

## **TENNESSEE VALLEY AUTHORITY—BULL RUN FOSSIL PLANT AREA—SAMPLE RESULTS**

In response to concerns from our neighbors about airborne material on vehicles and property around Bull Run Fossil Plant, TVA collected samples on September 17 at two residence and received 3 samples from one of the homeowners. Analysis was performed by an external laboratory (RJ Lee Group, Inc) to determine constituents in the material. Lab results show that this material is primarily soil and had non-detectable to trace amounts of flyash (results attached).

RJ Lee Laboratories described sample results as brown, light brown, yellow, or reddish brown sediment. No gypsum was observed in these samples. The samples were further described as primarily composed of carbonate, clay, miscellaneous silicates, quartz, opaques, and/or organic particulates, which is generally consistent with the characteristics of native surface soils.

Results demonstrate that the material is not coming from air emissions at Bull Run and is consistent with surface soil in the area.

TDEC also sampled material at several locations, and their results affirm that the material is consistent with surface soil. TDEC noted that as it relates to coal ash, sampling results ranged from non-detectable amounts, amounts too low to quantify, or trace amounts.

# Mineral Identification

Polarized Light Microscopy (PLM) Laboratory Report

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**Report Date:**  
**Sample Received Date:** 09/19/2019  
**RJLG Project:** AOH1055480-1  
**Customer COC:**  
**Purchase Order:**  
**Analytical Method:** Fly Ash Determination by PLM

| Customer Sample # : | RJLG ID  | Date Analyzed | Date Collected | Area % Fly Ash | Non-Fly Ash Components                       | Comments                                     |
|---------------------|----------|---------------|----------------|----------------|--|--|
| BRF-111VL-1-091719  | 10488051 | 09/19/2019    |                | ND             | Clay<br>Misc. Silicates<br>Opagues<br>Quartz | Brown Sediment<br>No Gypsum Detected.        |
| BRF-111VL-2-091719  | 10488052 | 09/20/2019    |                | ND             | Clay<br>Misc. Silicates<br>Quartz            | Brown Sediment<br>No gypsum observed.        |
| BRF-111VL-4-091719  | 10488053 | 09/19/2019    |                | 1%             | Clay<br>Misc. Silicates<br>Quartz            | Light Brown Sediment<br>No gypsum observed.  |
| BRF-111VL-5-091719  | 10488054 | 09/19/2019    |                | 2%             | Clay<br>Misc. Silicates<br>Quartz            | Light Brown Sediment.<br>No gypsum observed. |
| BRF-111VL-6-091719  | 10488055 | 09/19/2019    |                | 3%             | Clay<br>Misc. Silicates<br>Quartz            | Light Brown Sediment<br>No gypsum observed.  |
| BRF-117HT-1-091719  | 10488047 | 09/19/2019    |                | ND             | Clay<br>Misc. Silicates<br>Opagues<br>Quartz | Brown Sediment<br>No Gypsum Detected         |

| Customer Sample # :   | RJLG ID  | Date Analyzed | Date Collected | Area % Fly Ash | Non-Fly Ash Components                               | Comments                                      |
|-----------------------|----------|---------------|----------------|----------------|--|---|
| BRF-117HT-2-091719    | 10488048 | 09/20/2019    |                | ND             | Carbonate<br>Clay<br>Organic Particulate<br>Quartz   | Brown Sediment<br>No gypsum observed.         |
| BRF-117HT-3-091719    | 10488049 | 09/19/2019    |                | 2%             | Clay<br>Misc. Silicates<br>Quartz                    | Light Brown Sediment<br>No gypsum observed.   |
| BRF-117HT-4-091719    | 10488050 | 09/19/2019    |                | 4%             | Clay<br>Misc. Silicates<br>Quartz                    | Light Brown Sediment<br>No gypsum observed.   |
| BRF-117HT-7-091719    | 10488056 | 09/20/2019    |                | ND             | Carbonate<br>Opagues<br>Organic Particulate          | Yellow Sediment<br>No gypsum observed.        |
| BRF-117HT-8-091719    | 10488057 | 09/19/2019    |                | 3%             | Clay<br>Misc. Silicates<br>Opagues<br>Quartz         | Brown Sediment<br>No Gypsum Detected.         |
| BRF-117HT-9-091719    | 10488058 | 09/20/2019    |                | 1%             | Carbonate<br>Clay<br>Organic Particulate<br>Quartz   | Reddish Brown Sediment<br>No gypsum observed. |
| QC_BRF-117HT-9-091719 | 10488076 | 09/20/2019    |                | 1%             | Clay<br>Mica<br>Misc. Silicates<br>Opagues<br>Quartz | Red-Brown Sediment<br>No Gypsum Detected      |

Disclaimer Notes

- Samples will be returned to client immediately upon the release of final report.
- These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
- This test report relates to the items tested.
- Any reproduction of this document must include the entire document in order for the report to be valid.
- This report may not be used to claim product endorsement by NVLAP Lab Code 101208-0 or any agency of the U.S. Government.
- Sample(s) for this project were analyzed at our: Monroeville, PA (AIHA # 100364, NVLAP # 101208-0, NY ELAP # 10884) facility.
- If RJ Lee Group, Inc. did not collect the samples analyzed, the verifiability of the laboratory's results is limited to the reported values.
- For the purposes of this method, Fly Ash is defined as any particle consistent with Coal Ash.
- The method reporting level is 1% and anything <1% is considered a not-detected.

Quartz – Angular anisotropic particulate with low relief.

Feldspar – Angular to blocky anisotropic particulate, low to moderate relief, biaxial, can have polysynthetic twinning.

Clay – Sheet silicates with polycrystalline or display non-uniform extinction with low to moderate relief, and zero to low birefringence. Clay also refers to particles that are less than 2.0 microns.

Opagues – Opague is a generic term for a particle that does not transmit light. Opague minerals are distinguished from opaque bottom ash based on morphology of fracture.

Fly Ash – Isotropic to opaque spheres, agglomeration of spheres, and angular ash particles.

Organic Particulate – Pollen, plant and insect matter, and carbonaceous matter.

Carbonates – High birefringent, can be rhombohedral, with high relief.

Diatoms – Silica rich isotropic particles with various morphologies.

Mica – Sheet silicate with moderate to high relief and low birefringence, mono-crystalline, and normal extinction.

Miscellaneous Silicate – Isotropic and anisotropic silicates, with low to high relief, identification unsure and beyond the scope of the method to identify.

Amphibole – Elongated anisotropic particulate with moderate to high relief.

Coal – Irregular to angular particles with moderate opacity, edges and thin particles are reddish brown in color.

<1% Fly Ash – Fly Ash observed, none counted.

ND – No Fly Ash detected.