviewed the sampling data provided in the Pond Characterization Report⁷. A total uranium (U) analytical summary in milligrams per kilogram (mg/kg) is presented in Tables B-1 through E-1 of the Pond Characterization Report and isotope (uranium-238 or U-238) analytical summaries in picocuries per gram (pCi/g) are presented in Table B-3 through E-3 of the Pond Characterization Report. A summary and comparison of this information is presented in the following table (Table 1).

Table 1- Uranium Mass Values from Tables B-1 through E-1, and Tables B-3 through E-3

Pond	Total Uranium ⁸ Analytical Summary (All Samples) from Tables B-1 through E-1		Isotope analytical summaries from Tables B-3 through E-3			
	U mg/kg, average (transformed from Ln)	U mg/kg, Range of Core Weighted Averages, (X _i A _i)	Isotopic uranium values from Tables B-3 through E-3	U-238 mean (pCi/g)	U-238 range (pCi/g)	Uranium mass values calculated using 1pCi/g = 2.97 mg/kg for U-238 ⁹
			U-238 mean (pCi/g)	U-238 range (pCi/g)	U-238 mean (mg/kg)	U-238 range (mg/kg)
B	240	37.7 to 1950	119	41.1 to 257	353	122 to 763
C	287	117 to 4647	272	120 to 745	808	356 to 2213
D	245	37.9 to 2990	1289	1.2 to 13700	3828	3.6 to 40689
E	203	66 to 989	275	51.9 to 1930	817	154 to 5732

⁶ Draft EA page 5

⁷ Appendix T (Pond Characterization Report) of the License Amendment Request

⁸ “Total Uranium” is mostly comprised of uranium-238 by mass (>99%), whether the uranium form is natural or depleted.

⁹ The ppm (mg/kg) equivalent to 1 pCi/g of U-238 is 2.97. One can therefore multiply U-238 isotopic results (in pCi/g) by 2.97 to get its equivalent total uranium mass value (in mg/kg or ppm).

There are differences in uranium results when comparing the Tables B-3 through E-3 data to the Tables B-1 through E-1 data. For example, regarding Pond D, the total U average from Table D-1 is 245 mg/kg, but the calculated mean U-238 mass value is a higher 3828 mg/kg. The draft EA or reference documents do not acknowledge or clarify these differences. The Pond Characterization Report provides no discussion of the results presented in Tables B-3 through E-3, and this uranium data seems to have been ignored. In Section 5 (*Conclusions*) of the License Amendment Request (LAR), there is no discussion of the radiological classification of pond material.

Based on the data presented in Tables B-3 through E-3, the majority of the uranium in Ponds B through E should be regarded as source material¹⁰ since it has an average mass greater than 500 mg/kg, or a U-238 activity greater than 166 pCi/g. Since it appears that the pond materials are source material as defined by Section 11(z) of the Atomic Energy Act, if treated as waste it would fall under the definition of Class A low-level radioactive waste under 10 C.F.R. § 61.55(a). If the pond materials are determined to be Class A low-level radioactive waste, then the pond contents could potentially be regarded as *Low-Level Mixed Waste*, a waste that contains both low-level radioactive waste and RCRA hazardous waste¹¹.

Further, in a March 3, 2005 letter from the NRC to the Regional Association of Concerned Environmentalists regarding NRC's *Response to Questions Concerning Calcium Fluoride Transportation to the Cotter Uranium Mill from the Honeywell Uranium Conversion Facility* (ADAMS Accession number ML0506302112), the NRC stated, "the CaF₂ is not mixed waste, when shipped to Cotter; it is considered source material."

Finally, U.S. EPA has reviewed Illinois Emergency Management Agency (IEMA)'s comment letter on the draft EA dated May 10, 2013. We agree with their discussion on classification of the pond contents as source material that requires disposal as low-level radioactive waste. Since the residual uranium in the ponds is considered source material, it would be subject to licensure under 32 Illinois Administrative Code 340, Appendix A (c)(2).

Recommendation: U.S. EPA encourages NRC to explain its determination that the pond contents are neither source material, nor low-level radioactive waste. U.S. EPA contends that the materials are in fact source material and should be handled accordingly. The final EA should clarify how the method of uranium analysis was selected and applied for determining radiological classification of the pond content.

The draft EA states, "the intent of the decommissioning plan is to meet the radiological criteria for license termination in 10 C.F.R. § 20.1402, radiological criteria for unrestricted use." The definition of an "unrestricted area" in 10 C.F.R. § 20.1003 is "an area, access to which is neither

¹⁰ NRC website on Source Material (<http://www.nrc.gov/materials/srcmaterial.html>)

¹¹ EPA Final Rule: Storage, Treatment, Transportation, and Disposal of Mixed Waste, May 16, 2001 (<http://www.epa.gov/fedrgstr/EPA-WASTE/2001/May/Day-16/fl1408.pdf>)

limited nor controlled by the licensee.” Because surface impoundments will be left in perpetuity, restricting future use options, the draft EA is unclear how NRC determined that the site meets the criteria for unrestricted use. In order to truly meet the criteria for unrestricted use, a more appropriate course of action would be to remove the CaF₂ materials from the ponds for off-site disposal, similar to what was done for Pond A.

Recommendation: U.S. EPA recommends that if NRC finds the pond contents not to be source material and if radiologically-contaminated CaF₂ materials are to remain on-site with an IEPA deed restriction, then license termination under 10 C.F.R. § 20.1403, *Criteria for license termination under restricted conditions*, would be more appropriate. Restricted conditions would include additional controls, including financial assurance and maintenance for license termination. If license termination was considered under restricted use per 10 C.F.R. § 20.1403, the final EA should include why it was not deemed the appropriate route. The final EA should provide more details on why unrestricted use was considered the appropriate mechanism for decommissioning and license termination.

The criteria for license termination include the expectation that an attempt has been made to keep residual radioactivity to levels that are as low as reasonable achievable (ALARA). The proposed action does not accomplish this: instead of reducing residual radioactivity, it leaves behind nearly six acres of radioactively-contaminated CaF₂ waste and covers it with a cap, adjacent to the Ohio River, in the New Madrid Fault Zone, and near a populated city. Under the preferred alternative scenario, a future person could enter the site and use the waste materials for any purpose without awareness of radiological contamination.

Recommendations: The final EA should detail how the on-site disposal alternatives incorporate the principle of ALARA. We also recommend the final EA detail how off-site disposal would not meet the ALARA principle.

Selection of the critical group is discussed in the LAR. An industrial worker scenario was selected as the critical group based on historical and future projected use. The reasonable foreseeable future was defined as the next few decades and reasonably foreseeable land use is industrial. The resident farmer scenario was determined not to be likely, assuming there will be institutional controls on the property via the RCRA permit (see discussion above under *Pond Closure and Post-Closure*). Further, stabilized CaF₂ would not support plant growth and the area will be monitored to prohibit woody vegetation from establishing on the capped ponds. However, institutional controls might not suffice or be protective or enforceable in perpetuity. The draft EA is unclear how long the applicant expects to operate the facility and whether they would remain the owner of the property past operation. Once the applicant no longer owns the land, under an unrestricted use scenario, the draft EA is unclear whether the land could be purchased for other uses, such as residential, if a developer had interest in redeveloping the site.

Ultimately, after decommissioning and license termination, the area will be a de facto restricted area, since Alternative 5 would restrict any alternative future use of the site other than industrial.

Recommendations: The final EA should address how long the applicant plans to operate the facility and whether they would ensure institutional controls are adequate, protective, and enforceable in perpetuity. Per NUREG-1757¹², the analysis should evaluate exposure to those who work and live near the facility over 1000 years. The analysis of residual radiation exposure to the industrial worker should be limited to how long the applicant plans to operate; for the balance of the time period, the residential farmer and resident scenarios should be evaluated under conditions where the cap is built upon, partially and totally removed, and has otherwise had its protective features compromised.

Groundwater

The draft EA does not consider the reduction in the risk of groundwater contamination if contents of the pond were removed under removal Alternatives 2 and 3. Alternative 5 considers risks of contamination from overland flow and infiltration, which would be reduced with an engineered RCRA cap. The analysis assumes that a concrete cap will reduce groundwater contamination because no water will infiltrate into the surface impoundment. However, because the bottom of the surface impoundments will not meet all minimum technological requirements, the risk for groundwater contaminant remains from both the contents currently in the surface impoundments and side-gradient infiltration. In addition, the stabilization process may adversely impact the liner and leachate collection components currently in place. The risk of groundwater contamination remains with in-situ closure or stabilization. U.S. EPA finds the potential impacts to groundwater under the proposed alternative cannot be analyzed at this time. Therefore, NRC should not conclude that the impacts to groundwater would be SMALL¹³ under the preferred alternative.

Recommendation: U.S. EPA recommends the final EA include the increased risk for groundwater contamination under Alternative 5, in-situ stabilization. The analysis should reflect that the cap alone does not reduce potential impacts to groundwater, since no additional liners would in place, and should consider the potential impact of the stabilization design on the liner system and groundwater.

Geology and Soils

MTW is located near the New Madrid Fault System. This system has experienced high frequency seismic events, such as in 1811-12, where several events registered as high as 8 on the Richter scale. The draft EA states that physical property tests show that pond contents without stabilization may not be able to remain cohesive in certain extreme seismic events, as detailed in

¹² NRC Consolidated Decommissioning Guidance (NUREG-1757)

¹³ NRC categorizes impacts to resources as SMALL, MODERATE, or LARGE.

Alternative 2. However, Alternative 5 leaves a one-foot layer of pond contents across the entire bottom of each pond un-stabilized. The draft EA is unclear how a similar extreme seismic event would not similarly impact the actions described in Alternative 5, given the bottom layer of the pond remains un-stabilized.

Recommendation: The final EA should clarify how the bottom layer of un-stabilized material in Alternative 5 would be unaffected by an extreme seismic event, as described in Alternative 2.

Transportation

The analysis over-emphasizes the impacts to local receptors from transporting pond materials off-site, given the actions and impacts are similar for transporting borrow and closure materials into the site. Therefore, U.S. EPA finds the potential impacts to transportation and adjacent receptors to be MODERATE for both the preferred alternative and removal alternative. Given the amount of waste to be removed, U.S. EPA agrees with NRC that impacts to the receiving facility would be minimal.¹⁴

The draft EA is unclear whether the analysis takes into account additional off-site local road infrastructure or traffic management upgrades incurred by any of the alternatives. For example, given the increase in wear on local roads by the increased truck traffic under either Alternative 2 or 5, the draft EA does not state whether the state transportation agency or local roads commission have verified that local roads could handle the increase and, if not, whether the roads will need infrastructure or traffic management upgrades.

Recommendation: The final EA should re-consider the impact to adjacent receptors given the similar intensity of impacts between Alternative 2 and Alternative 5. The applicant should coordinate with local or state transportation agencies to ensure impacts related to the proposed action incurred by the increase in local truck traffic are properly mitigated for.

Noise and Air Quality

The draft EA does not clearly analyze noise and air emissions impacts. The document notes that there would be an increase in noise and air emissions to adjacent receptors, but it is unclear how this differs from current and future operating practices and impacts under Alternative 5, in-situ stabilization. U.S. EPA notes that the same classification (SMALL) is given to both noise and air impacts for both alternatives described in detail. However, the draft EA also states that there would be no noise from Alternative 5 because of distance to receptors, but temporary noise from removal Alternatives 2 and 3. We find this conflicting, since the distance to receptors is the same and both involve similar levels of construction-type noise impacts.

¹⁴ Draft EA, page 42

Recommendation: U.S. EPA recommends the final EA address the above-discussed concerns regarding impacts to adjacent receptors from noise and air emissions under both the in-situ stabilization and removal alternatives. The analysis, as currently written, is confusing and indicates that impacts to receptors are somehow different, despite being both similar in intensity and in distance.

The National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential occupational carcinogen, based on a combination of chemical, genotoxicity, and carcinogenicity data. In addition, acute exposures to diesel exhaust have been linked to health problems such as eye and nose irritation, headaches, nausea, asthma, and other respiratory system issues.

Recommendations: U.S. EPA recommends that the applicant commit to the following actions during construction:

- Using low-sulfur diesel fuel (15 parts per million sulfur maximum).
- Retrofitting engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Positioning the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed.
- Using catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Using enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Regularly maintaining diesel engines, which is essential to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance. For example, blue/black smoke indicates that an engine requires servicing or tuning.
- Reducing exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.
- Purchasing new vehicles that are equipped with the most advanced emission control systems available.
- With older vehicles, using electric starting aids such as block heaters to warm the engine reduces diesel emissions.
- Using respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on work being conducted, and if oil

is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a NIOSH approval number. Never use paper masks or surgical masks without NIOSH approval numbers.

Long Term Benefits versus Short Term Use

There appears to be little consideration given to the long-term benefits of removing waste to a licensed, operating facility versus the short-term impacts of removal in the comparison of alternatives. For example, the document currently states there will be MODERATE impacts to adjacent receptors from removal activities, but does not disclose the long-term benefits of removing radioactively-contaminated CaF_2 from the area and disposing in a fully-licensed, operating facility.

Recommendation: The final EA should outline how the analysis considered the long-term benefits versus short-term uses of the site under the removal alternative. For example, there would be a moderate benefit to land use under the removal alternative.