

R.J. YEDLOSKY CONSULTING ENGINEERING GEOLOGIST

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July 6, 2007

**Fred Talumbo
Core Laboratories, Inc.
6313 Windfern Road
Houston, TX 77040**

Dear Mr. Talumbo:

We spoke on the phone this afternoon concerning samples of the Marcellus Shale section in a well cored in Monongalia County, West Virginia by the US Bureau of Mines, Department of Energy (Morgantown Energy Technology Center). I am sending four core samples for analysis. These samples are from the following depths: 7419.5', 7442.6', 7465', and 7490'.

This core, along with several other cores in this same well, was analyzed by EGSP for geo-chemical and geo-physical characterization. According to these analyses the organic carbon ranged from 0/5 to 13.62 weigh percent. This interval was also tested for gas desorption over eleven weeks, and total free gas concentration ranged from 0.984 to 1.213 SCF/CF. Both the organic content and off-gassing data indicate that the "Devonian Shale in the test well is organically rich and thermally mature, and does contain free gas in place"

Along with the four core samples I attach a copy of the Gamma Ray and Density logs showing where the samples were taken. Additionally I am showing the carbon content as measured in certain samples.

What the EGSP did not perform on these cores is the porosity, permeability and grain density- the three significant factors needed for correct electric log interpretation. The Density log ran in this well is horrible. In November of 2004 I sent to your laboratory several core samples from the shallow sand horizons cored in this well. The porosity values from the core were very much lower than those derived from the electric log analysis.

I am not sure you will be able to take core plugs in the shale samples I sent, without them breaking into layers. I also attach some pictures showing the natural break down in these cores. You discussed other methods of analyses, if this is a problem.

At any rate give me a call when you have looked at these four samples.

The cost for this analysis will be paid for by Blackrock Enterprises, LLC of PO Box 342, Salem, West Virginia 26426. I attach a card for this company with the owner's name- Mr. Michael Benedum. Yes he is related to the original Mike Benedum. MR. Benedum has given permission to have these samples tested.

When the core analysis is completed (porosity, permeability and grain density) the core samples and plugs are to be returned to the West Virginia Geologic and Economic Survey (WVGES) at 1 Mont Chateau Road, Morgantown, WV 26508-8079, attn: Lee Avery, Chief Oil and Gas Geologist. I would also like you firm to make thin sections, impregnated with blue epoxy, for two of these samples, #'s 7419.5 and 7490'. The thin sections should be sent to me and have the depths marked on them.

When the analyses are complete send one copy to me and another to Lee Avery at the WVGES. Send the bill to Mike Benedum at the address above.

If you have any questions, please give me a call.

Sincerely,

**R.J. Yedlosky
CPGS # 4417**

cc: Mike Benedum and Lee Avery.



Gas Shale Core Analysis

		As received	Dry & Extracted Conditions ⁽²⁾
Sample	Depth (ft)	Bulk Density (g/cc)	Grain Density (g/cc)
1	7465.00	2.369	2.653
2	7490.00	2.379	2.599

Footnotes:

(2) Dean Stark extracted sample (20/35 mesh size) vacuum oven dried at 110 °C.

Reference: "Development of Laboratory and Petrophysical Techniques for Evaluating Shale Reservoirs", GRI-95/0496, Gas Research Institute, April 1996

Blackrock Enterprises, LLC

Unknown Well
Monongalia County, West Virginia
HOU-070685

Gas Shale Core Analysis

A slab was cut from each requested sample. The unused portion of the core samples was wrapped and returned to the West Virginia Geologic and Economic Survey. Each sample was weighed to ± 0.001 g and the bulk volume by mercury immersion was measured to ± 0.01 cc. These initial measurements were performed to determinate natural sample density (Bulk Density).

Each sample was processed using a mechanical rock crusher. The crushed material was sieved through 20 and 35 US mesh sieve screens. The material retained on the 35-mesh screen was collected and sealed in airtight vials pending the next analytical step.

Dean-Stark Extraction and Drying

Dean Stark analysis follows API RP 40 procedures and GRI-95/0496. Toluene was conditioned (pre-boiled) to remove any absorbed water. Each sample was placed in a pre-weighed thimble to save any lost grains during the extraction process. The samples were loaded in the Dean Stark apparatus, which was then filled with argon gas to create an anaerobic environment. All glass joints of the Dean Stark apparatus were sealed with Teflon tape. A moisture trap (desiccant tube with fresh activated silica gel) was placed on the top of each condensation tower. Each sample was weighed to an accuracy of ± 0.001 g, placed into a pre-dried and pre-labeled glass thimble to trap lost grains and re-weighed to the same precision. The sample was then immediately loaded into the Dean Stark apparatus. All joints were sealed and extraction / distillation initiated. Toluene was refluxed for a period of 8 days. Upon completion of Dean Stark extraction/distillation, the samples were moved to a vacuum oven for drying. Each sample and thimble apparatus was dried in a vacuum oven at 240°F until weight stabilization, ± 0.001 grams. Upon weight stabilization, the samples were removed from heated drying and placed into desiccators. Each plug & thimble apparatus was weighed within ± 0.001 g. Each sample was then removed from the thimble and weighed independently.

Grain Volume

Direct grain volume measurements for the samples were made using an automated porosimeter. This instrument utilizes the principle of gas expansion as described by Boyle's Law. Helium was used as the test gas. The instrument calibration is maintained on a daily basis and test standards were run to verify instrument accuracy. Calculated grain densities were obtained utilizing grain volume measurements and sample weights.

Additional Analyses

Thin sections from each sample were made and sent to Mr. R. J. Yedlosky.



Michael Stewart
Core Laboratories Houston ATC
Core Analysis Supervisor
August 29, 2007

References

1. "Recommended Practices for Core Analysis", RP 40, Second Edition, American Petroleum Institute, February 1998.
2. "Development of Laboratory and Petrophysical Techniques for Evaluating Shale Reservoirs", GRI-95/0496, Gas Research Institute, April 1996