February 25, 2015

Mr. Mostafa Mehran
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118

Re: Response to ADEQ Correspondence Dated January 23, 2015
Area 1 Response Report – December 2014
Whirlpool Corporation
Fort Smith, Arkansas
EPA No. ARD042755389
AFIN No. 66-00048
CAO LIS 13-202

Dear Mr. Mehran:

ENVIRON International Corporation (ENVIRON), on behalf of Whirlpool Corporation, is submitting this response to Arkansas Department of Environmental Quality (ADEQ) January 23, 2015 comments on the Area 1 Response report – December 2014 (comments were received on January 26, 2015). ADEQ comments are reiterated below followed by ENVIRON's response to each comment.

Our responses to ADEQ's comments on the Area 1 Response Report overlap the public comment period for the draft 2014 Revised Remedial Action Decision Document (RADD) issued by ADEQ on December 19, 2014. Although we have provided specific responses to ADEQ's comments on the Area 1 Response Report, these responses should be considered in the context of the comments provided on the draft Revised RADD.

Our response to ADEQ's comments on the Area 1 Response Report also take into account our recent understanding that ADEQ's objectives for soil removal or treatment in the source area are specifically focused on Vadose Zone soil in the linear drainage feature.

ADEQ Comment #1

December 12, 2014 Cover Letter: The source area for trichloroethene (TCE) plume at the Whirlpool facility (located at the northwest corner of the manufacturing building) has been shown to have soil TCE concentrations as high as 3300 mg/kg and is contributing to the southern TCE groundwater plume. The remedial action level of 0.129 mg/kg as defined in the Remedial Action Decision Document (RADD) is required for the protection of groundwater at the site. Please provide a work plan for the reduction of TCE contaminated soil concentrations through thermal desorption or soil removal to below the remedial action level in the source area at the Whirlpool facility.

ENVIRON Response: The specific soil sample referenced was collected at DP-08 at a depth of 18.5 to 19 feet below ground surface in June 2014. This soil sample was collected from the saturated zone (we presume the soil RAL is more applicable to the Vadose Zone soil). Since the sample at DP-08 was collected, remedial activities in this area as described in the January 14, 2015 Annual Report (2014 Annual Report) have included a voluntary soil

removal via performance of a large diameter borings immediately adjacent to DP-08 (LDB-11) (including passive adjustment of groundwater pH due to backfill of the large diameter borings with limestone gravel) and in-situ chemical oxidation (ISCO) in the immediate vicinity [injection wells IW-141 (immediately up-gradient of DP-08), IW-142 and IP-3-06]. These remedial activities were completed in early November 2014. Overall, TCE concentrations in groundwater in Area 1 were reduced by approximately 50% during these remedial efforts as described in the 2014 Annual Report.

As discussed in Whirlpool's February 20, 2015 letter regarding comments on the draft Revised RADD, the December 2013 RADD specified the remedial actions to be taken at the site to reduce concentrations of TCE in soil and groundwater during an extremely aggressive two-year remediation schedule, as well as specific measures to evaluate the effectiveness of those remedial actions over the same two-year period. The currently operative 2013 RADD requires containment as a remedy for on-site soil; it does not require a work plan for the reduction of TCE contaminated soil concentrations through thermal desorption or soil removal. Thus, ADEQ's request for such a workplan in these comments falls outside the scope of work required under the Consent Administrative Order.

ADEQ's December 2014 proposal to revise the RADD and the remedial actions contained therein after only one year is premature, particularly in light of the documented effectiveness of the existing remedial approach. The data collected to date strongly support the conclusion that the 2013 RADD remedy is working as intended, is protecting human health and the environment, and has resulted in measurable, tangible improvements. Additional soil removal or treatment in the Vadose Zone soil in the linear drainage feature will not:

- Reduce TCE concentrations in groundwater within the aggressive two-year remediation schedule that terminates in late December 2015; and
- Result in a cost effective remedy for reduction of TCE concentrations in groundwater when compared with the ISCO remedy completed in Area 1 and the linear drainage feature.

In light of ADEQ's December 2014 proposed draft Revised RADD and Whirlpool's comments on that document, both of which further address these issues, a work plan for reduction of TCE concentrations in Vadose Zone soil in the linear drainage feature has not been provided in response to these comments.

ADEQ Comment #2

Section 3, Consideration of Further Soil Excavation in Area 1, Second Paragraph, Fourth Bullet: It is stated "Complications resulting from the potential need to remove relatively less impacted Vadose Zone soil in order to reach more highly impacted deeper soils." This statement contradicts the statement made, in Section 2, Overview of Area 1, First paragraph, Third Bullet, indicating that contamination generally decreases with depth. Please clarify.

ENVIRON Response: The fourth bullet in Section 3 - *"Complications resulting from the potential need to remove relatively less impacted Vadose Zone soil in order to reach more highly impacted deeper soils"* is a true statement. Vadose zone soil impacts are primarily

associated with the linear drainage feature; therefore, accessing impacted saturated soils in remaining portions of Area 1 (i.e. outside of the linear drainage feature) requires: (1) removal of concrete pavement providing containment for the impacted soil in the area; and (2) management of less impacted Vadose Zone soils to access the deeper saturated soils exhibiting higher TCE concentrations.

The discussion in Section 2, Overview of Area 1, First paragraph, Third Bullet, indicating that contamination generally decreases with depth is focused on soil in the linear drainage feature, and is also a correct statement.

We hope the above discussion clarifies the confusion regarding the text in the Area 1 Response Report.

AEQ Comment #3

General Comment: The excavation of the soil in the linear drainage ditch via four (4) feet diameter soil borings with approximate fifteen (15) feet diameter between them, has removed only approximately 210 yd^3 of contaminated soil (less than 1 percent of the 28900 yd^3 of contaminated soil estimated in the report to be present in Area 1). Although the soil contamination in Area 1 is no longer feeding the northern plume, the current presence of southern plume extending beyond the southern site of manufacturing building indicates that Area 1 soils continue to act as a source for the southern plume. Therefore, reduction or elimination of this contamination source is essential to the remediation of southern groundwater plume as it continues to move to the south.

ENVIRON Response: We concur the soil impacts in the Vadose and saturated zones in the linear drainage feature and Area 1 are not contributing to impacts in the northern plume.

The southern groundwater plume only marginally extends beyond the south boundary of the building and remains wholly contained within the Whirlpool site. Potential exposures to groundwater in the southern plume are protected by institutional controls which do not allow the use of groundwater and provide the appropriate risk protection for on-site workers, maintenance or construction workers to preclude unprotected exposures.

The presence of the leading edge of the south plume beyond the south boundary of the former manufacturing building does not suggest that reduction or elimination of soil impacts in Vadose Zone soil in the linear drainage feature is essential for future management or remediation of the south plume. Fate and transport parameters to assess the stability of the southern plume need to consider the:

- Reduction of TCE concentrations in groundwater by approximately 50% at Area 1 as a result of the remediation performed in November 2014;
- Assessment of MNA parameters for the southern plume; and
- Extent of the southern plume which has not migrated close to the southern or eastern boundaries of the site.

In fact, the proportion of cis-1,2-dichloroethene (cis-1,2-DCE) concentrations compared to TCE concentrations in southern monitoring wells ITMW-9 and ITMW-10 (50% and 13%,

respectively) suggest monitored natural attenuation (MNA) is effective near the south boundary of the former manufacturing building (cis-1,2-DCE is a breakdown constituent of TCE). Although the TCE concentrations in groundwater at ITMW-10 may be increasing (from 110 µg/L to 243 µg/L during the last five years), the TCE concentrations are approximately two orders of magnitude below risk thresholds for future on-site workers and these TCE concentrations do not limit future redevelopment of the property. In addition, the current TCE concentration in groundwater at ITMW-9 is below historic high TCE concentrations in groundwater at ITMW-9 which occurred in 1996.

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If you have any questions or comments please contact me at your earliest convenience.

Sincerely,

ENVIRON International Corporation

Michael F. Ellis, PE
Principal