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April 25, 2016

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ATTN: Document Control Desk
Director, Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

REFERENCES:

1) Docket No. 40-3392; License SUB-526, Amendment 11
2) Honeywell Metropolis Works' Decommissioning Cost Estimate submittal dated January 6, 2016, (ADAMS Accession Number ML16008A088)
3) Request for Additional Information Related to Calendar Year 2015 Decommissioning Cost Estimate, Honeywell Metropolis Works (Cost Activity Code Number L34349, dated April 12, 2016.

SUBJECT: Honeywell Metropolis Works' Response to Request for Additional Information Related to Calendar Year 2015 Decommissioning Cost Estimate.

Honeywell Metropolis Works hereby provides the response to the Request for Additional Information (RAI) Related to Calendar Year 2015 Decommissioning Cost Estimate (DCE) submitted on January 6, 2016 (ADAMS Accession Number 16008A088).

Also enclosed is the 2015 DCE revised to incorporate the changes addressed in the response to the RAI. These changes to the 2015 DCE are clearly indicated by portion markings.

The 2015 DCE contains security-related sensitive information that should be withheld from public disclosure under 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Specifically, each page of the Figures and Drawing(s) section contains security-related sensitive information. Accordingly, the Figures and Drawing(s) section is being provided in a separate attachment that is marked for withholding from public disclosure.

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Should you have any questions, or require additional information, please contact Mark Wolf, Nuclear Compliance Director, at (618) 309-5013.

Sincerely,

John Albritton
Plant Manager

Enclosures:

1. Honeywell Metropolis Works' Response to Request for Additional Information Related to Calendar Year 2015 Decommissioning Cost Estimate, Honeywell Metropolis Works
2. Decommissioning Cost Estimate, Revision 1 (w/o Figures and Drawing(s) section) (PUBLIC)
3. Figures and Drawing(s) section (NON-PUBLIC)

cc: Tilda Liu, Sr. Project Manager
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RESPONSE
TO REQUEST FOR ADDITIONAL INFORMATION
RELATED TO CALENDAR YEAR 2015 DECOMMISSIONING COST ESTIMATE
HONEYWELL METROPOLIS WORKS
COST ACTIVITY CODE NUMBER L34349

RAI 1

Update the basis for cost estimates in the decommissioning funding plan (DFP) (Title 10 of the *Code of Federal Regulations* (10 CFR) 40.36(d)(1)(ii); NUREG 1757, Volume 3, Rev. 1, Appendix A, Section A.3.1 and A.3.2).

The requirements in 10 CFR 40.36(d)(1)(ii) state that a DFP must contain "identification of and justification for using the key assumptions contained in the DCE." In addition, NUREG-1757, Volume 3, Rev. 1, Appendix A, Section A.3.1 states that "a decommissioning estimate should contain a substantial level of detail, consistent with the guidance presented in this section, to allow the [U.S. Nuclear Regulatory Commission] to fully evaluate the adequacy of the estimate" and that "the labor estimates, material costs, and other factors of the cost estimate should have a clear and reasonable basis."

In the 2015 DCE, the licensee relies on the "Site Reclamation Cost Estimate for Plant Located in Metropolis, Illinois, Revision 0, dated May 2006" (2006 DCE) as the basis for a significant share of the decommissioning costs (e.g., radiological waste disposal costs, waste transport costs, final survey equipment and material costs). These costs were originally estimated in 2006. Since that time, the licensee has inflated the costs in subsequent DCE updates using the cost escalation factor calculated by the licensee according to the methodology in NUREG-1307, Rev. 15, "Report on Waste Burial Charges: Changes in Decommissioning Costs at Low-Level Waste Burial Facilities."

The underlying basis for the cost estimates (i.e., 2006 DCE) is 10 years old. As a result, the inflated cost estimates may no longer be representative of the current price of goods and services. NUREG-1757, Volume 3, Rev. 1, Appendix A, Section A.3.2 states that, "In general, cost estimates should be updated with the current prices of goods and services at least every 3 years or when the amounts or types of material at the facility change. Triennial adjustments should be made to account for inflation, for other changes in the prices of goods and services (e.g., disposal cost increases), for changes in facility conditions or operations, and for changes in expected decommissioning procedures."

In order to ensure adequate funds are provided for decommissioning, the licensee is requested to provide a more current basis for the DCE.

RESPONSE TO RAI 1

The 2006 Site Reclamation Cost Estimate for Plant Located in Metropolis, Illinois (2006 DCE) has been used as the basis for the estimate but it has been adjusted/modified as necessary since that time to account for the substantive changes at the Honeywell – Metropolis Works (MTW) facility that have an impact on the DCE. The latest triennial adjustment accounts for inflation, changes in the prices of goods and services (*e.g.*, disposal and labor costs), changes in estimates of soil that will require disposal, and changes to site conditions and operations. These changes/updates

provide a current basis for the DCE and ensure adequate funds will be available for decommissioning. The following is a detailed discussion of the changes that have occurred in the 2009 DCE, 2012 DCE, and 2015 DCE to ensure that there are adequate funds for decommissioning.

The 2009 DCE was revised to account for soil that was determined to be impacted based on the characterization of site soils documented in the Honeywell Metropolis Works Radiological Characterization Report For Site Soils Rev. 0 dated January 11, 2010. As a result of the characterization data collected and other costs adjustments, the decommissioning cost estimate increased from $156,348,034 to $186,610,047. As noted in Table 4-1 of the 2009 DCE for Honeywell – MTW (Rev. 1 dated July 27, 2010), the following are the additional costs added to account for impacts to site soils:

- Additional soil plant areas P1-P25 $23,810,469
- Additional soil non-plant areas NP1-NP5 plus additional soil adjacent to subsurface piping $4,019,953

Similarly the 2012 DCE for Honeywell – MTW (Rev. 0 dated August 15, 2012) was revised to account for facility changes. Mostly notably, costs were increased because of an increase in general plant area waste, while a cost reduction was taken due to improved waste management practices. The overall reduction in waste inventory on site was shown in the detailed list provided in Section 5.2 (page 30) of the 2012 DCE. Several other smaller adjustments were identified, but the primary cost adjustment drivers for the 2012 DCE are the two specific items stated above and are as follows (as shown in Table 4-1 of the 2012 DCE):

- General Plant Area Waste $281,410
- Savings from A-10 -$7,350,024

The decommissioning cost estimate increased from $186,610,047 (2009 DCE) to $197,354,356 (2012 DCE). The DCE increased because of the inflationary adjustment of other costs (the facility changes noted would have resulted in a net decrease).

Lastly, the 2015 DCE for Honeywell – MTW (dated December 7, 2015), was revised to account for the changes documented in Section 1.2.1 (on page 3 of the 2015 DCE). As a specific example, Honeywell obtained a quote from EnergySolutions for the disposal of Bulk Survey for Release (BSFR) waste and waste that fails to meet the BSFR criteria. The quoted rate for BSFR waste of $0.32 per pound and waste that does not meet the BSFR criteria of $2.52 per pound were provided in Attachment A of the 2015 DCE. The BSFR rate used in the 2015 DCE is higher than an inflationary increase of the BSFR disposal rate used in the 2012 DCE ($0.263 per pound). Similarly, the rate for waste that does not meet the BSFR disposal criteria in the 2015 DCE is higher than an inflationary increase of the disposal rate for waste that does not meet the BSFR criteria used in the 2012 DCE ($1.481 per pound). Therefore, the net increase (using quoted rates instead of an inflationary adjustment) in the disposal rates is as follows:

- BSFR waste +$0.057 per pound; and
- Waste that fails to meet the BSFR waste criteria +$1.339 per pound.

Other substantive changes and the associated costs (as shown in Table 4-1 of the 2015 DCE) are as follows:

- Sanitary Wastewater Treatment Plant $150,000
- Aggregate in Waste Storage Area $3,088,000

- Aggregate (LLRW) from FMB/HF rail $347,000
- Seismic Upgrades $2,818,000

These substantive facility changes (and other cost adjustments) resulted in the decommissioning cost estimate increasing from $197,354,356 (2012 DCE) to $254,238,000 (2015 DCE).

Regarding the "identification of and justification for using the key assumptions contained in the decommissioning cost estimate (DCE)", the key assumptions are provided in the 2015 DCE in Section 1.4 titled "Assumptions and Bases" (on page nos. 5 and 6).

The costs associated with the modified basis for the 2015 DCE are provided in Appendix A-15 titled Decommissioning Cost Estimates for New Items. Appendix A-15 contains a detailed calculation for the four major cost items as follows:

- Sanitary Wastewater Treatment Plant
- Aggregate in Waste Storage Area
- Aggregate (LLRW) from FMB/HF rail
- Seismic Upgrades

The detailed calculations (in Appendix A-15) provide references to the unit rates for labor and materials [RSMeans Site Work & Landscape Cost Data (34th Annual Edition) (2015)]. Unit rates for BSFR are rates quoted in 2015 by EnergySolutions and are referenced when applicable. The unit rates for LLRW are based on the 2006 DCE and have been adjusted for inflation. These rates are considered conservative since recent market economic conditions have resulted in EnergySolutions lowering their low-level radioactive waste (LLRW) disposal rates. Honeywell has quoted rates from EnergySolutions for LLRW that are substantially less than the $182.20/cubic foot disposal rate for LLRW used in the 2015 DCE. Honeywell considered using the quoted LLRW disposal rate but, to be consistent and conservative, decided to use the higher rate in the DCE.

Based on this detailed summary, Honeywell concludes the modified basis used in the 2015 DCE meets the intent of the requirements as the key assumptions have been identified and justified and the cost estimate was modified as necessary to account for current site conditions and current unit and labor rates. Honeywell has taken a conservative approach regarding LLRW disposal costs (which are a significant portion of the overall decommissioning costs). Therefore, based on currently available information there is adequate funding for decommissioning.

Based on a conference call (on Friday, April 8, 2016) between Honeywell and NRC to discuss clarifications on the draft Request for Additional Information (RAI) questions, the NRC (Kenneth Kline) noted that there may be potential savings/benefits if more specific information was used instead of inflating historical costs. Similarly, the NRC further noted that specific market area sectors (such as fuel prices) may actually have had deflation which would result in a reduction of costs. As noted earlier, Honeywell is aware that quoted LLRW disposal rates could result in a reduction of costs but has taken a conservative approach. As for the various market impacts, there are various market factors that are used to estimate the overall inflation. Details are provided in Appendix A-14 (Cost Escalation Methodology Factors) in the 2015 DCE. There are three factors, namely energy, burial (waste), and labor that have been adjusted for each update.

RAI 2

Revise or justify labor unit costs (10 CFR 40.36(d)(1)(ii); NUREG-1757, Volume 3, Rev. 1, Appendix A, Section A.3.1.2.1)

The requirements in 10 CFR 40.36(d)(1)(ii) state that a DFP must contain "identification of and justification for using the key assumptions contained in the DCE." In addition, NUREG-1757, Volume 3, Rev. 1, Appendix A, Section A.3.1.2.1, states that "the source for the labor costs ... should be described in sufficient detail to allow the NRC staff to confirm them."

Although the 2015 DCE states that labor rates are escalated using the cost escalation factor calculated by the licensee and lists labor rates in Section 4.6, the DCE does not provide the basis for the labor costs. Based on the NRC staff's past reviews of Honeywell's DCE and request for additional information responses, we understand that in the licensee's 2009 DCE labor costs were based on data from the RS Means Building Construction Cost Data and independent third-party contractor estimates. However, this basis is not identified or justified in the 2015 DCE.

In order to ensure adequate funds are provided for decommissioning, the licensee is requested to revise or justify the basis for labor costs in the DCE's description of labor-related costs.

RESPONSE TO RAI 2

As noted, past updates have used RS Means Building Construction Cost Data and independent third-party contractor estimates for labor costs. This was the case for the 2015 DCE. Therefore the text in Section 1.4 was modified to provide reference to 2015 RSMeans as follows:

Labor rates used to update the costs were obtained from 2015 RSMeans Site Work & Landscape Cost Data (34th Annual Edition). By using these rates, the decommissioning cost estimate meets the requirement that costs be based on an independent third-party estimate.

Though not explicitly stated in the text, Appendix A-15 references the 2015 RSMeans which was used to estimate the labor unit costs for significant facility changes.

RAI 3

Clarify the volume of contaminated soil (10 CFR 20.1501(a); 10 CFR 40.36(d)(1)(i)(C); NUREG-1757, Volume 3, Rev. 1, Appendix A, Section A.3.1.1).

The provisions in 10 CFR 20.1501(a) require licensees to perform surveys of the licensed facility, including the subsurface, to evaluate "(i) the magnitude and extent of radiation levels; and (ii) concentrations or quantities of residual radioactivity; and (iii) the potential radiological hazards of the radiation levels and residual radioactivity detected." The provisions of 10 CFR 40.36(d)(1)(i)(C) require that the DCE be in an amount reflecting "[t]he volume of onsite subsurface material containing residual radioactivity that will require remediation." NUREG-1757, Volume 3, Rev. 1, Appendix A, Section A.3.1.1 states that the facility description, which provides the basic context for the DCE, should contain "an estimate of the volume of contaminated material, including that in the subsurface, containing residual radioactivity that will require remediation to meet the criteria for license termination."

In the 2015 DCE, the licensee considered subsurface contamination, relying on a site characterization conducted in 2009, which estimated the volume of contaminated soil in the plant and non-plant surface and subsurface soils. Section 4.0 of the DCE states that "there has been no additional information collected that would result in a net change in the volumes of impacted surface and subsurface soil material since 2012." However, as shown in Table 1 below, when compared to the 2012 DCE, the 2015 DCE presents lower volumes of impacted soil in the non-plant area and areas adjacent to subsurface piping.

Table 1. Estimated volumes of impacted surface and subsurface soil at the Honeywell facility

Location of impacted soil	Volume of impacted soil (ft^3)*		
	2012 DCE	2015 DCE	Δ in Volume (2015 DCE – 2012 DCE)
Plant areas	718,692 ft^3	718,692 ft^3	0 ft^3
Non-plant areas	153,897 ft^3	110,194 ft^3	- 43,703 ft^3
Areas adjacent to subsurface piping	156,675 ft^3 **	129,622 ft^3	- 27,053 ft^3
Total volume of impacted soil	**1,029,264 ft^3**	**958,508 ft^3**	**- 70,756 ft^3**

* Source: See Section 3.4.4 of the 2012 DCE and 2015 DCE for volumes of impacted soil in plant areas and non-plant areas. Section 3.4.4 of the 2015 DCE also identifies the volume of impacted soil in areas adjacent to subsurface piping.

** For the 2012 DCE, the licensee provided an estimate for the volume of impacted soil adjacent to subsurface piping in RAI responses dated May 30, 2013.

In order to ensure adequate funds are provided for decommissioning, the licensee is requested to provide the basis for the change in volumes of impacted soil in non-plant areas and areas adjacent to subsurface piping decreased.

RESPONSE TO RAI 3

The differences in the volume of soil accounted for in the 2012 and 2015 DCEs is clarified by examining the volumes in Table A-12.

In the 2012 DCE, a bulking factor of 1.42 was applied to the calculated in-situ volume of 153,897 cubic feet (ft^3) of impacted soil, including both soils from the non-plant areas and soils adjacent to subsurface piping. This "bulked volume" of 218,534 ft^3 was included in Table A-12. It was shown under the Item titled "Additional non-plant soils & sub-surface piping".

In the 2015 DCE, the in-situ volume of 110,194 ft^3 (soil from the non-plant areas) and 129,622 ft^3 (subsurface piping) were similarly bulked using the same factor of 1.42. These "bulked volumes" were included in Table A-12 as 340,539 ft^3 [(110,194 ft^3 + 129,622 ft^3)*1.42]. These were shown under the Item titled "Additional non-plant soils & sub-surface piping".

Therefore there was a net increase in the volume considered for the "Additional non-plant soils & sub-surface piping" between the 2012 DCE and the 2015 DCE. The 2012 DCE was in error and should have accounted for the larger volume noted in the 2015 DCE.

The text in the 2015 DCE has been revised to note the increase in volume from the 2012 DCE. This added description clarifies the basis for the increased volume. The revised text in Section 3.4.4 is as follows:

The volume of impacted soil associated with the non-plant areas and adjacent to subsurface piping is 239,816 ft^3 (110,194 ft^3 of soil from non-plant areas and 129,622 ft^3 of soil adjacent to subsurface piping). This is an increase from the 2012 Report. The larger volume should have been used in the 2012 DCE.

To further clarify this change, the following text was added to Section 4.0:

As noted in Section 3.4.4, there was an error in the 2012 Report that, when corrected, resulted in a net increase in the impacted soil associated with the non-plant areas and adjacent to subsurface piping in the 2015 Report.

RAI 4

Section 4.0 of the 2015 DCE states that "this update did not modify the volumes associated with buildings and structures (Table A-1) from the 2012 Report." However, as stated in Section 3.5 of the DCE, the licensee remediated a portion of the roof above the Laundry Area. Tables 4-5 and A-1 show *EnergySolutions* Direct Bury Waste Volume is 0 ft^3 in the 2015 DCE, compared to 500 ft^3 in the 2012 DCE. The licensee is requested to justify this variance or modify its statement in Section 4.0 to reflect the changes to administrative areas which resulted in a lower volume of waste.

RESPONSE TO RAI 4

The statement in Section 4.0 was modified to note that the volume was adjusted to account for the 500 cubic feet removed from the roof above the Laundry Area. The revision is as follows:

This update to the DCE did not modify the volumes associated with buildings and structures in Table A-1 from the 2012 Report except for the roof above the Laundry Area.

Section 4.3 was revised as follows:

This update to the DCE did not modify the volumes associated with buildings and structures in Table A-1 from the 2012 Report except for the roof above the Laundry Area. The roof above the Laundry Area was remediated so the 500 cubic feet of waste has been removed from Tables 4-5 and A-1 accordingly.

The following sentence was deleted from Section 4.3 for clarity:

This is due to waste management practices that have resulted in no net change in the general volume of waste (waste inventory) on-site that would require disposal.

RAI 5

The licensee is requested to identify its plan for inventory onsite and how these costs are covered. For example, how will the material onsite which is not considered waste be safely packaged, loaded and transported offsite to another licensee which can accept the material, and how these costs are covered.

10 CFR 40.36(d)(1)(i)(A) requires that a DFP must contain a DCE for decommissioning, in an amount reflecting the cost of an independent contractor to perform all decommissioning activities.

10 CFR 40.36 (d)(1)(ii) requires that a DFP must identify and justify the key assumptions contained in the DCE.

10 CFR 40.36(d)(2)(v) requires that licensees specifically consider the effect of changes in authorized possession limits on decommissioning costs.
Page 4-11 of NUREG-1757, Vol. 3, Rev. 1 states that the cost estimate should not take credit for any salvage value that might be realized from the sale of potential assets during or after decommissioning or reduced taxes that might result from payment of decommissioning costs or

site control and maintenance costs. Page A-22 states that the site-specific cost estimate must assume that the decommissioning work should represent the licensee's best approximation of all direct and indirect costs of decommissioning its facilities under routine facility conditions. The assumption that routine facility conditions will prevail at the time of decommissioning implies that the cost estimate need not consider a worst-case decommissioning scenario. Inventories of materials and wastes at the time of decommissioning will be in amounts that are consistent with routine facility conditions.

NUREG-1757, Volume 3, Rev. 1, Appendix A, Section A.3.1, calls for the submission of a cost estimate to include a substantial level of detail to allow NRC to fully evaluate the adequacy of the estimate and determine whether it was developed in accordance with NRC regulations and guidance.

RESPONSE TO RAI 5

The disposition of uranium inventory at MTW is an operational and commercial issue, not a matter within the scope of decommissioning. Site inventories of source material, including ores, in-process material, and UF6, will be removed from the site prior to the start of decommissioning.

The uranium inventory at the site belongs to customers, not Honeywell. Honeywell never takes title to the uranium (except for the processing loss, which is accounted for already in the decommissioning cost estimate as waste and residual radioactivity). Uranium storage contracts for MTW contain language authorizing the owner to retrieve its uranium in the event that MTW is permanently shut down.

For unprocessed uranium ore, contracts provide that MTW will, at the owner's expense, package the material in appropriate drums meeting applicable specifications and load the drums onto the trucks of the licensed transporter provided and paid for by the owner for transport to an appropriately licensed facility. In-process source material will be processed into UF6 and the finished product placed into cylinders suitable for transport. The time needed to complete the process of converting in-process uranium into UF6 is approximately 3 months. As provided by contract, cylinders containing finished UF6 product would be retrieved by the owner at the owner's expense. The owner also is responsible for obtaining and providing all required documentation.

The costs to disposition the uranium ore and UF6 inventory at the site in the event of a permanent shutdown therefore are the responsibility of the owner of the uranium. These costs appropriately are not included in the MTW decommissioning cost estimate.