

October 12, 2011

MEMORANDUM TO: Thomas G. Hiltz, Chief
Conversion, Deconversion
and Enrichment Branch
Fuel Facility Licensing Directorate
Division of Fuel Cycle Safety
and Safeguards
Office Nuclear Material Safety
and Safeguards

FROM: Kevin Mattern, Project Manager */RA/*
Conversion, Deconversion
and Enrichment Branch
Fuel Facility Licensing Directorate
Division of Fuel Cycle Safety
and Safeguards
Office Nuclear Material Safety
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SUBJECT: SUMMARY OF OCTOBER 5, 2011, SITE VISIT AT HONEYWELL
METROPOLIS WORKS, METROPOLIS, IL

On October 5, 2011, NRC staff participated in a site visit at Honeywell Metropolis Works in Metropolis, Illinois. I am enclosing a summary, as Enclosure 1 to this memo, for your information. Enclosure 2 contains the draft requests for additional information discussed with Honeywell during the site visit. Enclosure 3 contains a summary of the teleconference held in conjunction with and preparation for the site visit. The report and its enclosures contain no sensitive information.

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

Enclosure: As stated

CONTACT: Kevin Mattern, NMSS/FCSS
(301) 492-3221

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FROM: Kevin Mattern, Project Manager **/RA/**
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Fuel Facility Licensing Directorate
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SUBJECT: TRIP REPORT OF OCTOBER 5, 2011, SITE VISIT AT HONEYWELL
METROPOLIS WORKS, METROPOLIS, IL

On October 5, 2011, I participated in a site visit at Honeywell Metropolis Works in Metropolis, Illinois. I am enclosing the trip report, as Enclosure 1 to this memo, for your consideration. Enclosure 2 contains the draft requests for additional information discussed with Honeywell during the site visit. Enclosure 3 contains a summary of the teleconference held in conjunction with and preparation for the site visit. The report and its enclosures contain no sensitive information of any kind.

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NAME	KMattern	THiltz
DATE	10/11/2011	10/12/2011

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Summary: Site Visit to Honeywell Metropolis Works. Metropolis, Illinois

Date of Visit: October 5, 2011

Participants:

U.S. Nuclear Regulatory Commission

Mary Adams
Tom Hiltz
Anthony Hsia

Varughese Kurian
Kevin Mattern
Adam Schwartzman

Honeywell International, Inc.

Mike Greeno
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Robert Stokes
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Sean Horgan
Rusty Robertson

Gerald Williams

CH2M Hill

Matt Gavin

Mara Hollinbeck

Andrews Engineering

Sean Chisek

Winston and Strawn, LLP.

Tyson Smith

Purpose:

The purpose of this visit was to meet with representatives from Honeywell and its contractors to discuss draft requests for additional information (DRAIs) related to the surface impoundment decommissioning plan. Additionally, Honeywell provided the staff a process overview and site tour, augmented to specifically address areas of interest regarding the proposed closure of Honeywell's ponds B, C, D and E. The purpose of this visit is consistent with the September 5, 2007, memorandum (ML072190254) on Fuel Cycle Safety and Safeguards management expectations for project manager site visits.

Summary of Activities

A. Meeting with Honeywell

The meeting with Honeywell consisted of a presentation by Honeywell staff regarding the conversion process and its nexus with the surface impoundments. The NRC staff then discussed each of the attached DRAIs with Honeywell to ensure that the requested information was not already on the docket or available publicly through other means. The NRC staff also further explained the intent and scope of each DRAI to ensure that Honeywell's responses would adequately address the information sought by the staff and to minimize future rounds of RAIs. Both the NRC staff and Honeywell found the discussion helpful in its understanding of the requested action and its licensing review.

B. Tour of facilities

During the morning of October 5, 2011, NRC staff participated in a tour of the facility. During the tour, NRC staff had the opportunity to visit several areas within the site, including four surface impoundments proposed for decommissioning. The staff found the tour helpful in understanding the general operations related to UF₆ conversion at the site. The staff also increased its understanding and awareness of the size, scope, and contents of the surface impoundments, along with its knowledge or related processes such as ground water and soil monitoring, waste treatment, offsite outflow, and additional plant modifications resulting from pond closure.

Follow-up Items:

NRC only: NRC will provide formal requests for additional information (RAI) to Honeywell, via letter, on or before November 1, 2011. The formal RAIs will be generated using the DRAIs as a basis; however, the staff may clarify, modify, add, or remove RAIs prior to formal issuance as a result of information obtained during the site visit.

Honeywell only: Honeywell will begin gathering data in support of NRC's DRAIs and provide its response to the NRC staff's formal RAIs within 75 days of the issuance date of the NRC letter to Honeywell.

NRC/Honeywell: N/A

Attachments:

None

Draft Requests for Additional Information

Honeywell Metropolis Works, Metropolis, IL

Docket: 40-3392; License: SUB-526

D-RAI 1

Additional information is needed regarding the radiological status of the Honeywell pond facilities. The information supplied by the licensee should be sufficient to allow 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.

D-RAI 2

Additional information is needed regarding the site-specific RESRAD parameter values used to evaluate the resident farmer scenario. The information (e.g., RESRAD parameter values) provided by the licensee should be sufficiently justified and supported to allow NRC's 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 should be supported with adequate documentation. No justification for the use of these site-specific (i.e., non-default) values appears to be provided. Provide justification (including documentation) for the use of the specific RESRAD parameter values used to evaluate the resident farmer scenarios associated with the remediation of the ponds. Additional discussions regarding the conservatism and uncertainty associated with the specific parameter values should also be included.

D-RAI 3

Additional information is needed to explain the parameter values used in RESRAD to model the cover and the contaminated zone. As part of the dose assessment, Honeywell calculated a site-specific, deterministic parameter value (Appendices F, G, H, and I) to be used in the RESRAD calculations for each of the four ponds. A comparison of the values provided in these tables with the parameter values used in the submitted RESRAD analyses shows discrepancies. For example, the deterministic value for the "Density of cover material (g/cm³)" parameter provided in Tables F-1, G-1, H-1, and I-1 is 1.57. This value was used in the RESRAD analyses for the farmer scenario for all four ponds. However, for the industrial worker with cover scenario it was only used in the RESRAD analyses for Pond B; the RESRAD default value was used when evaluating the industrial worker with cover scenario for Ponds C, D, and E. Similar discrepancies can also be found when comparing RESRAD parameter values used

to describe the contaminated zone. Table 5-2.1 provides a summary of some of the discrepancies the NRC staff found during their initial evaluation. A general review and comparison of parameter values used to evaluate the industrial worker with a cover scenario shows that the site-specific, deterministic values calculated using the probabilistic sensitivity analysis are only applied to the RESRAD analysis performed for Pond B. Ponds C, D, and E use the RESRAD default values. Provide justification (including documentation) for the use (or nonuse) of site-specific parameter values in the RESRAD dose calculations. Special attention should focus on the variation of parameter values for different ponds for the same scenario.

Table 3-1. Comparison of RESRAD Parameter Values

	Pond B	Pond C	Pond D	Pond E
Density of cover material (g/cm ³) ¹				
Deterministic Value (App. F – I)	1.57	1.57	1.57	1.57
Farmer w/cover (App. S)	1.57	1.57	1.57	1.57
Ind. Worker w/cover (App. O – R)	1.57	1.5	1.5	1.5
Cover depth erosion rate (m/yr) ²				
Deterministic Value (App. F – I)	1.05E-04	1.42E-04	1.05E-04	1.05E-04
Farmer w/cover (App. S)	1.05E-04	1.42E-04	1.05E-04	1.05E-04
Ind. Worker w/cover (App. O – R)	1.05E-04	1.00E-03	1.00E-03	1.00E-03
Contaminated zone erosion rate (m/yr) ³				
Deterministic Value (App. F – I)	3.49E-05	3.49E-05	3.49E-05	3.49E-05
Farmer w/cover (App. S)	3.49E-05	3.49E-05	3.49E-05	3.49E-05
Ind. Worker w/cover (App. O – R)	3.49E-05	1.00E-03	1.00E-03	1.00E-03
Contaminated zone b parameter ⁴				
Deterministic Value (App. F – I)	1.35	1.35	1.35	1.35
Farmer w/cover (App. S)	1.35	1.35	1.35	1.35
Ind. Worker w/cover (App. O – R)	1.35	5.30	5.30	5.30

¹ RESRAD default value = 1.5; 1.57 is the deterministic value calculated based on the probabilistic sensitivity analysis (Appendices F – I).

² RESRAD default value = 1.00E-03; 1.05E-04 is the deterministic value calculated based on the probabilistic sensitivity analysis (Appendices F – I).

³ RESRAD default value = 1.00E-03; 3.49E-05 is the deterministic value calculated based on the probabilistic sensitivity analysis (Appendices F – I).

⁴ RESRAD default value = 5.30; 1.35 is the deterministic value calculated based on the probabilistic sensitivity analysis (Appendices F – I).

D-RAI 4

Additional understanding of the probabilistic sensitivity analyses and the deterministic values used to model the ponds in RESRAD is needed. The sensitivity analysis performed by Honeywell was used to produce a single deterministic parameter value that was used to calculate the dose in RESRAD. The majority of the calculated deterministic values appear to be based solely on the distribution values provided in the RESRAD documentation (i.e., NUREG/CR-6697, Attachment C). Honeywell does not provide doses based on the range of possible values likely for the ponds. These calculations are important for understanding the impact certain parameters have on the dose, especially in cases where the parameter values used are based on data collected from the literature and are not site specific. Additional

probabilistic analyses should be performed for the most sensitive parameters to show how the overall dose may be impacted, e.g., density of cover material, cover erosion rate, etc. Discussions regarding the differences between ponds and reasons certain parameters are more sensitive in one pond than another should also be provided. For example, according to the probabilistic sensitivity analysis provided by Honeywell, the “Kd value used for U-235 in Contaminated Zone” parameter is the second most sensitive parameter in Ponds B, C, and E; but the sixth most sensitive parameter in Pond D. Additionally, 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.

D-RAI 5

Additional information is needed regarding the total dose calculations provided in the submittal. As discussed in D-RAI 3, it appears that depending on the pond and the exposure scenario some dose calculations were determined using site-specific RESRAD parameter values for many of the parameters while, in other cases, the dose calculations were based largely on RESRAD default values. This inconsistency is carried through to the final dose calculation (i.e., the summation of doses for each pond). As a result, the final dose contains a mixture of dose values based on a large number of site-specific parameter values and dose values based on RESRAD default parameter values. Provide justification for mixing site-specific parameter values with default parameter values when calculating the overall dose from the ponds. Additional discussion on the conservatism and uncertainty associated with this approach should be provided.

D-RAI 6

Additional evaluation and justification for using the industrial worker compliance scenario is needed. Honeywell maintains that following the release from its license the pond area will remain part of the Honeywell facility and maintained under industrial conditions. As a result Honeywell recognizes an industrial worker scenario to be the compliance scenario for evaluating dose associated with this project, and indicates that the resident farmer is not appropriate and the recreationalist scenario is implausible. Support for this argument 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 NUREG-1757 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.

During the initial review, NRC’s staff found evidence of possible alternative land use scenarios that could impact the selection of the appropriate compliance scenario—as well as defining the average member of the critical group, especially over extended periods of time. A cursory review of the land area surrounding the Metropolis Works (MTW) 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 the MTW, site current events such as the proposed 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 over long periods of time. As a result, additional details supporting the maintenance of this area of the site under Honeywell's control, especially when assuming unrestricted release, should be carefully considered. Provide additional justification beyond Honeywell's own commercial objectives that the MTW facility will remain an industrial facility for the reasonably foreseeable future.

D-RAI 7

Additional details regarding the average member of the critical group associated with the proposed industrial worker scenario are needed. 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" (Title 10 of the *Code of Federal Regulations* [10 CFR] 20.1003). In the submittal, Honeywell only considers two possible groups (industrial worker and resident farmer) as part of the dose assessment. Based on the description of the site provided in the submittal, other possible critical groups may include urban construction, residential, and hybrid industrial building occupancy. Appendix A of NUREG-1549 provides additional details on these scenarios, as well as the process for evaluating the critical group. It should be noted that, 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 MTW, the use of a site-specific industrial worker would provide a more accurate assessment of the risk to workers on the site than the "general" industrial worker scenario. For example, Honeywell indicates in the submittal that any damage to the engineered cover system will be repaired as part of the monitoring and maintenance program. The extent of the damage and the time required to document and repair any damaged sections may affect the dose received by the industrial worker(s) charged with completing this repair. It is also logical to assume that the pond area would be repurposed for other industrial uses. For example, the Surface Treatment Facility is currently located on what was formerly Pond A. Depending on what future activities are performed in the pond area, the impacts (i.e., dose) to the industrial worker associated with specific projects on the site could be impacted. For example, construction of new facilities on top of the pond area could call to question risks associated with the removal of sections of the engineered barrier to install a building foundation, as well as possible damage to the engineered barrier from the use of various construction equipment. In order to make a more accurate assessment of the risk to the critical group, provide analyses of other possible site-specific industrial worker scenarios that are plausible for this site. Justification and documentation of the parameters used in these evaluations should also be included. If other exposure groups are not possible, provide sufficient evidence to justify this conclusion.

D-RAI 8

Provide additional information regarding the impacts the 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 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 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.

D-RAI 9

Additional justification for the parameter values used for the "Density of cover material" and "Cover erosion rate" are needed to evaluate the impact the engineered cover has on the overall dose. The parameter values used for the "Density of cover material" and "Cover erosion rate" are taken from the literature (i.e., NUREG/CR-6697, Attachment C). There is no apparent consideration for the range of values (0.1855 to 2.269) that were used to determine the density value used in the RESRAD analyses. Additionally, the numbers used for the erosion rate assume permanent pasture conditions once remediation is complete instead of natural succession vegetation. With regards to the "Density of cover material" parameter, provide justification for not considering the entire range of possible parameter values. Also provide a technical basis for selecting permanent pasture field conditions when evaluating the cover erosion rate.

D-RAI 10

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.

D-RAI 11

The derived concentration guideline levels (DCGLs) for Pa-231, Ra-226, and Th-228 provided in Table 4-1 do not match the DCGL values listed in the RESRAD printout for Pond D found in Appendix Q. Clarify the differences and their impact the overall results.

D-RAI 12

The "Pond Characterization Report," provided in Appendix T, discusses the use of a boat to collect samples from each pond. From this discussion NRC is under the impression that the ponds still maintain a volume of water. Confirm that this is in fact the case. If water does exist in the ponds, provide details on how the water and any potential radionuclides associated with it will be handled as part of the remediation process. Also discuss any potential exposure issues that may result.

D-RAI 13

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 during decommissioning, all licensees should use typical good-practice efforts such as floor and wall washing and removal of readily removable radioactivity in buildings. 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.

D-RAI 14

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.

D-RAI 15

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, please correct the calculation in Section 6.5, page 39.

D-RAI 16

The information supplied by Honeywell is insufficient to allow the NRC's staff to fully evaluate the qualifications and responsibilities of the individual designated and empowered to oversee its radiation protection program during the decommissioning activities. In Appendix B of the Honeywell Application for Renewal of Source Material License SUB-526, dated May 12, 2006, qualifications of key personnel such as Plant Manager and Health, Safety & Environmental Manager are provided. In the License Amendment Request (LAR) dated November 22, 2011, and in the additional supplemental information dated March 4, 2011, a description of the Construction Quality Assurance officer and Decommissioning Project Manager is provided. However, the information provided is insufficient to allow the staff to fully evaluate the qualifications and responsibilities of the individual designated and empowered to oversee Honeywell's radiation protection program during the decommissioning activities. In the license renewal application, Honeywell stated that all personnel permanently assigned to the site report through a chain of command to the Plant Manager. It is not clear to the NRC staff that to whom the decommissioning Project Manager will report. Provide an updated organization structure, the reporting responsibilities of the position, and minimum qualifications for each of the management and safety-related positions, including that of Radiation Safety Officer 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).

D-RAI 17

Insufficient description on its health and safety program during the decommissioning activities is 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 health and safety 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.

D-RAI 18

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 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, and 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.

D-RAI 19

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.

D-RAI 20

The NRC staff did not find a description of the method used to estimate the Minimum Detectable Concentration (MDC) or Minimum Detectable Activity (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.

D-RAI 21

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.

D-RAI 22

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).

D-RAI 23

It is not clear to the NRC staff that, depending on the revised DCGL value, the number of samples required for final status survey (FSS) is adequate. In the DP Honeywell stated that their characterization study provides radiological and other data of sufficient quality and quantity to meet MARSSIM requirements for an FSS. It is stated that “based on the evaluation using the MARSSIM statistical process, the sample quantities collected from each pond during the characterization activities exceed the minimum sample quantity requirements to demonstrate the pond radionuclide values are less than the assumed DCGL values. It is also stated that the sample sets from each pond obtained during characterization are acceptable for use as a final status data set for pond closure. This proposal is conceptually acceptable to the NRC staff.

Honeywell stated that evaluation of survey results by survey unit is done on both average and maximum values. If the maximum value is less than the defined DCGL, then the survey unit is assured of passing the statistical test. Pond D has the highest radioactive concentrations; therefore, utilizing data associated with this pond provides a bounding case applicable to the remaining ponds. Since DCGL development has not been performed, evaluation of the statistical acceptance of the characterization data will use the DCGL values determined by and reported in the RESRAD industrial worker scenario dose model for Pond D. These assumed DCGL values are calculated by RESRAD as a single nuclide DCGL which must also undergo an evaluation for unity to complete the analysis. In the case that the NRC staff does not accept the industrial worker scenario dose model for determination of DCGL values by RESRAD codes, Honeywell may be required to reevaluate their requirement of minimum number of characterization samples to meet the FSS requirement.

D-RAI 24

Provide additional information regarding flooding at the site with respect to both dose assessment and environmental assessment. This information is needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. 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.

D-RAI 25

Additional information is needed to describe what Honeywell is seeking with respect to partial site release of the surface impoundments. This information is needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. Section 7.2 of the LAR 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.

D-RAI 26

Additional details are required regarding the liner, leak and leachate systems. This information is needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. 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.

D-RAI 27

Does the pozzolanic stabilization provide only structural stability to support the Resource Conservation and Recovery Act (RCRA) cover, or is it also expected to reduce the potential mobility of the uranium and other radioactive materials? This information is needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. Provide additional clarity on the purpose(s) of the cover or what credit the cover allows in the both the dose assessment and the environmental assessment.

D-RAI 28

Why are the ponds RCRA Subtitle C facilities? Section 3.5 of the Pond Characterization Report, Appendix T of the LAR, states that the material does not carry the characteristic of corrosivity. This information is needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. Provide additional information which describes the specific constituents that result in the RCRA classification.

D-RAI 29

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 needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. Provide additional discussion on reforestation over the ponds.

D-RAI 30

The NRC staff notes that Section 7.6 of the LAR 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 needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. Provide this updated information to address current site conditions.

D-RAI 31

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 needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. Provide this updated information to address current industry guidance.

D-RAI 32

The impacts of greenhouse gases have not been adequately considered in the submittal. This information is needed for the staff to make its determination in accordance with 10 CFR 51; specifically, 51.21, 51.30, 51.41, 51.45, and/or 51.60. Provide additional discussion on the impacts of the proposed action and alternatives, including estimates of the amount of fossil fuels that will be consumed during implementation of the proposed action and the alternatives. Consider treatment of the pond contents and placement of the cover system components for the proposed action, and consider excavation, packaging, and transportation of the pond contents for the offsite disposal alternative. Estimate the quantity of green house gases that will be generated as a result of the fossil fuel consumption.

October 11, 2011

Telephone Conference Call Summary

Honeywell International
Discussion of Draft Requests for Additional Information
Surface Impoundment Decommissioning Plan

DATE AND TIME: September 7, 2011; 2:00 P.M. (EST)

CALL PARTICIPANTS: M. Adams, U.S. Nuclear Regulatory Commission (NRC)
V. Kurian, NRC
K. Mattern, NRC
D. Schmidt, NRC
A. Schwartzman, NRC
M. Greeno, Honeywell International (Honeywell)
P. Mann, Honeywell
K. Sendelsky, Honeywell
M. Gavin, CH2M Hill
M. Hollinbeck, CH2M Hill
T. Brautigam, Enercon
S. Horgan, Enercon
R. Robertson, Enercon
G. Williams, Enercon
S. Chisek, Andrews Engineering
T. Smith, Winston & Strawn LLP

During the conference call, NRC's staff provided a brief explanation of specific Draft Requests for Additional Information (D-RAIs) where requested by Honeywell to clarify the intent and basis for the need for additional information in specific technical areas. Honeywell had the opportunity to ask clarifying questions and highlight additional documents, already on the docket, for the staff to review further to potentially address portions of its D-RAIs. As a result of the call, no licensing decisions were made; and no D-RAIs were generated or removed. However, based on the discussions, the staff may revise and/or combine several D-RAIs to further clarify the scope and depth of its intent prior to issuance of its formal RAIs in the future.

Honeywell has had the opportunity to review and comment on this summary.