

November 4, 2011

Mr. Larry Smith  
Plant Manager  
Honeywell Metropolis Works  
P.O. Box 430, Highway 45 North  
Metropolis, IL 62960

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE SURFACE  
IMPOUNDMENT DECOMMISSIONING PLAN FOR HONEYWELL METROPOLIS  
WORKS (TAC NO. L32759)

Dear Mr. Smith:

By letter dated December 2, 2010 (Agencywide Documents Access and Management System [ADAMS] Accession Number ML103400520), Honeywell Metropolis Works provided its license amendment application for a partial site release of four surface impoundments using the unrestricted release criteria in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20.1402.

The NRC staff is reviewing the information contained in Honeywell's initial submittal along with Honeywell's four supplemental submittals (ML110620251; ML110750234; ML110980639; ML11291A031), and has identified areas where additional information is needed to complete the review. The enclosure to this letter contains the staff's specific requests for additional information (RAIs) needed to conduct a detailed technical review. The RAIs were discussed with Mike Greeno of your staff on September 7, 2011, via teleconference, and again during the review team's site visit on October 5, 2011. As discussed during the site visit, Honeywell has committed to provide its formal response to this letter by January 13, 2012.

The staff notes that Honeywell has not yet submitted its pozzolanic material studies or its rip rap material selection and evaluation data. The staff will review that information separately to determine if any additional RAIs are needed in those technical areas.

In accordance with 10 CFR, Part 2.390 of the NRC's Rules of Practice, a copy of this letter will be available electronically from the Publicly Available Records component of ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If there are any unforeseen circumstances which might delay the RAI response, or any questions regarding this action, please contact me at (301) 492-3221, or via e-mail at [kevin.mattern@nrc.gov](mailto:kevin.mattern@nrc.gov).

Sincerely,

**/RA/**

Kevin S. Mattern, Project Manager  
Conversion, Deconversion  
and Enrichment Branch  
Fuel Facility Licensing Directorate  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

Enclosure: As stated

Docket No. 40-3392  
License No. SUB-526

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## **Requests for Additional Information**

### **Honeywell Metropolis Works, Metropolis, IL**

**Docket: 40-3392; License: SUB-526**

#### **RAI 1**

Additional information is needed to describe what Honeywell is seeking with respect to partial site release of the surface impoundments. This information is required by Title 10 of the *Code of Federal Regulations* (10 CFR) (10 CFR) 51.60 and 51.45, and is needed for the staff to make its determination in accordance with 10 CFR 51.31. Section 7.2 of the amendment request states, "This action makes the ponds area unsuitable for operations involving the nuclear materials license, thus justifying release of this area from source material license SUB-526." Clarify what is meant by "release ... from ... license." Is it Honeywell's intention that the pond area will be removed from the Controlled Area? If so provide additional information regarding impact on plant operations and physical security. If not, provide a discussion regarding considerations for review of onsite disposal pursuant to 10 CFR 20.2002 and 40.42, as described in NUREG 1757 Volume 1, Rev 2, Section 15.12, as based on the staff's current understanding of the submittal, 10 CFR 20.2002 may be more applicable than 10 CFR 20.1402 for onsite burial of radioactive material absent license termination.

#### **RAI 2**

Why are the ponds Resource Conservation and Recovery Act (RCRA) Subtitle C facilities? Section 3.5 of the Pond Characterization Report, Appendix T of the amendment request, states that the material does not carry the characteristic of corrosivity. This information is required by 10 CFR 51.60 and 51.45 and is needed for the staff to make its determination in accordance with 10 CFR 51.31. Provide additional information which describes the specific constituents that result in the RCRA classification.

#### **RAI 3**

Additional information is needed regarding the radiological status of the Honeywell pond facilities. The information supplied by the licensee should be sufficient to allow U. S. Nuclear Regulatory Commission (NRC's) staff to review and verify that the licensee determined the radiological condition of the pond area well enough to permit planning for remediation that will be effective and be protective of the health and safety of the workers, as well as demonstrate that it is unlikely that significant quantities of residual radioactivity have gone undetected. Specific information regarding the radiological status of contaminated structures, contaminated systems and equipment, surface soil, subsurface soil, surface water, and ground water are needed to adequately review the radiological status of the site. NUREG-1757, Volumes 1 and 2, provide guidance on the specific information that should be included. Provide site characterization information related to any contaminated structures, contaminated systems and equipment, surface soil, subsurface soil, surface water, and ground water associated with the pond area, e.g., pond discharges, surface/ground water samples, equipment within the ponds, etc. If no contamination is associated with a specific category indicate with further justification or additional documentation.

Enclosure

#### **RAI 4**

Additional information is needed regarding the sensitivity analyses and deterministic parameter values used to evaluate the exposure scenarios for each pond. The information (e.g., RESRAD parameter values) provided by the licensee should be sufficiently justified and supported to allow NRC staff to independently assess, with adequate understanding, the risks to individuals who may be associated with the pond area following remediation. For example, parameter values such as those used for the various consumption pathways differ from the RESRAD default values and should be supported with adequate documentation.

In the case of the industrial worker scenario, Honeywell performed a sensitivity analysis to produce a single deterministic parameter value that was used to calculate a single dose for each pond. Upon review of the parameter values used for these sensitivity analyses it appears that, in many cases, the range of values used are based solely on the distribution values provided in the RESRAD documentation (i.e., NUREG/CR-6697, Attachment C), which are based on data collected from the literature and are not site-specific. Additional information should be provided to justify the use of these literature values for conducting these sensitivity analyses.

Despite the use of literature values for many of the parameters in the industrial worker scenario the sensitivity analyses performed for each pond identified different parameters as being sensitive when calculating the dose to the average member of the critical group. Although the "Density of cover material" was determined to be a sensitive parameter for all four ponds, the "Kd of U-235 in the Contaminated Zone" parameter was determined to be sensitive in Ponds B and E while "Cover erosion rate" parameter was sensitive in Pond C and the "External gamma shielding factor" parameter was sensitive in Pond D. Discussions regarding the differences between ponds and reasons certain parameters are more sensitive in one pond than another should also be provided.

With regards to the resident farmer scenario dose calculations, no references or discussion of the non-default RESRAD values used in the RESRAD dose calculations appear to have been included with the analyses. Justification (including documentation) for the use of the specific RESRAD parameter values used to evaluate the resident farmer scenarios should be provided. Discussions regarding any conservatism and uncertainty associated with these specific parameter values should also be included.

Finally, Honeywell should provide copies of all the RESRAD files for all of the scenarios and all the ponds so that additional confirmatory analyses may be performed.

#### **RAI 5**

According to the submittal Honeywell maintains that following closure of the pond area, which includes the placement of pozzolanic material in the ponds and the installation of the engineered barrier on top of each pond, that the site will remain industrial and that Honeywell will retain ownership indefinitely. Honeywell further indicates that activities on the site will be restricted to monitoring and maintenance of the engineered barrier (i.e., cutting grass, repairing damage to the engineered barrier, etc). Although it may not have been Honeywell's intent, this description and the analysis of limited exposure scenarios are similar to a restricted release approach. However, analysis of additional scenarios based on reasonably foreseeable land uses could resolve this inconsistency, thus maintaining Honeywell's actual plans for ownership and use of the pond area and still maintaining conditions sufficient to allow for unrestricted use.

Appendix K of NUREG-1757, Vol. 2, dictates that both compliance and prospective exposure scenarios should be evaluated when considering a site for unrestricted use. In the submittal Honeywell recognizes the industrial worker scenario to be the compliance scenario for evaluating doses associated with this project and indicates that the resident farmer is not appropriate while the recreationalist scenario is implausible. Support for this argument, however, appears to be based solely on the current conditions at the site and Honeywell's perceived goals regarding its future in the uranium conversion business. It should be noted that Appendix I of NUREG-1757, Volume 2, indicates that a licensee, when evaluating reasonably foreseeable land uses within the next 100 years, should consider the advice of land use planners and stakeholders on land use plans and trends. Although the industrial worker appears to be the most logical critical group for the pond area, a cursory review of the land area surrounding the Metropolis Works (MTW) plant shows industrial facilities mixed primarily with agricultural land. Land use statistics compiled by the Illinois Department of Agriculture Web site show that 68 percent of Massac County land is used for agricultural purposes. Additionally, research conducted by the University of Illinois on land use trends in southern Illinois show an 87 percent increase in urban land use for Massac County between 1996 and 2000. Furthermore, the removal of the pond area for unrestricted release would enable Honeywell, in the future, to transfer the land to other entities that may use the land for other, non-industrial purposes. Additionally, a review of NRC's Inspection Report 40-3382/2010-002 and Notice of Violation revealed that, despite "No Trespassing" signs placed throughout the property and roving security patrols, evidence of trespassing and recreational activities in the form of hunting (i.e., a deer stand was found and removed from the site) have been identified. In addition to these issues specific to Honeywell, recent events associated with nuclear power in the United States, such as the closure of a Gaseous Diffusion Plant and the opening of a new enrichment facility, demonstrate that the nuclear industry can change significantly over short periods of time. This further adds to the complexity of predicting the role of nuclear power-related facilities such as Honeywell over long periods of time. The staff also notes that Honeywell's NRC license to operate its Metropolis Works facility expires in 2017.

In order to adequately justify the release of the pond area for unrestricted use NRC staff proposes that additional evaluation and justification for the compliance and prospective scenarios be considered beyond the presumption that Honeywell will always own the property and monitor and maintain it as currently planned. These evaluations should support the use or exclusion of specific scenarios as well as risks to individuals assuming the loss of Honeywell ownership and restrictions.

## **RAI 6**

Assuming that the pond area remains an industrial site, whether under the ownership of Honeywell or some other entity, evaluation of a more site-specific industrial worker should be provided. By definition the critical group is a "group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances" (10 CFR 20.1003). In general, the definition of an industrial worker is very broad. For example, an industrial worker may include the building occupancy scenario in which the individual spends the majority of their time indoors (e.g., warehouse worker) or a field laborer who spends the entire day outdoors. Depending on the specific site and the tasks associated with the industrial worker, the doses received could be wide ranging.

For Honeywell, the use of a site-specific industrial worker would provide a more accurate assessment of the risk to industrial workers on the site than the "general" industrial worker

scenario. A site-specific scenario should take into consideration the processes associated with pond closure and construction of the engineered barrier system. Specific industrial worker-related activities associated with monitoring and maintenance of the area, as discussed in the submittal, as well as any other industrial activities that may occur on the pond area should also be considered. Reasonably foreseeable site-specific industrial worker scenarios, such as those listed below, should be among those considered in order to better assess the risks that may be encountered by workers associated with the pond area.

- Construction worker tasked with monitoring the pond area and performing repairs to the engineered barrier as needed
- Maintenance worker tasked with performing regularly scheduled activities (e.g., grass cutting) to maintain the facility.

Although not currently being planned, it is logical to assume that the pond area could be repurposed, similar to the area that was once pond A, for future industrial uses. These long term future industrial uses should also be considered when evaluating the industrial worker as the critical group. Reasonably foreseeable future industrial uses of the pond area may range from surface storage of materials and equipment and worker-occupied trailers on top of the engineered barrier to the removal of sections of the engineered barrier to install a building foundation. Damage to the engineered barrier from the use of equipment involved in construction and operation of these new facilities should also be considered. To account for the doses received by an industrial worker associated with operational activities at the pond area Honeywell should also consider a full-time employee (i.e., industrial worker) occupying the pond area. Justification and documentation of the parameters used in these industrial worker scenarios should be included. Additional guidance on this issue can be found in Appendix I of NUREG-1757, Volume 2.

#### **RAI 7**

Provide additional information regarding the impacts that ongoing operations at Honeywell will have on the exposure pathways and dose received by individuals associated with the pond area. As discussed in Appendix K of NUREG-1757, Volume 2, the continuation of licensed activities in the vicinity of the released area represents a potential source of exposure not directly related to the exposure pathways associated with the area being released. In this case, the continued operation of MTW provides an additional source of exposure to individuals associated with the pond area that was not considered in the Honeywell submittal. Additionally, depending on the exposure scenario being considered, the average member of the critical group may spend time in both the pond area and the area in which operations continue to take place. As a result, exposure pathways and related dose received can vary depending on the tasks being performed and the time spent in each area. In order to make a more accurate assessment of the risk to the critical group provide an evaluation of possible site-specific scenarios and exposure pathways that may impact individuals associated with the pond area. Also discuss the likelihood that individuals will spend time in both areas of the facility and assess contributions that current MTW operations may have on the dose to these individuals. Justification and documentation of the scenarios considered and the parameters used in these evaluations should be included.

#### **RAI 8**

Provide a technical basis for using soil Kd values for the radionuclides in the sludge that will be mixed with pozzolanic materials. Honeywell assumes a conservative approach regarding

stabilization and cover system by not considering any reduced permeability associated with the mixing of pond sludge with pozzolanic materials. As a result the Kd values used in the RESRAD analyses are literature values for soil. This approach, however, does not consider any other geochemical properties that may impact radionuclide transport (or lack of transport) resulting from mixing the sludge with pozzolanic materials. Provide a technical basis for using soil Kd values to describe a sludge-concrete mixture. As part of this justification, provide a description of the geochemical properties associated with the pozzolanic material that may impact the transport of radionuclides through the system.

#### **RAI 9**

Currently water from the environmental protection facility is discharged to pond D for final clarification prior to discharge at the National Pollutant Discharge Elimination System (NPDES) NPDES permitted Outfall 002. Provide details on the processes that will be used to compensate for the loss of pond D. This information is required by 10 CFR 51.60 and 51.45 and is needed for the staff to make its determination in accordance with 10 CFR 51.31.

#### **RAI 10**

Provide a discussion of potential good practice efforts in support of the as low as reasonably achievable (ALARA) evaluation. The NRC's guidance in NUREG-1757, Volume 2, Chapter 6 and Appendix N, state that for ALARA all licensees should use typical good-practice efforts. Honeywell has not provided any discussion of whether there are good-practices that should be performed as part of the ALARA effort for the pond closure.

#### **RAI 11**

Provide an evaluation using zero discount rate or with a sensitivity analysis of the discount rate for the present worth calculations for the value of future doses in the ALARA evaluation. In its ALARA evaluation in Section 6.5 of the Decommissioning Plan (DP), Honeywell uses a monetary discount rate of 0.03 per year (3 percent per year) to determine the present value of future doses averted. Based on the very long half life of the residual radioactivity at the site, the NRC staff is concerned that use of this discount rate essentially eliminates any value in doses averted in the later years of the compliance period. The NRC staff withdrew parts of the guidance of NUREG-1757. In the *Federal Register* Notice of August 16, 2007 (72FR46102), staff specifically withdrew guidance on the discount rate that is acceptable. The NRC staff's guidance on use of discount rates is provided in NUREG-1757, Volume 2, Section N.5. That guidance refers to NUREG/BR-0058 (Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission), the most recent version of which is Volume 4, dated September 2004. Section 4.3.5 of NUREG/BR-0058 indicates that for certain regulatory actions, such as those involving decommissioning and waste disposal, special considerations arise when considering benefits and costs across generations. That section indicates that the analysis should be supplemented with an explicit discussion of intergenerational concerns. This could be done by performing the analysis based on costs and impacts at the time they are incurred, with no present worth conversion, or by performing a sensitivity analysis using lower discount rates. If Honeywell performs the quantitative ALARA analysis, the analysis should be revised to include some method for analyzing the intergenerational concerns, by including an analysis with no discounting or with a sensitivity analysis using lower discount rate.

## **RAI 12**

It appears to NRC's staff that Honeywell has made an error in its calculations in Section 6.5 of the DP. The equation used in Section 6.5, page 37, is the equation from NUREG-1757, Volume 2, Appendix N, Equation N-8, which is appropriate. (Staff notes there may be typographical errors in the equation shown: " $Cost_r$ " should be " $Cost_T$ " and the parentheses in the denominator should have a "+" in it.) However, on page 39 where Honeywell shows the parameter values inserted into the equation, the exponent term in the denominator is incorrect. Instead of dividing by 1000 years in that exponent  $[(0.03 + 1.55 \times 10^{-10})/1000]$ , it should be multiplying by 1000 years  $[(0.03 + 1.55 \times 10^{-10}) \times 1000]$ . This will make a substantial difference in the final calculation result. If Honeywell performs the quantitative ALARA analysis, provide an updated and corrected calculation in Section 6.5, page 39.

## **RAI 13**

The information supplied by Honeywell is insufficient to allow the NRC's staff to fully evaluate the qualifications, responsibilities and authorities of the individuals designated as the Radiation Safety Officer, the Decommissioning Project Manager, and the Construction Quality Assurance Officer during decommissioning activities. Provide an updated organization structure, the reporting responsibilities of the position, and minimum qualifications for each of the management and safety-related positions mentioned herein as recommended in Chapter 17.2.3, "Decommissioning Management Positions and Qualifications" of NUREG-1757, Volume 1; and in accordance with 10 CFR 30.33(3) and 40.32(b).

## **RAI 14**

A sufficient description on its health and safety program during the decommissioning activities is not provided in the Honeywell's LAR. Honeywell states that all contractors working at their decommissioning site will adhere to the plant health and safety programs, including radiation safety controls and monitoring for workers as referenced in NUREG-1757 Volume 1, Appendix D, Section D.2, Part X. Any contractor selected by Honeywell to perform work related to the impoundment pond closures will be required to prepare a Site-Specific Health and Safety Plan and comply with MTW-SAF-LS-0015, Contractor Work Permit Procedure. However, it is not clear to the NRC staff the exact health and safety (H&S) requirements that will be followed for the proposed surface impoundment ponds closure work. Provide a detailed description of Honeywell's H&S program that is in accordance with the recommendations of Section 17.3 of NUREG 1757, Volume 1; in compliance with the regulatory requirements in 10 CFR Parts 19 and 20; and is adequate to protect workers from ionizing radiation during the proposed surface impoundment ponds closure activities.

## **RAI 15**

The NRC staff could not find any description of Honeywell's workplace air sampling program that will be followed during the proposed ponds closure activities. The NRC staff could not find any information, specific to the proposed surface impoundment ponds decommissioning activities, describing when air samples will be taken on work areas, the type and location of air sample equipment to be used, calibration of flow meters, minimum detectable activities of (MDA) of equipment to be used for analysis of radionuclides collected during air sampling, or action levels for airborne radioactivity. Provide additional information that allows the NRC staff to verify that the Honeywell's air sampling program will comply with 10 CFR 20.1204, 20.1501

(a)-(b), and 20.1703(a)(3)(i)-(ii)—or provide justification for an alternate methodology.

#### **RAI 16**

A description of how external dose from airborne radioactive materials, during the ponds closure activities, will be determined is not included in the submittal. The NRC staff could not determine whether Honeywell plans to perform necessary surveys to supplement personnel monitoring that are consistent with 10 CFR 20.1501(a)(2)(i) and recommendations of Section 17.3.1.4 of NUREG 1757 Volume1, Revision 2. Provide a description of the procedures to insure that a reasonable number of surveys necessary to determine external exposure from airborne radioactive material that supplement personnel monitoring will be performed.

#### **RAI 17**

The NRC staff did not find a description of the method used to estimate the Minimum Detectable Concentration (MDC) or MDA in the submittal. The information supplied by Honeywell is insufficient to allow the staff to fully understand how the licensee will implement and maintain its radiological instrumentation program. Honeywell has not provided a description of the methods used to estimate the MDC or MDA (at the 95 percent confidence level), and uncertainty bounds for each type of instrumental measurement. Provide a description of the methods, in compliance with 10 CFR 20.1501(a) and as recommended in Section 6.7 of NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), and Section 17.3.1.7 of NUREG-1757, Volume 1, Revision 2, to estimate the MDC or MDA (at the 95 percent confidence level); and uncertainty bounds for each type of instrumental measurement.

#### **RAI 18**

Based on the review, the NRC staff was unable to determine that Honeywell has provided sufficient information regarding its environmental monitoring and control program to conclude that its program will comply with 10 CFR Part 20. Based on this review of the LAR and other submittals, the NRC staff has determined that Honeywell has not provided sufficient information specific to pond closure activities to allow the NRC staff to conclude that the licensee's environmental monitoring program will comply with 10 CFR Part 20 and is adequate to protect workers, the public, and the environment from ionizing radiation. Consistent with the recommendations in Section 17.4 of NUREG-1757, Volume 1, provide a detailed description of environmental exposure monitoring and control measures regarding radioactive materials in effluents that will be implemented during the proposed impoundment ponds closure activities by Honeywell or provide justification for an alternate methodology. Provide additional radiological sampling results to identify all radionuclides of concern that includes soil in the immediate vicinity of the ponds and both underneath the ponds via sumps and near the ponds via the lysimeters.

#### **RAI 19**

The NRC staff could not verify that Honeywell has adequately characterized the area in the vicinity of the ponds. Honeywell provided Supplemental Information for the Surface Impoundment Decommissioning Plan Application dated February 25, 2011. The boundary for the proposed area that will be released is shown in map G-3 of the Honeywell LAR dated November 22, 2010. Site characterization data from the soils in the vicinity of the ponds are shown in a map attached to this supplement that provides the radioactivity present in pCi/g. However, the NRC staff could not verify that Honeywell has adequately characterized the area

in the vicinity of the ponds to demonstrate that it is unlikely that significant quantities of residual radioactivity have gone undetected. Provide characterization survey design and results for the site to be released—including the area beneath and around the ponds that meets the criteria provided in Section 5.3 of MARSSIM for characterization survey, Chapter 6 and Appendix E for instrumentation capabilities and sensitivities; and MARSSIM Section 4.8.4 for preparation areas for surveys. The description of the condition of the site should include the type and extent of the radiological contamination consistent with 10 CFR 30.36(g)(4)(i) and 40.42(g)(4)(i).

#### **RAI 20**

Provide additional information regarding flooding at the site with respect to both dose assessment and environmental assessment. This information is required by 10 CFR 51.60 and 51.45, and is needed for the staff to make its determination in accordance with 10 CFR 51.31. While Honeywell has demonstrated that the elevation of the site is significantly above probable flood elevations, and is not likely to have impact on operations, it is not clear to the NRC staff that this would also be the case for the surface impoundments. Provide additional discussion on these topics that relate the elevation of the ponds at maximum depth to the elevation of the probable flood.

#### **RAI 21**

Additional details are required regarding the liner, leak and leachate systems, along with the insitu clay and lysimeters. This information is required by 10 CFR 51.60 and 51.45, and is needed for the staff to make its determination in accordance with 10 CFR 51.31. Provide drawings of the ponds liner systems, showing the liner(s) and the leak detection and leachate collection systems. Indicate the liner thickness(es) and materials and the leak detection, and leachate collection systems materials and thicknesses.

#### **RAI 22**

Does the pozzolanic stabilization provide only structural and seismic stability to support the RCRA cover, or is it also expected to reduce the potential mobility of the uranium and other radioactive materials? This information is required by 10 CFR 51.60 and 51.45 and is needed for the staff to make its determination in accordance with 10 CFR 51.31. Provide additional clarity on the purpose(s) of the cover or what credit the cover allows in both the dose assessment and the environmental assessment.

#### **RAI 23**

Section 7.7.5 states, “Over the long-term, ecological resources could be impacted by a change in the long-term habitat value of the areas affected by the cover system.” Will the RCRA cover system, including 2 feet of topsoil and support soil, allow reforestation to occur over the ponds? This information is required by 10 CFR 51.60 and 51.45 and is needed for the staff to make its determination in accordance with 10 CFR 51.31. Provide additional discussion on reforestation over the ponds.

#### **RAI 24**

The NRC staff notes that Section 7.6 of the amendment request is out of date and should be revised to reflect more current climatology and meteorology, demography and socioeconomics (reference the 2010 census), projected flood levels, seismicity (reference U.S. Geological

Survey [USGS] revisions), and threatened and endangered species. This information is required by 10 CFR 51.60 and 51.45, and is needed for the staff to make its determination in accordance with 10 CFR 51.31. Provide this updated information to address current site conditions.

#### **RAI 25**

The NRC staff notes that Section 7.6.11 of the LAR is out of date and should be revised to use a more current reference, such as NCRP 160, Ionizing Radiation Exposure of the Population of the United States, March 2009, or other current data. This information is required by 10 CFR 51.60 and 51.45, and is needed for the staff to make its determination in accordance with 10 CFR 51.31. Provide this updated information to address current industry guidance.

#### **RAI 26**

Based on the original December 2, 2010 submittal, supplemental information submitted to date, and staff discussions with Honeywell during the site visit, it is the staff's understanding that Honeywell is seeking to use two engineered barriers (RCRA cover and pozzolanic stabilization) in its compliance scenario to achieve doses in the  $10^{-7}$  millirem range for its unrestricted release pursuant to 10 CFR 20.1402. It is also the staff's understanding that the cumulative dose of 23.8 millirem reported for total cover system failure, was submitted solely as part of a failure modes analysis and is not intended to serve as the compliance dose for this action. It is also the staff's understanding that some credit will need to be taken for each of the two engineered barriers to achieve the compliance dose described in the submittal. The submittal states that the pozzolanic stabilization material's sole function is support of the cover system and that Honeywell does not take any credit in the dose assessment for solubility, chemical, transport, and any other properties of the material, that may impact the transport or exposure to radionuclides in the ponds; instead Honeywell treats the material as "soil" for dose assessment purposes. The submittal also indicates that the only credit taken for the cover in the dose assessment is related to the thickness of the material, namely distance and shielding; credit for erosion control/protection is not mentioned. Clarify the staff's understanding of Honeywell's proposed action and compliance scenario as described herein. Provide additional details regarding the compliance scenario describing specific credit taken for each of the engineered barriers in the compliance scenario used for dose assessment.

#### **RAI 27**

By letter dated December 2, 2010, Honeywell has submitted its "DP" in accordance with 10 CFR 40.36; however, the body of the accompanying technical report refers to this action as an "amendment request" throughout the document. It is unclear to the staff if Honeywell is in fact submitting a DP or a LAR. In accordance with 10 CFR 40.44, LAR's "shall specify the respects in which the licensee desires the license to be amended and the grounds for such amendment." Provide additional clarification regarding which action is being submitted (amendment, decommissioning plan, etc.), and in the case of a license amendment, provide the specific desired changes via proposed modifications to licensing documents and the grounds for those changes, pursuant to 10 CFR 40.44.

#### **RAI 28**

Honeywell's DP describes a request for "unrestricted release" under 10 CFR 20.1402; however, Honeywell also notes in their submittal that additional actions will be required by the Illinois

Environmental Protection Agency and/or the United States Environmental Protection Agency (USEPA) to monitor and/or maintain the engineered cover required by RCRA. In NUREG 1757 the guidance suggests that engineered barriers used for unrestricted release may only credit the passive engineered features of the barrier and not active engineered or administrative features such as monitoring and/or maintenance. It is unclear to the staff whether this maintenance of the cover system allows this action to be classified as “unrestricted release.” Provide additional justification regarding the monitoring and maintenance of the cover in order to justify an unrestricted release under 10 CFR 20.1402 as opposed to a restricted release under 10 CFR 20.1403. Clearly delineate which engineered barrier components are considered by Honeywell to be “passive” and provide adequate justification why they are considered passive, i.e., why monitoring and maintenance would not be needed.

### **RAI 29**

Honeywell’s decommissioning plan requests unrestricted release using multiple engineered barriers. NUREG 1757 clearly delineates that only under infrequent, unusual, and/or unique circumstances may passive engineered barriers be used for unrestricted release and that generally these engineered barriers should be used for restricted release. The staff notes that previous actions approved to provide for unrestricted release using engineered barriers were both infrequent and unique, and that only very specific features of the engineered barriers were employed for credit in the dose model and unique conditions existed which supported the future land use determination. Provide a discussion regarding the unique circumstances at the Honeywell site that justifies the use of engineered barriers for unrestricted use in accordance with NUREG 1757.

### **RAI 30**

Provide additional information regarding offsite discharges, namely the NPDES permit and Storm Water Pollution Prevention Plan. This information is required by 10 CFR 51.60 and 51.45, and is needed for the staff to make its determination in accordance with 10 CFR 51.31.

### **RAI 31**

Provide additional clarification on Honeywell’s use of the term “monitoring” in the submittal. Does the term “monitoring” as utilized by Honeywell in the submittal only consider monitoring of the engineered barrier or does it include monitoring of any contaminants associated with the site? If contaminant monitoring is not already considered provide justification for why it has not been considered or provide additional discussion on proposed contaminant monitoring. If the NRC were to grant a partial site release for unrestricted use, how can Honeywell ensure that the dose contribution from the area for partial release will not increase over the life of the plant? Does Honeywell plan to ensure that unintended discharges, outflow, contamination, etc. won’t change or increase the quantities/concentrations of radionuclides present in the released portion of the site at license termination? Are there any mitigation methods utilized by Honeywell to prevent cross-contamination? Provide a description of Honeywell’s commitments to mitigate or prevent cross-contamination of the proposed area for release, or provide a commitment to future constituent verification to ensure no additional contamination is in the area at license termination.