

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

**Re: Response to ADEQ Correspondence Dated July 15, 2015  
Results of Outdoor, Crawl Space and Indoor Sampling June 25, 2015  
Whirlpool Facility - Fort Smith, Arkansas  
EPA No. ARD042755389  
AFIN No. 66-00048  
CAO LIS 13-202**

Dear Mr. Mehran:

Date August 19, 2015

Ramboll Environ US Corporation (Ramboll Environ), on behalf of Whirlpool Corporation (Whirlpool), is submitting this response to Arkansas Department of Environmental Quality's (ADEQ) July 15, 2015, comment letter on Ramboll Environ's Results of Outdoor, Crawl Space and Indoor Air Sampling for an offsite property. The Arkansas Department of Environmental Quality's (ADEQ's) comments are provided in italics below and the respective response follows.

Ramboll Environ  
1807 Park 270 Drive  
Suite 320  
St. Louis, MO 63146  
USA

T +1 314 590 2950  
F +1 314 590 2951  
www.ramboll-environ.com

- 1. Incorrect USEPA Regional Screening Levels were listed in this report. The residential air screening level for tetrachloroethylene (PCE) is 4.2 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and the residential air screening level for 1,2-dichloroethane (1,2-DCA) is 0.11  $\mu\text{g}/\text{m}^3$ . Please amend this report and ensure the correct screening levels are used in future reports.*

**Ramboll Environ Response:** Ramboll Environ, on behalf of Whirlpool, will honor ADEQ's request and in the future present residential indoor air screening levels at a target cancer risk of  $10^{-6}$  and a hazard quotient of 0.1. Ramboll Environ observes, as we have stated previously, that the USEPA Regional Screening Levels (RSLs) were developed strictly as *screening values* and "*are not de facto cleanup standards and should not be applied as such*" ([http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/faq.htm#FAQ3](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/faq.htm#FAQ3)).

Separate from screening values, site-specific risk estimates for complete exposure pathways are calculated following the approach in Section 6.5.2 of the ADEQ-approved Revised Risk Management Plan consisting of ADEQ's risk management limits of  $10^{-5}$  for cumulative cancer risk and noncancer hazard index of 1.

2. 1,2-DCA and PCE were detected above established screening levels in the crawl space, indoor air, and outdoor air samples at Parcel #3. ADEQ acknowledges that these detections are potentially attributable to other sources. However, both 1,2-DCA and PCE have historically been detected in offsite groundwater; therefore, ADEQ cannot fully disregard these exceedances. Please provide additional discussion why groundwater should be excluded as a potential source of contaminants in ambient air. In this discussion please include any potential sources.

**Ramboll Environ Response:** As depicted on the table below, only 1,2-DCA was detected in indoor air above the USEPA screening levels.

Chemical	Outdoor Air	Crawl Space Air	Indoor Air	Residential Indoor Air Screening Level
1,2-Dichloroethane	0.059	0.058	1.2	0.11
Tetrachloroethene	0.080	0.077	0.081	4.2

Notes:

All concentrations are in  $\mu\text{g}/\text{m}^3$ .

Residential indoor air screening levels are from USEPA's Regional Screening Levels, calculated using a target cancer risk of  $10^{-6}$  and target hazard quotient of 0.1.

We agree with ADEQ that the detections of 1,2-DCA and PCE are attributable to other sources. In order to infer or establish that there is a completed pathway from groundwater for either of these chemicals, in addition to finding them in the groundwater at or near the property (see discussion below regarding the detections of 1,2-DCA and PCE in groundwater in the north plume), the crawl space air results would need to have exceeded the screening levels, along with indoor air results having likewise exceeded the screening levels. Because the crawl space air results do not exceed the screening criteria and because these results are nearly the same as outdoor air results, the vapor intrusion pathway from groundwater is not complete.

1,2-DCA or PCE have not been detected in offsite groundwater above Remedial Action Levels (RALs), which is a typical threshold for consideration for assessment of potential for vapor intrusion. 1,2-DCA has only been detected once at an off-site location in MW-31 (2008) at a concentration of 3 micrograms per liter ( $\mu\text{g}/\text{L}$ ). MW-31 is more than 600 feet from Parcel 3. PCE has been detected in MW-33/33R (2014/2015), MW-41 (2014), MW-46R (2015) and MW-58 (2014) at concentrations ranging from 0.11  $\mu\text{g}/\text{L}$  to 0.9  $\mu\text{g}/\text{L}$ . The closest detection of PCE in groundwater occurred in MW-46R at 0.9  $\mu\text{g}/\text{L}$  in April 2015 (MW-46R is located approximately 25 feet south of Parcel 3). The sporadic detections of 1,2-DCA and PCE and the reported concentrations well below RALs and drinking water criteria are not indicative of a

potential risk for vapor intrusion due to groundwater periodically and marginally impacted by these constituents.

1,2-DCA and PCE are volatile organic compounds (VOCs) that can be part of household products used or stored around the home, which may contribute to detected concentrations in indoor air (*i.e.* potential sources). For example, 1,2-DCA is used in certain imported plastics like Christmas ornaments and has historically been used in household products like degreaser and paint removal products. PCE can be used in consumer products such as dry cleaned clothes, spot removers, fabric/leather cleaners, degreaser, brake cleaner and electronic cleaners.

**-ooOoo-**

If you have any further questions or comments, please feel free to contact me.

Yours sincerely

A handwritten signature in black ink, appearing to read "Michael F. Ellis". The signature is fluid and cursive, with the first name "Michael" being the most prominent.

**Michael F. Ellis, PE**

Principal

D +1 314 590 2967

M +1 314 229 5617

[mellis@environcorp.com](mailto:mellis@environcorp.com)