

**41442R13 Final Report****ANALYSIS OF DEVONIAN BLACK SHALES IN KENTUCKY FOR POTENTIAL  
CARBON DIOXIDE SEQUESTRATION AND ENHANCED NATURAL GAS  
PRODUCTION****Contract DE-FC26-02NT41442****Well Identification and Stratigraphic Data**

Contact: Brandon C. Nuttall  
Kentucky Geological Survey  
228 MMRB  
University of Kentucky  
Lexington, KY 40506-0107  
Phone: 859-257-5500  
Email: bnuttall@uky.edu

This workbook provides identifying data and stratigraphic tops for eastern Kentucky wells used in calculating the carbon sequestration capacity of the Ohio Shale. These data are intended to accompany the final report for the project. See that report for a discussion of the methods and presentation of the results.

Notes on the LAS (log ASCII standard) format of digital geophysical log data provided.

- 1) The LAS files were exported from a Petra project. Petra is software for management and analysis oil and gas well data from GeoPlus, see <http://www.geoplus.com/index.html>.
- 2) The LAS files contain the optional "~tops" data block
- 3) The UWI (from Petra) is used as a key to reference the well header data (in this workbook) and the digital log data.
- 4) Tops data should be considered accurate to the nearest foot; ignore any decimal fractions of feet. Computer-aided stratigraphic tools provided by the Petra software reports tops accurate to additional decimal places (beyond the resolution of the original LAS data).

These curves are available in the supplied LAS files.

Depth, measured depth in feet from the cited KB

GIP, calculated CO<sub>2</sub> gas storage capacity in standard cubic feet of CO<sub>2</sub> per ton of shale (SCF/ton)

GR, measured natural gamma ray activity in API units

RHOB, measured formation bulk density in grams per cubic centimeter

TOCD, total organic carbon content calculated from bulk density (RHOB)

The equations for calculating TOCD and GIP curves are:

$TOCD = 55.822 * ((2.82/RHOB) - 1)$  -- see Schmoker, 1993, USGS Bulletin 1909

$GIP = 7.9072 * TOCD + 20.739$  -- see text of final report

See [http://cwls.org/las\\_info.php](http://cwls.org/las_info.php) for specification of LAS standards and documentation.

See <http://www.uky.edu/KGS/emsweb/devsh/devshseq.html> for a copy of the final report.

See the FMCodes sheet in this workbook for a key to the stratigraphic codes in use at the Kentucky Geological Survey

**Key to data columns provided in sheet 41442\_ekywells**

UWI	Universal well identifier used in Petra software as unique well key
Permit	Permit issued by the Kentucky Division of Oil & Gas
Recno	Unique serial well identifier used as key in the Kentucky Geological Survey oil and gas well record database
Operator	Owner of the right to drill a well
Well	Well number assigned by the operator
Farm	Lease name (name of mineral owner if oil and gas are severed from surface)
Result	Type of well completion, see key
Dt_cmpl	Date well was completed
TD	Total depth of well in feet
tdfm	Code for formation penetrated at the total depth
Lat83	Decimal degrees of latitude (NAD83)
Lon83	Decimal degrees of longitude (NAD83)
KB	Reference elevation in feet above sea level (usually kelly bushing)
339SNBR	Measured depth in feet to top of Mississippian Sunbury Shale (missing value is -99999)
339BREA	Measured depth in feet to top of Mississippian Berea Sandstone (missing value is -99999)
341OHIO	Measured depth in feet to top of Devonian Ohio Shale (missing value is -99999)
341CHAT	Measured depth in feet to top of Devonian Chattanooga Shale (missing value is -99999)
341NALB	Measured depth in feet to top of Devonian New Albany Shale (missing value is -99999) (Illinois Basin term)
341OHIOU	Measured depth in feet to top of upper part of Devonian Ohio Shale (missing value is -99999) (generally equivalent to the Chagrin Shale)
341CLVD	Measured depth in feet to top of Cleveland Shale Member of the Devonian Ohio Shale (missing value is -99999)
341CGRN	Measured depth in feet to top of Devonian Chagrin Shale (missing value is -99999)
341TLBD	Measured depth in feet to top of Three Lick Bed of the Devonian Ohio Shale (missing value is -99999) (lateral equivalent of Chagrin Shale)
341HURNU	Measured depth in feet to top of Upper Huron Shale Member of the Devonian Ohio Shale (missing value is -99999)
341HURNM	Measured depth in feet to top of Middle Huron Shale Member of the Devonian Ohio Shale (missing value is -99999)
341HURNL	Measured depth in feet to top of Lower Huron Shale Member of the Devonian Ohio Shale (missing value is -99999)
341OLNG	Measured depth in feet to top of Olentangy Shale (missing value is -99999) (top of Java equivalent)
341RNST	Measured depth in feet to top of Rhinestreet Shale (missing value is -99999)
344CORN	Measured depth in feet to top of Devonian/Silurian Corniferous (missing value is -99999) (typically carbonates below Devonian Shale)
LASFile	Name of file with log ASCII standard formatted geophysical log curve data

**Key to well results (column name Result in sheet 41442\_ekywells)**

D&A	A dry and abandoned well (no successful completions)
GAS	Well completed as a successful gas producer
OIL	Well completed as a successful oil producer
O&G	Well completed as a successful producer of oil and gas combined