

June 20, 2018

## **Reference**: ART In-Well Remedial Technology

To whom it may concern:

TRC is a global professional services firm that has been providing integrated and sustainable strategies, consulting, and engineering for the built and natural environment since the 1960s. With over 4,000 professionals, we serve a broad range of public and private clients including US Environmental Protection Agency, State agencies, local governments, utilities, and petrochemical, pharmaceutical, commercial and industrial companies. A major Practice in our Environmental Sector is remediation, with focus on innovative technologies including ART In-Well Technologies.

Our experts have evaluated, designed and implemented ART systems to remediate volatile organic compounds (VOC) impacts at numerous sites. Based on our experience, the ART technology, when properly designed and implemented, will likely prove to be a very effective and efficient remedy.

Recently, we have implemented the ART technology at different areas of a former industrial site in New Jersey (USA) to remediate commingling dissolved and residual NAPL plumes from multiple sources in a complex multi-aquifer system. The impacts locally extended thousands of feet downgradient and hundreds of feet into the bedrock and included chlorinated VOCs (PCE, TCE, TCA, chlorobenzene, chloroform and methylene chloride), benzene, toluene, ethylbenzenes, and 1,4-dioxane. We used the ART system as a stand-alone remedial technology or in combination with insitu chemical oxidation (ozone or activated persulfate injection) and in-situ aerobic and anaerobic bioremediation to remediate dissolved and residual with total concentrations of up to 1,000,000  $\mu$ g/L. In all areas, the ART-based systems successfully remediated the contamination where concentrations decreased to cleanup standards (as low as 1  $\mu$ g/L) or non-detectable levels, often within one to two years. The ART system recirculated groundwater and enhanced the zone of influence within the treatment area and identified preferential pathways in the bedrock that were not identified previously.

We trust you will find the above information useful in your assessment. In the interim, please do not hesitate to contact us for any additional information.

## Sincerely, TRC ENVIRONMENTAL CORPORATION

VP/Director of Engineering - ECR L2018-06-20 ART In-Well Technology.docx