UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Ref: 4WD-SRB MAY 17 2011

Via Delivery as Email-attachment to Prashant.gupta@honeywell.com and Certified Mail

Mr. Prashant K. Gupta
Honeywell, Inc.
4101 Bermuda Hundred Road
Chester, VA 23836

Re: Notice of Disapproval of December 2010 Draft of the *Human Health Risk Assessment (HHRA) for the Estuary, Operable Unit 1, Marsh Trespasser, Fish and Shellfish Consumer, Clapper Rail Consumer*: LCP Chemical National Priorities List Site, Brunswick, Glynn County, GA

Dear Mr. Gupta:

The purpose of this letter is to notify Honeywell, Inc. (Honeywell) that the Environmental Protection Agency (EPA or Agency) is hereby disapproving the company's December 2010 draft Human Health Risk Assessment(HHRA) submitted for the Estuary, designated as Operable Unit (OU1) of the LCP Chemical Superfund Site. Pursuant to Section VIII, Paragraph A of the Administrative Order by Consent for the Remedial Investigation/ Feasibility Study, Docket No. 95-17-C (RI/FS AOC), EPA is directing Honeywell to cure the remaining deficiencies, as described below, and resubmit the revised final draft HHRA for OU1 to EPA for approval within 21 calendar days of receipt of this letter. Note that, pursuant to the RI/FS AOC, once EPA approves or modifies a deliverable or portion thereof, Honeywell may not alter or amend such deliverable or portion unless directed by EPA to so do.

As you know, in March 2008 Honeywell, Inc. submitted a draft HHRA pertaining to OU1 to EPA for review and approval. In turn, EPA provided Honeywell with a letter dated June 20, 2008, in which the document's various deficiencies were set out and suitable changes described. Subsequently, Honeywell modified the document and resubmitted it to EPA for review and approval. Our records indicate that EPA received responses to its comments letter and the revised draft of the OU1 HHRA from Honeywell in October 2008. EPA pointed out the deficiencies in the October 2008 document in a June 9, 2009 letter, which resulted in the submittal of the July 2009 revision of the OU1 HHRA. In my December 10, 2009 letter, I once more pointed out deficiencies in the July 2009 draft. This was followed by an e-mail message I sent you on January 7, 2010, informing you that EPA had decided to provide Honeywell with the summary statistics to use in the final revision of the OU1 HHRA. The summary statistics were sent to your attention on September 17, 2010. This notice of disapproval of the December 2010 draft of the OU1 HHRA is based primarily on the fact that a significant change requested in my December 10, 2009 letter was not incorporated into the December 2010 submittal or raised for discussion by Honeywell. Therefore, pursuant to Section VIII of the RI/FS AOC, EPA is once

again directing that Honeywell cure this deficiency, summarized below, as well as the remaining deficiencies outlined in the rest of this letter.

Section 4.4

The exposure frequency (EF) of six days per year mentioned in pages 9 and 11 of Section 4.4 for the marsh trespasser scenario must be revised, as previously directed. Although Honeywell may still support using a six-day-a-year frequency for the marsh trespasser, EPA stands by its conclusion that a 52-days- per-year EF for this scenario is appropriate.

Honeywell has argued that a six-day-a-year frequency for the marsh trespasser is reasonable because several of the areas where estuary soil and sediment were sampled contain soft, marshy ground that are very difficult for a human to repeatedly access and therefore chronic repeated exposure to these areas would not be expected. Based on this concern, EPA removed the samples collected from the soft sediment from the database used to calculate the exposure point concentrations (EPCs). The remaining data used to calculate the EPCs reflect samples which were taken in areas where human access would not be severely hindered. Since this Site is adjacent to populated areas, in order to ensure that health risks to both current and future receptors posed by the Estuary are not underestimated, EPA has selected an EF of 52 days. Honeywell therefore needs to revise the risk assessment for all instances where the EF for this human visitor is discussed, used in a calculation, used in any presentation, used in a discussion of risks, or presented in text or tables. For example, in Section 4.4 on page 9 of the December 2010 version of the OU1 HHRA, the paragraph that begins on line 13, which provides and discusses the exposure frequency for this site visitor, needs to be revised. Also see **Table 7 in the December 2010 HHRA, which includes an exposure frequency of 365 day per year while an exposure frequency of six days per year is reported on Page 11 of Section 4.4.**

Also in Section 4.4, on Page 11, the DA_{event} sample calculation for Aroclor 1268 uses an exposure point concentration (EPC) of 2.37 mg/kg obtained from the prior version of the HHRA instead of the revised EPC of 2.571 mg/kg recommended by EPA (page 1 of Table 1) in its September 17, 2010 letter. Based on this recommendation, the DA_{event} sample calculation for Aroclor-1268 should be revised such that it is consistent with the DA_{event} listed in the tables for this constituent.

Section 4.5

On Page 13 of Section 4.5 "Fish Consumption Rates," Honeywell states that estimates of the fish consumption rates are shown in Table 10 and their derivation is presented in Appendix A. Although the consumption rates were presented in Table 10, Appendix A does not support the derivation of the fish consumption rates. Appendix A presents the computation of the EPCs. It appears a more appropriate section for referral would have been Appendix B, Table A-1. Please correct.

Section 4.7

Move the first full paragraph on page 16, regarding the Google™ search on "clapper rail," to the Uncertainty Section.

Section 8.2

The arguments made in Section 8.2 (Decreasing Concentration in Fish) are flawed. The argument for decreasing concentration focuses on a comparison between Aroclor 1268 concentrations reported from the Site in the 1998 paper by Kannan and others to the EPA-calculated EPCs for blue crab, seatrout and mullet, which were transmitted to Honeywell in my September 17, 2010 letter. In the case of blue crab, the Aroclor 1268 concentration reported in the Kannan paper is that from hepatopancrea tissue, hence the correct comparison is not being made, since the tissue that the EPCs was calculated from was not limited to the hepatopancrea, which would have significantly higher concentrations of the contaminant. Further, Table 25 incorrectly cites the Kannan paper's Aroclor 1268 concentrations in the seatrout and the mullet. The correct concentrations for the seatrout and mullet should be 0.79 and 3.39 mg/kg, respectively. Hence, the "decrease" argued is likely not statistically significant. This error affects Section 8.2, Table 25 and the final sentence in Section 4.5. Remove all references to reduction of Aroclor 1268 over time for the reasons cited above.

Section 9.0

Remove Section 9.0 "Risk Management Considerations" from the document, since risk management decisions are not discussed as part of a human health risk assessment

Table 1

One of EPA's previous comments related to background concentrations shown on Table 1. EPA asked Honeywell to add an explanation about how the average backgrounds levels were obtained. It does not appear that such explanation was added to the text or table. Additionally, Table 1 now has a background concentration ("Avg BG") listed for Aroclor 1268. This is likely the result of an error in the spreadsheet provided to Honeywell, in my October 20, 2010 letter. The 1.49 value may have originated from the average detected concentration for PCB-1268, presented in Table 1 of the July 2009 draft of the OU1 HHRA. It does not appear that this alteration has affected the quantitative risk calculations. For clarity, however this value should be removed from Table 1.

Table 6

In Table 6, the percent moisture was cited incorrectly as 65.30% for benzo(a)pyrene toxic equivalents (TEQ) and Aroclor 1268. Note that the percent moisture should be based on the average percent moisture in marsh sediment samples of 67.82% calculated in Table 5. Revise the value in Table 6 to be consistent with the value listed in Table 5 and revise all DA_{event} values as needed. Note that this only results in a change to the DA_{event} for benzo(a)pyrene TEQ from 4.7e-08 to 4.6e-08 mg/cm^2.

Tables 8a and 8b

As described in the footnotes to Tables 8a and 8b, the 0.6 factor should be applied only to the adult risk. The adjusted risk to the adult should be added to the full risk of the adolescent and the child. Review of the total risk on Tables 8a and 8b indicates that this was not applied. Revise the tables and text accordingly.

Table 11

In Table 11, the source of the values should be included as a footnote (e.g., MRFSS). In addition, change the yearly weighting factor for the spot fish from 0.04% to 0.05%, based on the averaging of the monthly values. Note that this does not impact the cumulative hazard or risk estimates for the consumer-specific receptors.

Table 19

With respect to the cumulative hazard for the child clapper rail consumer, the exposure duration was listed in Table 19 as five years instead of the EPA-directed six years in the report. Once again, EPA is requesting that all exposure assumptions be kept consistent throughout all tables in the report. In addition, the hazard quotient listed for Aroclor 1268 in Table 19 was incorrect by an order of magnitude, even though the estimated total intake and cancer slope factor were listed correctly. Revise the hazard quotient for the child clapper rail consumer from 0.4 to 4 and the cumulative hazard from 1.1 to 4.6 in Table 19.

Table 21

Due to a recent update to the Regional Screening Levels Table (November 2010), the toxicity values listed for chromium in Table 21 should be updated to reflect the addition of an oral cancer slope factor of 0.5 $(mg/kg\text{-}day)^{-1}$ and the corresponding adjusted dermal cancer slope factor of 20 $(mg/kg\text{-}day)^{-1}$. Furthermore, although Equations 9a and 9b of the HHRA were cited correctly from Risk Assessment Guidance, Part E, the adjusted dermal reference dose (RfDa) value for Aroclor 1268 listed in Table 21 is incorrect. The correct RfDa for Aroclor 1268 is 7e-05 mg/kg-day. Please revise.

Table 22

Table 22 presents a comparison of the MOA-specific bio-persistent equivalents in Aroclors 1016, 1254, and 1268. This table separates the reasonable maximum exposure (RME) risk calculation tables from the summary of risk estimates table. It is recommended that this table be moved to a more relevant section, such as at the end of Section 8.4 of the "Uncertainty Assessment" section, or inserted after Table 25 where the three Aroclor mixtures are presented in further detail.

Table 23

Although most of the RME cumulative hazard estimates were correct, with the exception of the marsh trespasser and child clapper rail consumer hazard estimates, all of the RME lifetime cancer risk estimates for the consumer-specific receptors were incorrect. The following discrepancies in the summation of the adult, adolescent, and child risk estimates (lifetime cancer risk) were noted between the draft HHRA values and those calculated by EPA. Revise the tables and Section 6.0 to reflect this change. All RGOs must be revised as necessary. It is recognized that the marsh trespasser lifetime risk will change, once the EF is changed.

Exposure Scenario	Lifetime Cancer Risk in HHRA	EPA's Lifetime Cancer Risk
Marsh Trespasser	1.6e-06	4.8e-05
Recreational Finfish Consumer	1.1e-04	1.4e-04
Subsistence Finfish Consumer	2e-04	3e-04
Shellfish Consumer	5.8e-05	8.5e-05
Clapper Rail Consumer	9.9e-05	1.5e-04

Table 24c

In Table 24c, include the RGO range estimates less than the EPC for the adolescent shellfish consumer. In addition, the cancer RGOs for EPA's target risk range should be shown in the table.

Figure 1-2

Figure 1-2 was included at the end of Appendix A. Explain the reason a figure of the ecological risk assessment framework was inserted in the appendix of the ProUCL output summary and the relevance of incorporating it into the HHRA. Since this figure was not included in the electronic version of the HHRA, confirm if it was inadvertently inserted into the report.

RGOs were not derived for the marsh trespasser direct exposure to sediment scenario. Include a table of the RGO summary estimates for this exposure scenario in the HHRA.

Appendix B

EPA does not find the information presented in Appendix B substantial enough to require its own appendix. For the sake of transparency and clarity, the discussion on the development of RME values for the subsistence fish consumers would be more appropriate in Section 4.5 "Fish Consumption Rates" and "Proportion of Species" sections. For reproduction, it is recommended that Table A-1 include a table of the 12 monthly values that were multiplied by the MRFSS weighting factors to obtain the monthly fish consumption rates. This can be done by inserting an additional table in Table A-1 of the 12 monthly values, the fish availability weighting factors, and their product, along with the 50^{th} percentile chosen to represent the age-specific subsistence

fish consumption rates (adult 27 g/day, adolescent 18 g/day, and child 10 g/day).

Editorial Comments

- Page 4: Typo in first line " in the" included twice;
- Page 4: Missing close parenthesis in second to last sentence;
- Page 5: Line 7 seems to be missing a word or words, or "is" is supposed to be "are;"
- Page 5: Fourth line of last paragraph misspells "carcinogenic;"
- Page 6: (3.4) Line 9, suggest a comma after "set;"
- Page 6: Second to last line, the word "detected" is misspelled;
- Page 25: (6.1) Word "with" before "sediment" is missing;
- Page 33: First paragraph, line 4, "appears" to match "comparison;"
- Page 33: Last line at the bottom of page, "orders" as in the second, third and fourth line on page 34;
- Page 34: (8.5), line 10, suggest changing "from" to "on;"
- Page 35, paragraph 2, line 3, suggest "indicate" to agree with "review" in line 2.

In addition to submitting the fully revised final draft of the OU1 HHRA, please send all the electronic files, in Word or Excel format, used to create the revised HHRA for OU1. If the preceding changes are not made and submitted to EPA within fifteen (15) calendar days of receipt of this letter, EPA will direct its contractor to finalize the OU1 HHRA.

If you have questions regarding the preceding, please contact me at (404) 562-8937.

Sincerely,

Galo Jackson, P.G.
Remedial Project Manager
Superfund Remedial Branch

cc: J. McNamara, GaEPD