CONESTOGA-ROVERS
& ASSOCIATES

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April 14, 2014

Reference No. 035029

Mr. Jason Metzger
Unit Manager
Response and Remediation Program
Environmental Protection Division
2 Martin Luther King Junior Drive, SE
Suite 1462, East Tower
Atlanta, Georgia 30334

Dear Mr. Metzger:

Re: Proposed Work Plan
Arivec Chemicals Site - HSI No. 10123
7962 Huey Road, Douglasville, Georgia

Conestoga-Rovers & Associates, Inc. (CRA) has prepared the following work plan for the Arivec Chemicals Site (Site) on behalf of the Arivec Chemicals PRP Group (Group).

Investigations conducted to date by the Group have not disclosed or indicated off-Site exposures of receptors to Site-related constituents. However, the Group intends to further evaluate potential exposure pathways (by vapor intrusion) to confirm that indications of no unacceptable exposures remain valid, and that conditions associated with the Site remain protective. In addition, the Group wishes to increase its understanding of current Site conditions given the substantial work it has undertaken to remediate (remove) subsurface contamination from the Arivec facility.

The 2009 and 2010 buried drum removal work completed by the PRP Group removed the primary source of contamination at the Site. This substantial source removal is expected to significantly reduce contaminant loading to the groundwater and is expected to lead to an improvement in groundwater quality related to the Site. Based on a relatively low rate of groundwater flow, it may be too early to observe an improvement in groundwater in the existing well network within the overburden soils downgradient of the Site. However, improvement in groundwater quality has been observed where buried drums were removed and monitoring wells are located, such as, monitoring well MW-17R where a significant reduction in concentrations was observed following the buried drum removal work. The total volatile organic compounds (VOCs) concentration at MW-17R during the March 2009 pre-drum removal sampling event was 4,000 micrograms per liter (µg/L) with five compounds (1,1-dichloroethene, benzene, cis-1,2-dichlorethene, trichloroethene and vinyl chloride) reported above the Type 4 Risk Reduction Standard (RRS); the total VOCs concentration reported during the February 2013 post-drum removal sampling event was 90 µg/L with none of the compounds reported above the RRS.

During the 2009 and 2010 drum removal activities, more than 1500 drums and 150 cubic yards of empty crushed drums containing the bulk of the source material were removed and disposed off Site. The 2009 excavation covered an area of approximately 6,000 square feet with a depth of 8 to 12 feet below grade; the 2010 drum removal covered an area of approximately 21,500 square feet and an average depth of 10 feet below grade. The excavation areas were located on the downgradient side of the Site along the northern portions of the Site. Details of the drum characterization were included in the Buried Drum Removal Completion Report which was submitted to EPD in February 2011.

Although limited residual contamination remains in subsurface soils within the drum removal areas, the actual impact of this residual contamination in soil on the groundwater quality is not known. The PRP Group therefore proposes to monitor the groundwater downgradient of the former drum removal areas, including expanding the existing monitoring well network by installing a series of downgradient monitoring wells at or near the Site property limits. Additional monitoring, including the new monitoring wells to be installed at the downgradient portion of the Site, is proposed to be conducted for a period of 2 years, in order to characterize groundwater conditions and trends over the proposed 2-year timeframe. This approach is expected to provide sufficient data to properly assess the need for and nature of possible subsequent remediation efforts.

In parallel with these efforts to further assess subsurface conditions on and immediately downgradient of the Site, the PRP Group proposes to reevaluate potential off-Site receptors. In particular we propose to further assess the possible vapor intrusion pathway.

Based on the above, the Group proposes to conduct the following activities which are included in this work plan:

- Conducting a soil vapor assessment in the immediate vicinity of off-Site monitoring well MW-CRA-4S;
- Installation of eight overburden monitoring wells along the downgradient Site boundary immediately downgradient of the completed drum removal areas;
- Sampling of the newly installed and select existing downgradient monitoring wells on a semi-annual basis for volatile organic compounds (VOCs), the chemicals of concern, for a minimum of two years;
- Sampling the remainder of the well network for VOCs on an annual basis for a minimum of two years;
- Preparation of annual progress reports for submittal to the Georgia Environmental Protection Division (EPD).

The following sections provide brief summaries of the above tasks.

1.0 Installation of Monitoring Wells

Eight shallow monitoring wells are proposed to be installed immediately downgradient of the buried drum removal areas along the Arivec property boundary, as conditions permit. The proposed monitoring wells will be installed in soil above the bedrock to monitor the groundwater immediately downgradient of the drum removal areas, which represent the greatest potential source of residual impact on groundwater beneath and

downgradient of the Site. These monitoring wells may also serve as downgradient point of compliance (POC) wells in the future. Locations of the proposed monitoring wells are provided on Figure 1.

The monitoring wells will be installed by a drilling contractor, under the direction of a CRA geologist, using the hollow stem auger (HSA) drilling method. The monitoring wells will be installed in accordance with the Environmental Protection Agency (EPA) Region IV Field Branches Quality System and Technical Procedures (FBQSTP) dated January 2013. Soil samples will be collected during drilling for description purposes using either a split spoon sampler at 5-foot intervals or by direct push technology (DPT) sampling methods. The soil samples will be screened for the presence of VOCs using a properly calibrated photoionization detector (PID). No soil samples will be collected for chemical analysis from the monitoring well locations unless there is a sign of soil impact above the water table. Soil cuttings generated during drilling will be placed into 55-gallon DOT approved steel drums and staged on Site pending off-Site disposal or future on-Site treatment.

The monitoring wells will be installed on the order of 20 feet below grade. The monitoring wells will be constructed with 2-inch diameter PVC casing and a 10-foot section of screen. The annular space around the wells will be filled with clean filter sand to a depth of approximately 2 feet above the top of the screened interval. A 2-foot thick layer of bentonite pellets will be placed above the screened interval and allowed to hydrate. The remainder of the annular space will be filled with a cement/bentonite grout to approximately 2 feet below ground surface. All monitoring wells will be finished with a locking steel cover within a 2-foot by 2-foot concrete pad.

The monitoring wells will be developed by removing at least 10 well volumes of groundwater using a high flow pump 24 to 48 hours after installation. The development water will be containerized in 55-gallon drums and staged at the Site pending off-Site disposal or on-Site treatment.

2.0 Groundwater Monitoring

Two annual comprehensive groundwater sampling events for the Site are proposed for VOC analysis. Approximately thirty one monitoring wells will be sampled, based on the well network that CRA sampled in previous events, additional downgradient monitoring wells and the eight new proposed monitoring wells. The locations of the monitoring wells which are proposed for annual groundwater sampling are illustrated on Figures 1 and 2.

Two additional semi-annual VOC sampling events are proposed between the annual events specifically for the new overburden monitoring wells and select downgradient wells to supplement the data from the annual sampling events.

The groundwater samples will be analyzed for target compound list (TCL) VOCs and will include an appropriate number of duplicate and quality control samples. It is proposed that the entire well network be gauged for water levels on a semi-annual basis. In addition, falling head and/or rising head hydraulic conductivity tests will

be conducted on a minimum of three overburden and three bedrock wells and the data will be evaluated and reported within the first annual report.

Groundwater sampling will be conducted in general accordance with the EPA Region IV, FBQSTP guidance documents[1]. Either low-flow purging (LFP)/sampling or three volume purging/ sampling techniques will be used to collect the groundwater samples. Groundwater samples will be collected in laboratory supplied containers with appropriate preservative and transported to the laboratory in ice-filled coolers under chain-of-custody protocols.

2.1 Semi-Annual Groundwater Monitoring

The eight proposed monitoring wells that are to be installed along the downgradient perimeter of the Site and other select downgradient monitoring wells (MW-CRA-4S; MW-CRA-5S; MW-CRA-5B; MW-CRA-8B) will be sampled on a semi-annual basis for a period of 2 years. The intent of the work is to establish a current baseline and evaluate trends in the groundwater VOC chemistry that may be occurring immediately downgradient and adjacent to the areas where drums containing the bulk of the source material had been removed from the Arivec Site. The proposed scope of work for the groundwater sampling event assumes that the entire monitoring well network will also be gauged during each event. Locations of the monitoring wells proposed for the semi-annual groundwater sampling and analysis are provided on Figure 1.

2.2 Annual Groundwater Monitoring

Two annual groundwater monitoring events will be conducted on existing and new monitoring wells. The annual groundwater monitoring events will include sampling of the following monitoring wells:

- On-Site Locations: MW-CRA-1S, MW-CRA-2S, MW-CRA-3B, MW-CRA-6S, MW-17R, MW-17B, MW-18R, and AW-2;
- Off-Site Locations: MW-CRA-4S(*), MW-CRA-5S(*), MW-CRA-5B(*), MW-CRA-7S, MW-CRA-8B(*), MW-CRA-9S, MW-2B, MW-5R, MW-9R, MW-9B, MW-10R, MW-12B, MW-13B, MW-15R, and MW-15B; and
- The eight proposed new shallow monitoring wells(*).

(Note: (*) indicates the well is also included in the semi-annual monitoring event).

Select deep/bedrock monitoring wells (MW-2B, MW-9B and MW-15B) may also be sampled using the no purge method passive diffusion bags (PDBs). These monitoring wells were sampled using PDBs in addition to the LFP method, during the February 2013 monitoring event as reported to EPD in the August 2013 Status Update.

[1] Science and Ecosystem Support Division (SESD) Guidance Numbers SESDPROC-105-R1 and SESDPROC-301-R3

PDBs are primarily used to collect groundwater samples for analysis of VOCs. The PDBs are placed in monitoring wells at the well screen with a polyethylene cable, and allowed to equilibrate for period of at least 14 days. The PDBs operate by diffusion of contaminants through a polyethylene membrane.

Locations of the monitoring wells proposed for annual monitoring are shown on Figure 2.

3.0 Soil Vapor Assessment

A soil vapor assessment is proposed at the area immediately downgradient of monitoring well MW-CRA-4S, which is upgradient of the residence, located at 1551 Huey Road. The proposed assessment is intended to determine any potential migration of soil vapor to the surface. Three shallow soil vapor sample points (vapor tube implants) are proposed for assessment of the soil vapor.

The vapor implants will be installed in a nominal 2-inch borehole and constructed of either porous stainless steel mesh or perforated plastic tube; two implants will be installed to a depth of 2 feet below grade and the third implant will be installed to a minimum of 5 feet below grade. The top of the vapor tube implant will be attached to 1/8" or 1/4" diameter tubing that will extend to the ground surface. Clean filter sand will be placed in the borehole annulus around the vapor tube implant to create a porous zone to allow for vapor migration. A granular bentonite seal will be placed in the annulus above the sand pack followed by a grout seal to ground surface. The implants will be leak tested using helium gas following installation. Soil vapor samples will be collected from the implants with specially-prepared stainless steel vacuum canisters and the vapor will be analyzed for VOCs using EPA Method TO-15. Method TO-15 measures the 97 VOCs that are included in the hazardous air pollutants that are listed in Title III of the Clean Air Act Amendments of 1990.

Locations of the proposed soil vapor assessment points are provided on Figure 1.

4.0 Annual Reports

An annual groundwater monitoring report with associated tables, figures and applicable attachments will be provided to EPD for two consecutive years 90 days after completion of each annual groundwater monitoring event. The first annual report will present the well installation activities, results from the semi-annual and annual groundwater monitoring events, and the soil vapor assessment results. The report will also include additional hydrogeologic testing proposed for a minimum of three overburden and three bedrock monitoring wells.

The second annual monitoring report will present the results from the semi-annual and annual groundwater monitoring events, and provide an evaluation of the groundwater quality resulting from the source removal associated with the buried drum removal work. Each report will also include a status update of additional activities, if any, at the Site during the year.

Figures

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5.0 Schedule

The proposed schedule to conduct the above tasks is provided below:

ACTIVITY	SCHEDULE
Review and Approval of Work Plan	April - May 2014
Installation of Shallow Monitoring Wells	June – July 2014
Soil Vapor Assessment	June – July 2014
Semi-annual Groundwater Monitoring	August 2014
Annual Groundwater Monitoring	February 2015
Submittal of 1st Annual Monitoring Report	May 31, 2015
Semi-annual Groundwater Monitoring	August 2015
Annual Groundwater Monitoring	February 2016
Submittal of 2nd Annual Monitoring Report	May 31, 2016

Please contact the undersigned with any questions.

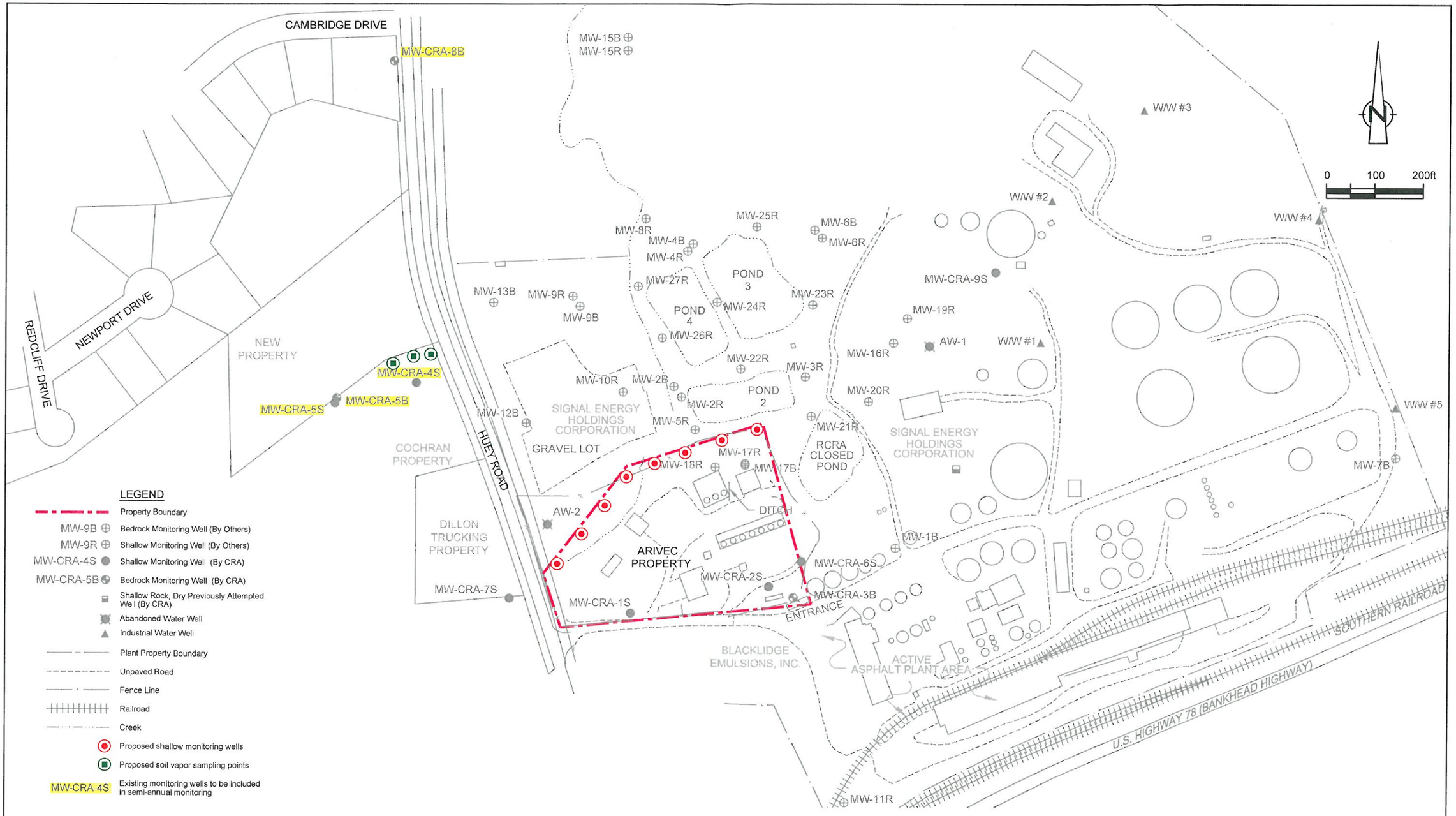
Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

R. T. (Bob) Pyle

RTP/tb/3
Encl.

cc: Arivec Technical Committee
Ms. Amy Magee, King & Spalding

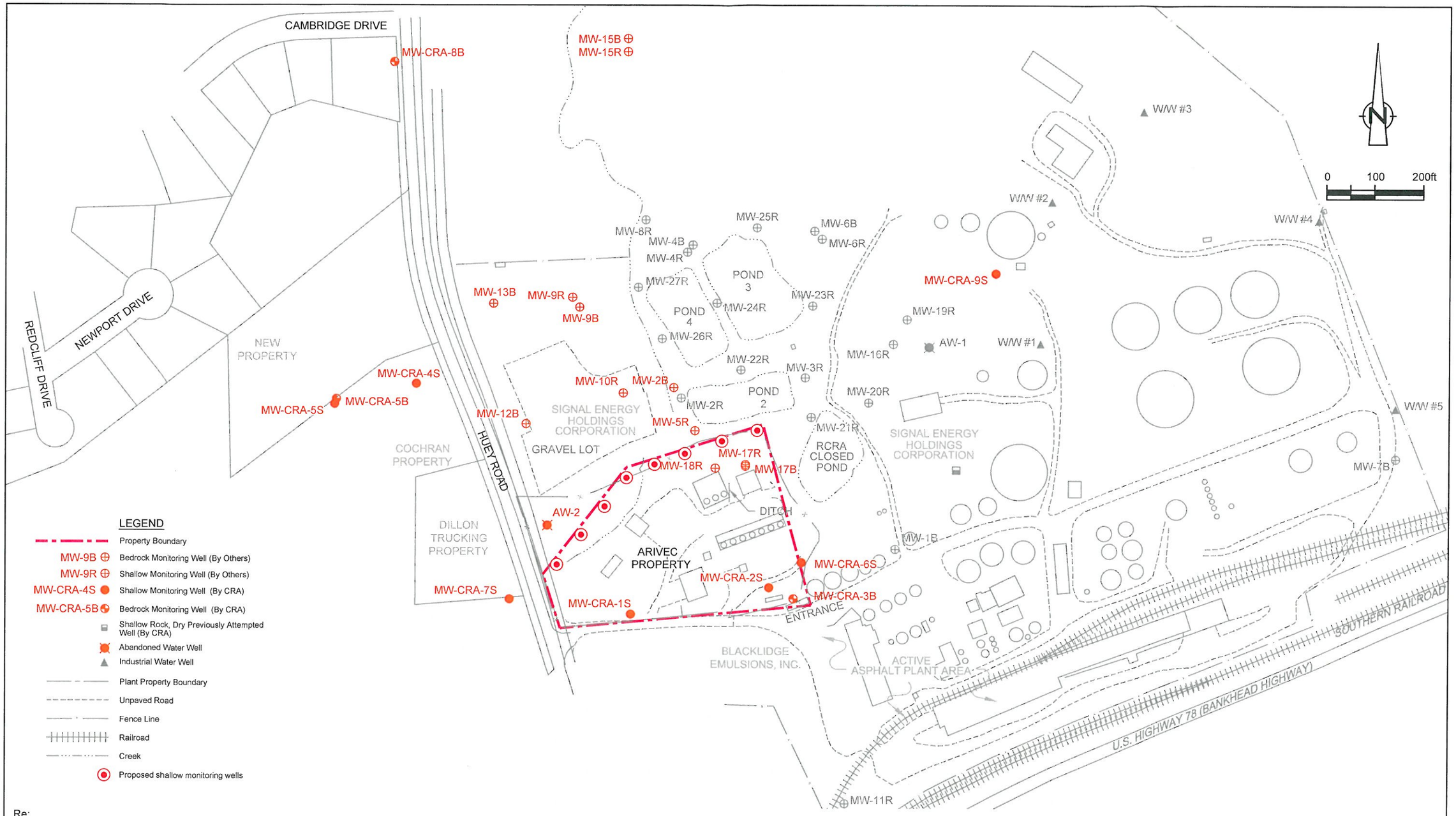


Re:
1) Pt&b Engineering, Inc. Drawing Titled, "Special Use Survey," Dated 9/16/09.

Figure 1

PROPOSED MONITORING WELL AND SOIL VAPOR ASSESSMENT LOCATIONS
FORMER ARIVEC CHEMICALS SITE
7962 HUEY ROAD
Douglasville, Georgia

035029-09(METZ003)GN-BR001 MAR 27/2014



Re:
1) Pt&b Engineering, Inc. Drawing Titled, "Special Use Survey," Dated 9/16/09.

Figure 2

ANNUAL GROUNDWATER MONITORING LOCATIONS
FORMER ARIVEC CHEMICALS SITE
7962 HUEY ROAD
Douglasville, Georgia

035029-09(METZ003)GN-BR002 MAR 17/2014