

# KC HARVEY ENVIRONMENTAL, LLC

April 25, 2015

Mr. Mike Hall and Ms. Susan Baldwin  
Hall Drilling, LLC  
981 E Washington Ave  
Ellenboro, WV 26346

## RE: Tech Service Center Stormwater Pollutant Analysis

Dear Mike and Susan,

On behalf of Hall Drilling, LLC (Hall Drilling), KC Harvey Environmental, LLC (KC Harvey) developed a stormwater management plan for the Tech Service Center in Ritchie County, West Virginia (Figure 1). The submittal of the stormwater plan included a Site Registration Application, a Stormwater Pollution Prevention Plan (SWPPP), and a Groundwater Protection Plan (GPP).

Hall Drilling is currently pursuing coverage of a multi-sector industrial stormwater permit (Permit Number: WV0111457) through the West Virginia Department of Environmental Protection (WVDEP). As part of the stormwater permit application process, the WV DEP requires baseline stormwater runoff sampling and analysis from three stormwater. The baseline stormwater runoff sample results are used to characterize water quality conditions from the Tech Service Center. The goal is to show the stormwater quality concentrations prior to entering local watersheds. To meet the conditions of the stormwater permit application, KC Harvey collected water samples for the following laboratory analytical suite:

- pH
- Biological Oxygen Demand
- Chemical Oxygen Demand
- Ammonia
- Nitrate-Nitrite
- Oil and Grease
- Total Phosphorus
- Total Kjeldahl Nitrogen
- Total Suspended Solids

Samples were collected from three pre-selected sample collection points in the facility's three drainage basins on April 9, 2015, by KC Harvey field scientists, Maureen Kertes and Shannon Thompson. The first sample collected was from Drainage Basin B, followed by Drainage Basin C and lastly Drainage Basin A (Figure 2). Samples were collected immediately following a precipitation event, with 0.90 inches falling on the day the samples

were collected. The samples were delivered to Microbac Laboratories in Marietta, Ohio on the morning of April 10, 2015, for analysis of the eight parameters listed above.

Analytical laboratory results and reportable limits for each parameter are displayed in Table 1. Results in bolded red text exceed thresholds for water quality standards identified in 47 CSR 2 Appendix E, Table 1 for pollutants which exceed the acute criteria for the protection of aquatic life.

Table 1 Analytical laboratory results for stormwater runoff samples collected at the Tech Service Center

Location ID	Analyte								
	pH	BOD <sup>1</sup> (mg/L)	COD <sup>2</sup> (mg/L)	NH <sub>3</sub> -N <sup>3</sup> (mg/L)	NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> <sup>4</sup> (mg/L)	OG HEM <sup>5</sup> (mg/L)	P <sup>6</sup> (mg/L)	N-Nitrogen, TKN <sup>7</sup> (mg/L)	TSS <sup>8</sup>
Water Quality Standard <sup>10</sup>	--	--	--	0.100	A - 1.79 <sup>11</sup> B - 2.36 C - 1.57	--	--	--	--
Location A	7.49	1.31	ND <sup>9</sup>	0.175	0.661	ND	0.556	ND	121.0
Location B	7.44	1.58	12.3	0.144	0.530	ND	0.645	ND	76.5
Location C	7.37	14.30	28.0	0.154	0.548	ND	1.480	0.112	430.0

NOTES:

- |   |                                                                              |    |                                                                                                          |
|---|------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------|
| 1 | BOD- Biological Oxygen Demand                                                | 8  | TSS- Total Suspended Solids                                                                              |
| 2 | COD- Chemical Oxygen Demand                                                  | 9  | ND-Not detected at or above the reporting limit                                                          |
| 3 | N-Nitrogen, NH <sub>3</sub> - Ammonia                                        | 10 | WV DEP does not have quality standards for analytes listed as "..."                                      |
| 4 | NO <sub>3</sub> <sup>-</sup> -Nitrate, NO <sub>2</sub> <sup>-</sup> -Nitrite | 11 | From USEPA's 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014, December 1999) |
| 5 | OG HEM- Oil and Grease, Hexane extractable material                          |    |                                                                                                          |
| 6 | P- Phosphorus                                                                |    |                                                                                                          |
| 7 | N-Nitrogen, TKN- Total Kjeldahl                                              |    |                                                                                                          |

KC Harvey plans to perform the second round of stormwater sampling in September or October, 2015 as required by the multi-sector stormwater permit. If you have any questions or require additional information, please feel free to contact me at 406-585-7402 ext. 104 or [mlarson@kcharvey.com](mailto:mlarson@kcharvey.com).

Respectfully submitted,



Mike Larson  
Principal Scientist

## **FIGURES**

**Figure 1      Tech Service Center**

**Figure 2      Tech Service Center Facility Overview**

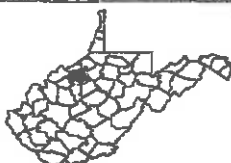


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0 1,000 2,000  
Feet



Limits of Disturbance

**Ritchie County,  
West Virginia**

USA Topo Maps

**Hall Drilling**

**Figure 1.  
Tech Service Center**

Date: 02/08/2015

Version: 1



ESRI Imagery Online

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0 150 300  
Feet

- |                    |                         |                |                         |
|--------------------|-------------------------|----------------|-------------------------|
| — Dam              | — Drainage Channel      | Gravelled Area | Sample Collection Point |
| — Diversion ditch  | — Gully                 | Loadout Pad    | Flow Direction          |
| — Drainage         | — Intermittent Stream   | Wash Building  | Injection Well          |
| — Drainage Basin   | — Net Storage           | Shed           | Sump                    |
| — Ephemeral Stream | — Limits of Disturbance | Pump Building  |                         |
|                    | Vegetated Area          | Culvert        |                         |
|                    |                         | Sump Outlet    |                         |

## **Hall Drilling**

### **Figure 2 Tech Service Center Facility Overview**

Date: 02/26/2015

Version: 1