



Accreditation#  
98218

June 27, 2022

## **Eurofins Cedar Falls**

*MVL Project #: 15415*

*Eurofins Project #: 31001364*

*Report Analyst: A. Chaput*

### **Scope of Work:**

This report covers the methods and findings of the unknown material identification that MicroVision Laboratories, Inc. conducted on one bulk sample from the project number 31001364. The purpose of the analysis was to identify the composition of the material by light microscopy and SEM/EDS. The results presented in this report relate only to the samples examined and as received.

### **Equipment:**

Stereomicroscopy  
Polarized Light Microscopy (PLM)  
Scanning Electron Microscopy (SEM)  
Energy Dispersive X-Ray Spectroscopy (EDS)

### **Sample received 06/24/2022:**

BFS-1 6' (310-234320-1)                      *unknown dark colored bulk material*

### **Methods:**

MicroVision Labs is accredited to the ISO/IEC 17025:2017 standard. This analysis follows our in house SOPs for PLM and SEM/EDS (#MVL02 and 01, respectively). These methods are listed on our certificate of accreditation and have been validated.

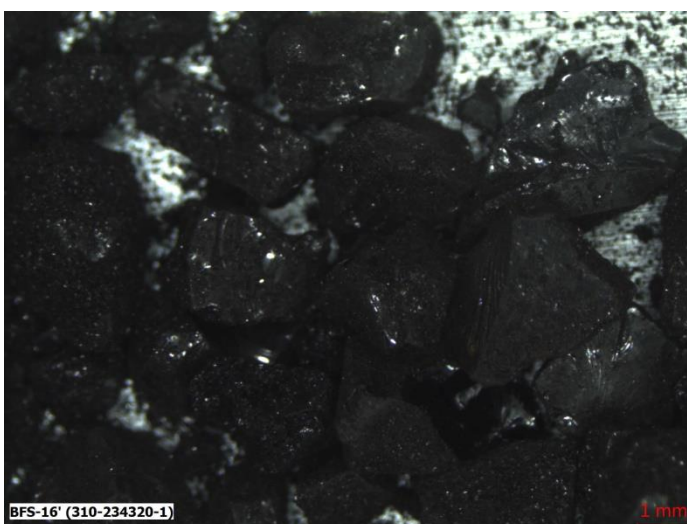
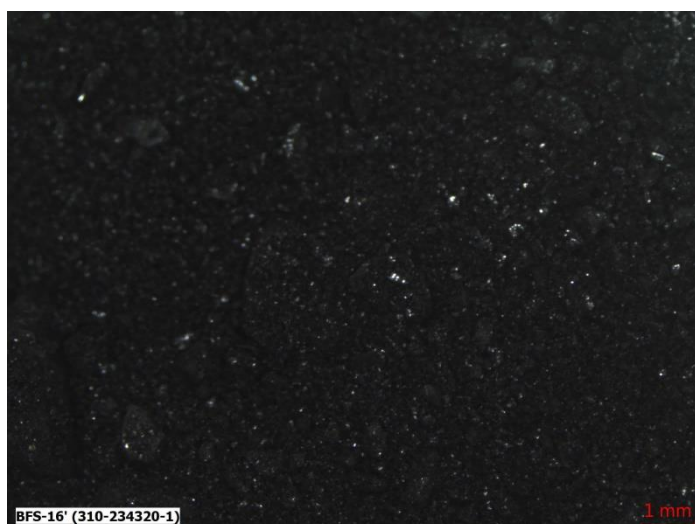
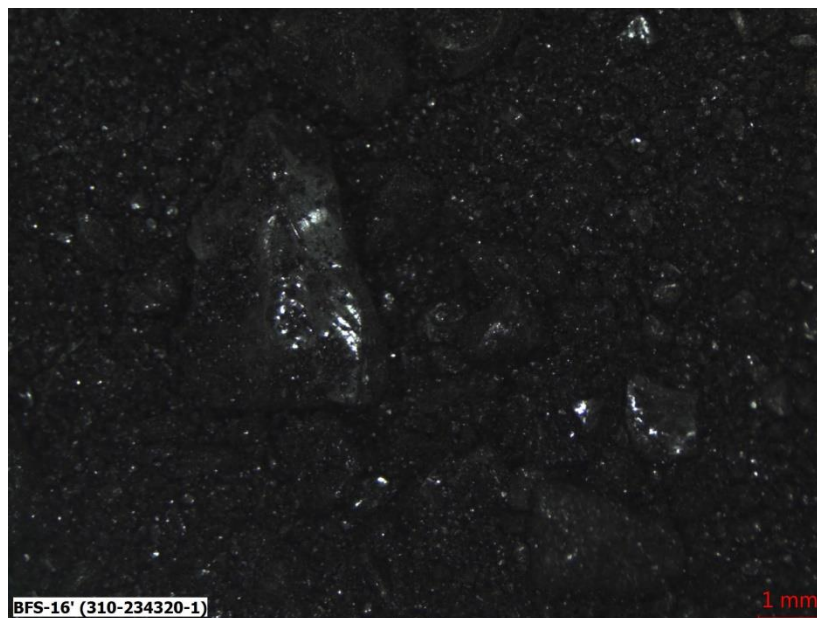
First, the sample was examined under the stereomicroscope document the general morphology and identify materials for further analysis. Next, representative portions of materials of interest were placed on glass slides with optical index oil ( $n=1.515$ ), covered with glass coverslips, and examined with PLM. Then, representative portions of materials of interest were affixed to an analysis stub with carbon tape and coated with a thin layer ( $\sim 15\text{nm}$ ) of evaporated graphite to make the material conductive for SEM/EDS analysis. Finally, representative SEM images and EDS spectra showing the average elemental composition of materials of interest were obtained.

### **ISO/IEC 17025:2017 Accredited**

MicroVision Laboratories, Inc. 187 Billerica Road, Chelmsford, MA 01824  
Phone: (978) 250-9909 Fax: (978) 250-9901 Email: Sales@MicroVisionLabs.com  
www.MicroVisionLabs.com

## Findings:

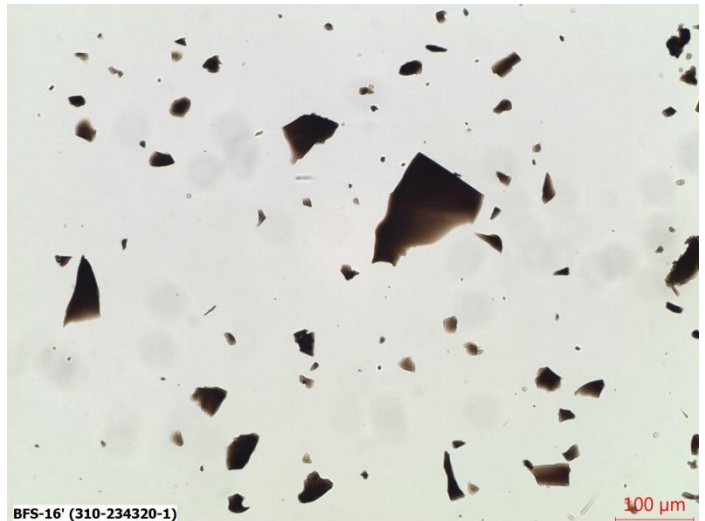
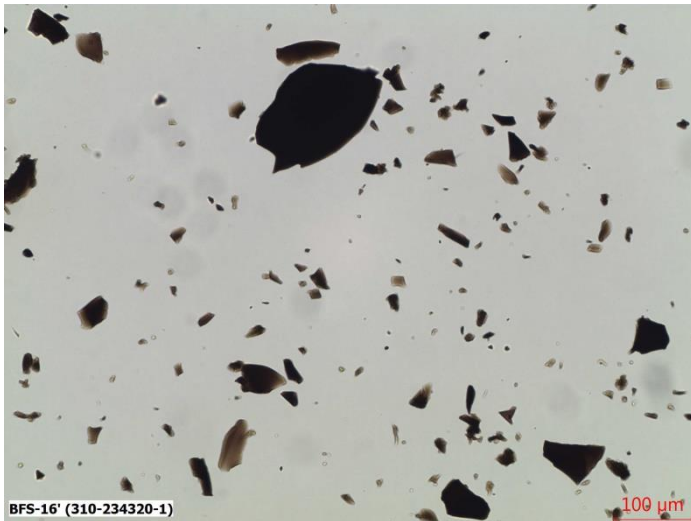
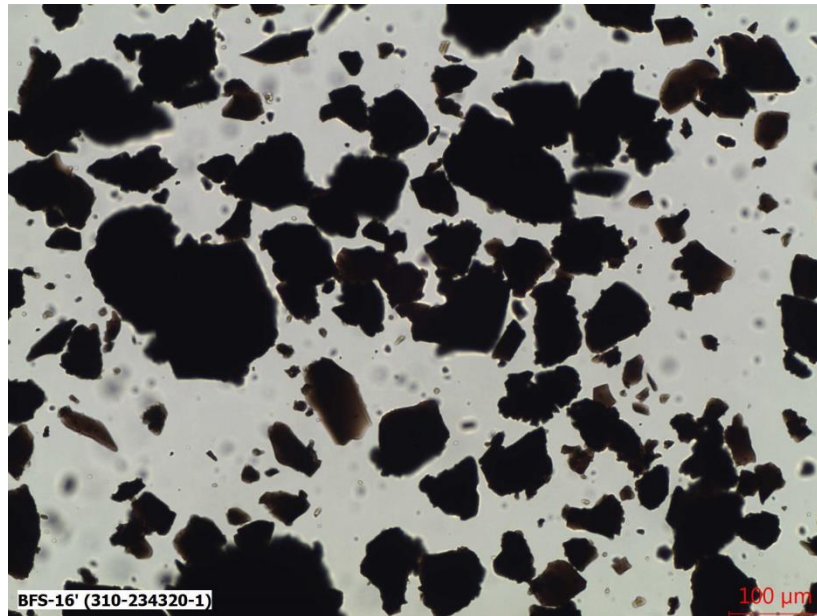
As shown in the stereomicroscope image below, the BFS-1 6' (310-234320-1) sample was comprised of dark grains with sharp angular edges, which ranged from approximately 10 $\mu$ m to 5mm in width. The larger grains were typically very shiny, and had conchoidal fracture lines visible on their surface.



## ISO/IEC 17025:2017 Accredited

MicroVision Laboratories, Inc. 187 Billerica Road, Chelmsford, MA 01824  
Phone: (978) 250-9909 Fax: (978) 250-9901 Email: Sales@MicroVisionLabs.com  
www.MicroVisionLabs.com

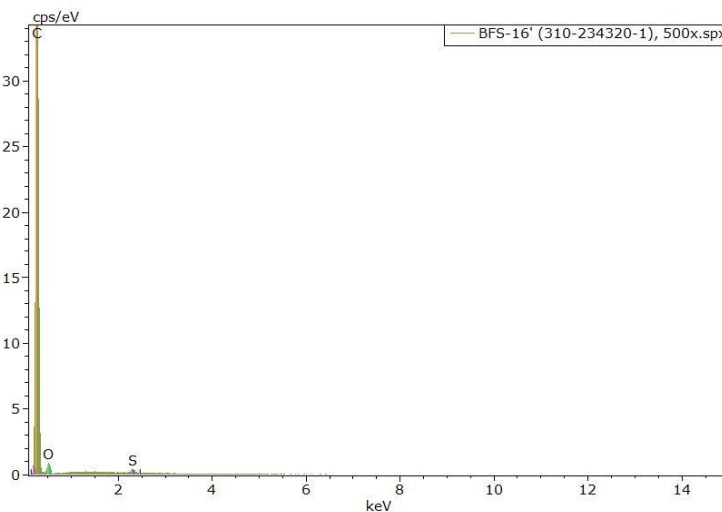
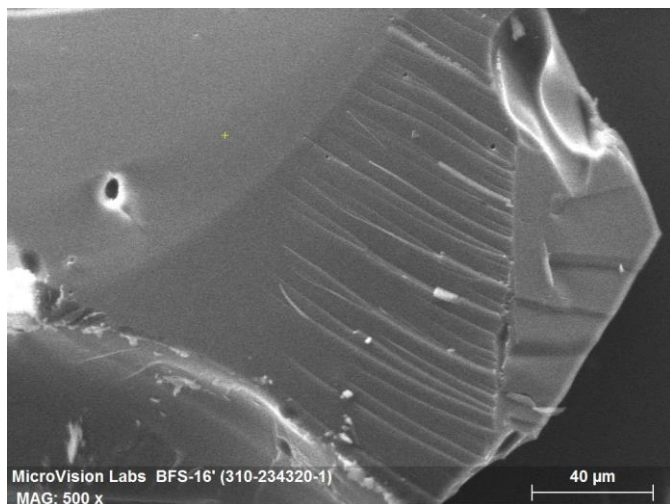
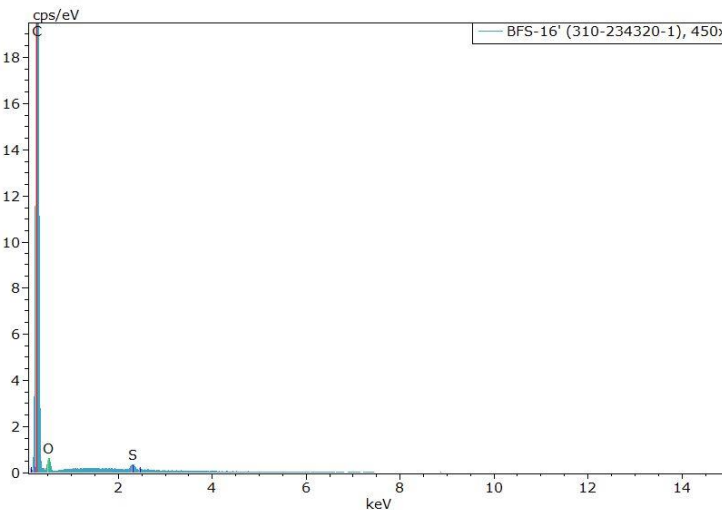
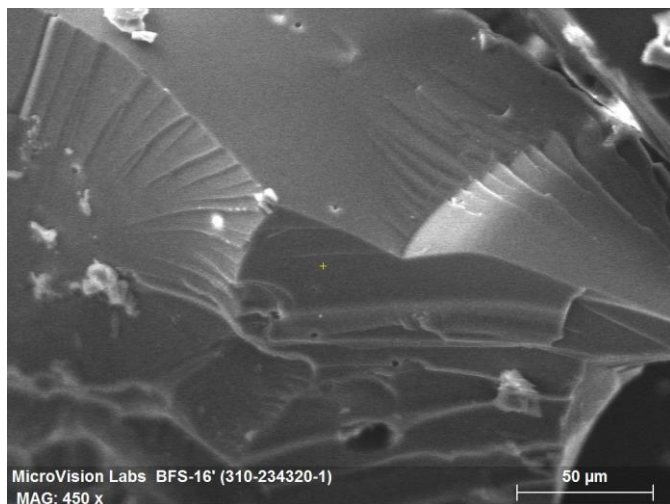
When examined in closer detail with PLM, these grains were isotropic, and generally a dark opaque color; sometimes the thinner pieces or thinner edges of the thicker particles were more translucent amber brown colored. From the optical inspection, these particles were morphologically consistent with coal.



**ISO/IEC 17025:2017 Accredited**

MicroVision Laboratories, Inc. 187 Billerica Road, Chelmsford, MA 01824  
Phone: (978) 250-9909 Fax: (978) 250-9901 Email: Sales@MicroVisionLabs.com  
www.MicroVisionLabs.com

The sample was also examined with SEM/EDS, as shown below. Again, the particles appeared to break in a brittle manner, with sharp angular edges and conchoidal fracture lines readily visible. They were comprised primarily of carbon, with low oxygen and sulfur also present. This is consistent with coal.



### ISO/IEC 17025:2017 Accredited

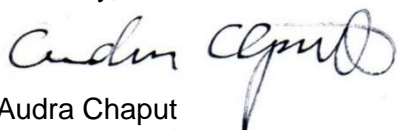
MicroVision Laboratories, Inc. 187 Billerica Road, Chelmsford, MA 01824  
Phone: (978) 250-9909 Fax: (978) 250-9901 Email: Sales@MicroVisionLabs.com  
www.MicroVisionLabs.com

## Summary:

The client had previously suspected the BFS-1 6' (310-234320-1) unknown bulk material may be 'Gilsulate', which, per the manufacturer's SDS information, is comprised of calcium carbonate and sodium potassium aluminum silicate. The submitted sample was not consistent with Gilsulate. Instead, examination by light microscopy and SEM/EDS indicated the bulk material was morphologically and elementally consistent with coal.

Please let us know if you have any questions or if there is anything else we can do for you.

Sincerely,



Audra Chaput  
Analytical Microscopist

Reviewed by: DW

**ISO/IEC 17025:2017 Accredited**

MicroVision Laboratories, Inc. 187 Billerica Road, Chelmsford, MA 01824  
Phone: (978) 250-9909 Fax: (978) 250-9901 Email: Sales@MicroVisionLabs.com  
www.MicroVisionLabs.com



3019 Venture Way  
Cedar Falls, IA 50613

### Chain of Custody Record



Environment Testing America

15415

<b>Client Information (Sub Contract Lab)</b> Client Contact: _____ Shipping/Receiving: _____ Company: MicroVision Laboratories, Inc. Address: 187 Billerica Road, Chelmsford State Zip: MA, 01824 Phone: 978-250-9809 (Te) Email: _____ Project Name: _____ UNI Power Plant Site: _____ SSOV#: _____				Sampler: _____ Phone: _____ Lab PM: _____ E-Mail: _____ Corner: Calhoun@et.eurofins.com Accreditations Required (See note) State Program - Iowa		(Carrie Tracking No.): _____ State of Origin: Iowa Page 1 of 1 Job # 310-234320-1	
				Due Date Requested: 7/5/2022 TAT Requested (days): _____ PO #: _____ WFO #: _____ Project #: 31001364 SSOV#: _____		Analysis Requested Field Filtered Sample (Yes or No) _____ Perform MS/MSD (Yes or No) _____ SUB (General Subcontract Method)/ Unknown ID _____ Total Number of containers 1	
<b>Sample Identification - Client ID (Lab ID)</b> BFS-1 6 (310-234320-1)				Sample Date: 6/23/22 Sample Time: 08:50 Sample Type (C=comp, G=grab, I=Trickle, A=As): _____ Matrix (W=Water, O=Organic, A=As): _____ Preservation Code: Solid		Special Instructions/Note: _____	
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC advises the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analyte/instrument being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.				Possible Hazard Identification Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2 Date: _____ Time: _____ Method of Shipment: _____ Special Instructions/QC Requirements: _____ Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: _____ Relinquished by: _____ Date Time: 6/23/22 12:30 Company: _____ Relinquished by: _____ Date Time: _____ Company: _____ Relinquished by: _____ Date Time: _____ Company: _____ Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____				Received by: _____ Date Time: 06/24/22 Company: _____ Received by: _____ Date Time: _____ Company: _____		Received by: _____ Date Time: 06/24/22 Company: _____ Received by: _____ Date Time: _____ Company: _____	