



August 4, 2014

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

**Re: Northeast Corner Supplemental Work Plan  
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 Supplemental Work Plan to perform additional investigation at the northeast corner of the Whirlpool facility in Ft. Smith, Arkansas. Supplemental investigation is needed under the Adaptive Remedy Process (ARP) to define the limited trichloroethene (TCE) impact detected in groundwater in three of the five new groundwater monitoring wells installed at the northeast corner in late June.

## **OVERVIEW**

The Adaptive Remedy Process has enabled Whirlpool, with approval and oversight from ADEQ, to make significant progress toward the remediation of the TCE under and near the Whirlpool property during the last several months. A critical part of this ARP is the on-going collection of new data, which has enabled Whirlpool to refine our plans and push ahead quickly with the remediation work.

As described in our June 20, 2014, letter to the Arkansas Department of Environmental Quality (ADEQ) and discussed at the July 8, 2014, Fort Smith City Directors' Study Session, five new monitoring wells were installed near the northeast corner of the former manufacturing facility during the week of June 23, 2014 (MW-87 through MW-91) to supplement prior data from soil probes. The results of soil samples collected while installing these new wells found no TCE soil contamination. Although TCE was detected in groundwater in samples taken from three of these wells, these TCE concentrations measured in groundwater at the northeast corner are significantly lower than concentrations measured at the northwest corner. In addition, the TCE concentrations decreased significantly near the Whirlpool property boundaries (see Initial Results discussion below).

In order to determine if remediation activities are warranted, further investigation is required to verify whether TCE detected in the groundwater has migrated under Jenny Lind Road and if so, whether this groundwater has also migrated under the undeveloped property owned by the

Boys & Girls Club that will soon be separated from the club by the upcoming Ingersoll Avenue road expansion. Soil probes for collection of soil and groundwater samples are proposed to initially investigate areas beyond the Whirlpool property. Based on the results of this first phase of testing, permanent groundwater monitoring wells would be installed, if appropriate.

If remediation activities are warranted, plans will be prepared for ADEQ review and approval to aggressively and swiftly address this contamination as appropriate based on the data from this investigation.

There are no known complete exposure pathways to the potentially impacted groundwater near the northeast corner of the manufacturing facility to cause health risk concerns. This supplemental investigation will provide additional data to further validate health risk conclusions for onsite and offsite workers and future occupants of the undeveloped properties east of the Whirlpool property.

Based on existing data and the easterly groundwater flow direction in this area, there is currently no indication of impacts to other properties adjacent to the northeast corner of the Whirlpool property - other than those where we are proposing to conduct this additional investigation.

In light of the interest in the ongoing remediation work from Fort Smith residents and City Directors, our goal is to accelerate this supplemental soil probe investigation and complete the sampling, validation and analysis by early September, at which time we will submit an interim letter report to ADEQ, consistent with the regulatory process. We will subsequently make the report available to the City of Fort Smith and to the public through the WhirlpoolFortSmith.com website. A final report will be prepared after permanent monitoring wells are installed and sampled, if appropriate.

Further, out an abundance of caution, we have decided to initiate additional testing to confirm that there are no other locations on the Whirlpool property where incidental detections of TCE in groundwater indicate possible off-site migration. This additional testing will supplement current monitoring wells and sampling procedures on Whirlpool property. Once these plans are finalized, we will submit additional work plans to ADEQ for any necessary approvals before commencing these activities.

## **INITIAL RESULTS**

The initial results of the investigation to date at the northeast corner indicate:

- TCE was not detected in any of the soil samples collected in the Vadose Zone soil in the soil borings for the five new monitoring wells.
- TCE was not detected in groundwater samples from the two monitoring wells (MW-88 and MW-90) installed directly north from the northeast corner of the manufacturing building.

- TCE was detected at 19.5 micrograms per liter ( $\mu\text{g/L}$ ) in groundwater from MW-89 located near the northeast corner of the parking lot.
- TCE was detected groundwater samples from the two monitoring wells (MW-87 and MW-91) installed directly east from the northeast corner of the manufacturing building. The TCE concentrations in MW-87 (located near the center of the east parking lot) and MW-91 (located near the east boundary of the parking lot) were 564  $\mu\text{g/L}$  and 234  $\mu\text{g/L}$ , respectively.
- The groundwater flow direction in the five new wells was determined to be towards the east based upon depth to groundwater measurements performed on July 10, 2014 (see attached figure).

Based upon the results of this initial investigation, additional investigation to the south, northeast and east is proposed to primarily assess the limits of potential groundwater impacts and to further assess the potential for soil impacts. The scope of this additional investigation is described below.

As described in our June 20, 2014, Work Plan, a detailed report presenting the results of this initial investigation will be presented in the Second Quarterly Progress Report to be submitted to ADEQ by August 15, 2014.

## **INVESTIGATION WORK PLAN**

The northeast corner investigative area will be expanded to the south, northeast and east to confirm that no soil impact extends beyond the Whirlpool property and to assess the extent of potential groundwater impact. A combination of membrane interface probe (MIP) screening probes and soil probes for collection of discrete soil and groundwater sampling will be employed to investigate onsite and offsite locations as depicted on the attached figure (Figure 1). The actual locations for the probes will be determined in the field based upon access, utility locations, surface conditions, pending Jenny Lind Road and Ingersoll Avenue construction related issues, and the results of the MIP screening and soil and groundwater data generated during the investigation. Additional probe locations may be necessary to fully delineate the extent of groundwater impacts. The data from this investigation will be used to assess the extent of soil and groundwater TCE impacts, and to select locations for the installation of subsequent groundwater monitoring wells.

Soil probes will be performed with direct push technology. The soil probes will be continuously sampled to probe refusal at or near the surface of shale bedrock expected to be encountered between approximately 24 feet and 30 feet below ground surface (bgs). Soil samples will be field screened with a photoionization detector (PID) for the presence of volatile organic vapors. Two soil samples will be selected from each boring consisting of one soil sample from the Vadose Zone soil selected from the depth exhibiting the highest field screening measurement in the respective boring, and one saturated soil sample from the Basal Transmissive Zone also

selected from the depth exhibiting the highest field screening measurement. If PID field screening fails to identify an impacted soil interval in the Vadose or Basal Transmissive Zone, the sample will be collected from the most transmissive zone observed by the logging geologist. Soil samples will be collected utilizing the 5035 kits for analyses of volatile organic compounds (VOCs) using EPA Method 8260.

Groundwater samples will be collected from each boring through temporary polyvinyl chloride (PVC) screen or temporary stainless steel direct push screen installed in the saturated zone. Samples will be collected using dedicated low density polyethylene tubing equipped with a check ball on the bottom by manually surging the tubing, or samples will be collected with a peristaltic pump. The water samples will be analyzed for VOC's using EPA Method 8260.

Soil probes will be properly abandoned after completion of MIP screening and/or collection of discrete soil and groundwater samples.

Permanent groundwater monitoring wells will be installed after the extent of groundwater impact is assessed. Permanent groundwater monitoring wells will be installed at locations to continue to monitor the extent of groundwater impacts at locations that are not anticipated to be damaged during pending Jenny Lind and Ingersoll Road construction projects.

## **SCHEDULE**

The investigational field work described above is scheduled to commence the week of August 4, 2014, following the completion of access agreements with the two property owners (City of Ft. Smith and Boys & Girls Club) where the proposed sampling will take place. Initial field activities consisting of performance of soil probes is anticipated to require one week to complete. An interim letter report will be prepared to summarize the soil and groundwater data collected from soil probes by early September.

If necessary, installation of permanent groundwater monitoring wells is anticipated to occur in late-August or early-September after receipt of all data from soil probe activities. Installation and sampling of permanent groundwater wells is anticipated to require one week to complete. A letter report documenting the results of the investigation will be submitted to ADEQ after the investigation is complete (this letter report will also be attached to the Third Quarter Progress Report).

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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

**LIST OF ATTACHMENTS**

Figure 1: Proposed Boring Locations

