In search of a Silurian Total Petroleum System in the Appalachian basin of New York, Ohio, Pennsylvania, and West Virginia

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INTRODUCTION

Oil and gas reservoirs are present throughout much of the Paleozoic strata of the Appalachian basin, but not all of the petroleum source rocks have been identified and characterized. In an overview of oil and gas plays in the basin, de Witt (1993) indicated that the two primary petroleum source rocks are an older sequence of Middle to Upper Ordovician shales and a younger sequence of Devonian-Lower Mississippian shales. More recently, Swezey (2002) used data compiled from "The Atlas of Major Appalachian Gas Plays" (Roen and Walker, 1996) to propose four discrete groups of source rocks, each clustered around one of the four major packages of siliciclastic strata in the basin (Lower Cambrian, Upper Ordovician to Lower Silurian, Middle Devonian to lower Mississippian, and upper Mississippian to Pennsylvanian). Subsequently, in the 2002 assessment of undiscovered oil and gas resources in the Appalachian basin, the U.S. Geological Survey (USGS) identified the following six total petroleum systems (TPS), which are named according their respective source rocks and associated reservoir intervals (Milici and others, 2003): 1) the Conasauga-Rome/Conasauga TPS; 2) the Sevier-Knox/Trenton TPS; 3) the Utica-Lower Paleozoic TPS; 4) the Devonian Shale-Middle and Upper Paleozoic TPS; 5) the Carboniferous Coal-bed gas TPS; and 6) the Pottsville Coal-bed Gas TPS.

In the 2002 USGS oil and gas assessment of the Appalachian basin, most of the oil and gas in Silurian sandstone and carbonate reservoirs fig. 1) were assigned to the Utica-Lower Paleozoic TPS (Milici and others, 2003). However, most of the oil and gas in Silurian reservoirs have yet to be correlated conclusively with specific source rocks.

At least three different potential source rocks have been proposed for oil and gas in the Silurian reservoirs. The Upper Ordovician Utica Shale (fig. 2) is the most commonly proposed source rock for oil and gas fields in Silurian reservoirs. Most oil and gas fields in Silurian reservoirs in eastern Ohio, western Pennsylvania, western New York, and West Virginia are underlain by the Utica Shale which is mature with respect to oil and gas generation. Moreover, the Utica Shale consistently has total organic carbon (TOC) values of ~1.5 to 4.0 weight percent (Drozd and Cole, 1994; Jenden and others, 1993; Patchen, 1996; Ryder and others, 1998). A second group of potential source rocks is the Middle and Upper Devonian black shale units (fig. 2), which overlie many of the Silurian reservoirs (Cole and others, 1987; Ryder, 1995; Patchen, 1996). In eastern Kentucky, for example, Upper Devonian shales rest unconformably on many of the Silurian reservoirs (Ray, 1971), and TOC values for the Upper Devonian Ohio Shale in eastern Kentucky range from ~3.0 to 6.2 weight percent (Curtis and Faure, 1997). Finally, Silurian shale and carbonate units constitute a third group of potential source rocks for the Silurian reservoirs (Knight, 1969; de Witt, 1993; Jenden and others, 1993; Van Tyne, 1996). Unfortunately, very few of these Silurian shale and carbonate units have been analyzed by organic geochemical techniques to determine if they have the appropriate characteristics of petroleum source rocks. An organic geochemistry dataset that was published by Cole and others (1987) reported TOC analyses of 436 Silurian to Middle Devonian rock samples in Ohio. However, only 32 of the samples had sufficient organic matter (TOC $\geq$ 0.5 wt%) to qualify as source rocks, and only 4 of these 32 samples had TOC values > 1.0 wt%.

Despite the paucity of data from the U.S. portion of the Appalachian basin, viable Silurian source rocks have been identified in the Canadian portion of the Appalachian basin and in both the Canadian and U.S. portions of the adjacent Michigan basin. For example, Powell and others (1984) identified the Middle Silurian Eramosa Dolomite Member of the Lockport Group as a source rock for oils in the overlying Middle Silurian Guelph Formation in Ontario (both Appalachian and Michigan basins). The Eramosa Dolomite extends about 25 mi into western New York, where it contains bitumen and emits a petroliferous odor (Zenger, 1965; Yager, 2000). In the Michigan Basin (both U.S. and Canadian portions), various studies have identified the Middle Silurian Niagara Group (including the Guelph Formation of the Niagara Group) and the Upper Silurian Salina Group as source rocks for oil and gas in the Niagara Group and Salina Group (Rullkötter and others, 1986; Obermajer and others, 2000; Hatch and others, 2004).

This report provides an evaluation of the source rock potential of Silurian strata in the U.S. portion of the northern Appalachian Basin, using new TOC and RockEval data. The study area consists of all or parts of New York, Ohio, Pennsylvania, and West Virginia (fig. 1). The stratigraphic intervals that were sampled for this study are as follows: 1) the Lower Silurian Cabot Head Shale, Rochester Shale, and Rose Hill Formation; 2) the Lower and Upper Silurian McKenzie Limestone, Lockport Dolomite, and Eramosa Member of the Lockport Group; and 3) the Upper Silurian Wills Creek Formation, Tonoloway Limestone, Salina Group, and Bass Islands Dolomite (fig. 2). These Silurian stratigraphic intervals were chosen because they are cited in previous publications as potential source rocks, they are easily identified and relatively continuous

across the basin, and they contain beds of dark gray to black shale and (or) black argillaceous limestone and dolomite.

METHODS

Specifically for this study, 308 samples were collected and analyzed. Of the 308 samples, 302 were collected from drill-hole cuttings and 6 were collected from cores. As shown in fig. 3, these 308 samples are distributed across western New York (n=4), central and eastern Ohio (n=107), central and western Pennsylvania (n=102), and West Virginia (n=95). Commonly, more than one sample was collected per well, so that the 308 samples are distributed among 128 wells (fig. 3).

Most samples for this study were collected from drill cuttings and cores in the repository holdings of the State Geological Surveys of Ohio, Pennsylvania, and West Virginia. In addition, several core samples from western New York were collected from a U.S. Geological Survey storage facility in Ithaca, New York.

Dark gray to black shale and argillaceous carbonate intervals were given the highest priority for sampling. Where possible, specific stratigraphic units (for example, the Cabot Head Shale) were sampled over intervals that ranged from about 30 to 50 ft. About one-fifth of the samples were composites of several units representing from about 100 to several hundred feet of stratigraphic section (for example Wills Creek Formation and Tonoloway Limestone). Most samples averaged about 50 grams (g). Approximately 10 samples were considered to be unsatisfactory for analysis, mainly because they covered too many stratigraphic intervals.

All samples were shipped to Reston, Virginia, where they were organized, visually inspected, and culled. As part of the inspection process, the samples were compared with lithologic logs constructed by the Geological Sample Log Company, Mt. Lebanon, PA. Humble Geochemical Services (Humble, Tx) processed and analyzed the samples for TOC and RockEval data (tables 1, 2).

DISTRIBUTION OF OIL AND GAS FIELDS IN SILURIAN RESERVOIRS AND THEIR POSSIBLE SOURCE ROCKS

Lower Silurian regional oil and gas accumulation: The dominant oil and gas fields present in Silurian reservoirs are located in the Lower Silurian regional oil and gas accumulation that extends across eastern Ohio, northwestern Pennsylvania, and western New York (McCormac and others, 1996; Ryder and Zagorski, 2003). The major reservoirs consist of the Clinton sandstone in Ohio and the Medina Group sandstones in Pennsylvania and New York (figs. 1 and 2). Ryder and Zagorski (2003) estimated that approximately 8.7 trillion ft^3 (tcf) of natural gas and 400 million barrels of oil have been produced from the Clinton/Medina sandstone reservoirs. Furthermore, the USGS (Milici and others, 2003) considered the Clinton/Medina petroleum resource to be a continuous-type accumulation that contains a mean of 24 tcf of recoverable undiscovered natural gas.

The Lower Silurian Tuscarora Sandstone, an eastern equivalent of the Clinton/Medina sandstones, is the reservoir for several gas fields Pennsylvania and West Virginia (figs. 1 and 2). Examples of such gas fields include the Devils Elbow field in central Pennsylvania and the Leadmine and Indian Creek fields in West Virginia (fig. 1),

both of which are characterized by low-Btu gas with a large percentage of nitrogen or carbon dioxide (Avary, 1996).

The most probable source rock for the oil and gas in the Lower Silurian regional accumulation and the Tuscarora Sandstone is the Utica Shale (Drozd and Cole, 1994; Ryder and others, 1998). Devonian black shale source rocks may have contributed some oil and gas to the Clinton/Medina sandstone reservoirs (Cole and others, 1987), but widespread evaporite units in the Salina Group probably minimized large-scale mixing of Ordovician- and Devonian-derived petroleum (Drozd and Cole, 1994). Lower Silurian shales (Cabot Head Shale and Rochester Shale) were suggested by Knight (1969) and de Witt (1993) as possible source rocks for the Clinton/Medina accumulation.

<u>"Newburg zone" and Newburg sandstone:</u> Small gas fields in the Lower and Upper Silurian Lockport Dolomite (Group) are distributed across east-central Ohio, northwestern Pennsylvania, and western New York (figs. 1 and 2). In Ohio, the reservoir interval is called the "Newburg zone" where bioherms with thin zones of vuggy dolomite are present (Santini and Coogan, 1983; Noger and others, 1996). In west-central West Virginia, several medium-size gas fields occur in the Upper Silurian Newburg sandstone, a thin sandstone unit located between the Wills Creek Formation and the McKenzie Limestone (Patchen, 1996) (figs. 1 and 2).

The oil and gas in the Lockport Dolomite of Ohio, Pennsylvania, and New York were derived from either the Utica Shale or from presently unrecognized Silurian source rocks associated with the biohermal buildups. Patchen (1996) suggested that the most

likely source of the natural gas in the Newburg sandstone is Ordovician or Devonian black shale.

Bass Islands trend fields: In westernmost New York and adjoining northwestern Pennsylvania, oil and gas is produced from small fields in the Upper Silurian Akron Dolomite (Bass Islands Dolomite equivalent), Upper Silurian Salina Group, and several overlying Lower and Middle Devonian reservoirs (figs. 1 and 2). This narrow, northeast-trending zone of thrust-fault-controlled oil and gas fields is commonly known as the Bass Islands trend (Van Tyne, 1996). Devonian black shale (probably the Middle Devonian Marcellus Shale) is the most likely source rock for the oil and gas in the Bass Islands trend (Jenden and others, 1993), because this black shale is located within several hundred feet above the reservoir units and, in some places, is juxtaposed against several of the reservoirs by thrust faults. However, Van Tyne (1996) favored a Silurian source rock (Akron Dolomite or Salina Group) based on unpublished data provided by R. Beardsley. Jenden and others (1993) also mentioned the possibility of a Salina Group source rock.

"Corniferous" carbonates and Keefer Sandstone (Big Six sandstone): Numerous small to medium oil and gas fields occur in Silurian reservoirs in eastern Kentucky (fig. 1), where the reservoirs consist primarily of the Lower Silurian Keefer Sandstone (Big Six sandstone) and the Middle-Upper Silurian and Middle Devonian "Corniferous" carbonate interval (Lockport Dolomite, Salina Group, and Onondaga Limestone) (Meglen and Noger, 1996; Noger and others, 1996) (fig. 2). As stated in the introduction, oil and gas

in Silurian sandstone and carbonate reservoirs in eastern Kentucky very likely were derived from the Upper Devonian Ohio Shale (Ray, 1971).

RESULTS OF ANALYSES

TOC analysis: Using criteria established by Peters and Cassa (1994), the majority of the 308 samples (n=279) have TOC values (~ 0.20-0.50 wt%) that are too low to qualify them as source rocks (figs. 4 and 5). About 9 % of the samples (n=29) have TOC values (≥0.50 wt%) that are large enough to qualify them as source rocks, and of these 29 samples, 24 have TOC values less than the 1 % lower limit generally required for an effective petroleum source rock (Tissot and Welte, 1984; Peters and Moldowan, 1993) (figs. 4 and 5). Only 5 samples in the dataset are classified as good to very good source rocks (TOC = 1.00 to 3.55 wt%) (figs. 4 and 5).

None of the 115 samples collected and analyzed from the Cabot Head Shale (n=57), Rochester Shale (n=47), Rose Hill Formation (n=9), Lower Silurian carbonates and shales (n=1), and Castanea Member of the Tuscarora Formation (n=1) have TOC values ≥1 % (figs. 5 and 6). Of the 9 samples that are characterized as source rocks, all are in the fair source rock category with TOC values ranging from 0.50 to 0.68 wt%. Two samples of the fair source rocks are from the Cabot Head Shale (Harrison and Noble Cos., OH), six samples are from the Rochester Shale (Tuscarawas Co., OH; Beaver, Clarion, Mercer, and Warren Cos., PA), and one sample is from the Rose Hill Formation (Wayne Co., WV) (figs. 4 and 6; tables 1 and 2).

Of the 28 samples collected and analyzed from the McKenzie Limestone (n=15), Lockport Dolomite (n=9), and Eramosa Dolomite Member (n=4), two have TOC values ≥0.5 wt% (figs.5 and 7). Both of these samples are from the Lockport Dolomite (Mercer and Venango Cos., PA) and both qualify as fair source rocks (TOC=0.62 wt%) (figs. 4 and 7; tables 1 and 2). Somewhat surprising are the low TOC values (0.22-0.34 wt%) for the Eramosa Dolomite in Niagara County, New York.

The highest TOC values in the study were measured in the 165 samples collected from the Salina Group (n=122) and the correlative Wills Creek Formation (n=20) and Tonoloway Limestone (n=17). Other samples in this group include the Upper Silurian-Lower Devonian Keyser Limestone, Upper Silurian Bass Islands Dolomite, and Lower Devonian Helderberg Limestone (n=6). In about 25 % of the wells, the Salina/Wills Creek/Tonoloway samples overlap one another or with units such as the Silurian McKenzie Limestone and the Bass Islands Dolomite, the Keyser Limestone, and the Devonian Helderberg Limestone. Of the 18 samples that are characterized as source rocks, 13 are in the fair source rock category with TOC values ranging from 0.50 to 0.98 wt%. Five samples of the fair quality source rocks are from Pennsylvania (Clarion, Elk, Forest, and Somerset Counties), whereas eight samples of the fair quality source rocks are from West Virginia (Clay, Hancock, Kanawha, Mercer, Monongalia, Pocahontas, and Preston Counties) (figs. 4 and 8; tables 1 and 2).

Five of the 18 samples in the Salina/Wills Creek/Tonoloway interval are characterized as good (TOC=1.00 to 1.99 wt%) to very good (TOC=2.00 to 3.99) source rocks. The good source rocks are located in the No. A-1 Mays well in Monongalia County, West Virginia (TOC=1.04 wt%), and the No 1. Minesinger well in Hancock

County, West Virginia (TOC=1.19 wt%), whereas the very good source rocks are located in the No. 1 J.S. Walker well in Butler County, Pennsylvania (TOC=2.78 wt%) and in the No. 1-A Walls well in Preston County, West Virginia (TOC=3.0 and 3.35 wt%) (figs. 4 and 8; tables 1 and 2).

The good source rock in the No. A-1 May well (TOC=1.04 wt%) is present in a 500-ft-thick interval that consists of the lower part of the Wills Creek Formation (300 ft), the Newburg sandstone (50 ft), and the upper part of the McKenzie Limestone (150 ft). Based on a lithologic log described by the Geological Sample Log Company (Mt. Lebanon, PA), the lower part of the Wills Creek Formation in the No. A-1 May well that was sampled in this study consists of interbedded medium dark gray dolomite (some slightly anhydritic), green gray shale, dark gray to black shale, and brown to black limestone. Approximately 65 net feet (ft) of black shale are present in the Wills Creek part of the sample. The McKenzie Limestone that was sampled in the No. A-1 May well contains dark gray to black shale (≈50 net ft) interbedded with brown to black limestone according to the lithologic log described by the Geological Sample Log Company (Mt. Lebanon, PA). An additional 50 net ft of black shale are present in the unsampled lower 100 ft of the McKenzie Limestone.

The good source rock identified in the No.1 Minesinger well is located in a 130-ft-thick interval in the upper part of the Salina Group. Based on a lithologic log by the Geological Sample Log Company (Mt. Lebanon, PA), this source rock consists of interbedded anhydritic dolomite, anhydrite, and dark gray to black shale. This lithologic assemblage extends downhole for at least another 165 ft, over which interval a TOC=0.93 wt% value was measured in a composite sample. Approximately 60 net ft of black shale

is present in the sampled 295-ft-thick interval. Because the upper part of the Salina Group in the No. 1 Minesinger well is located almost 600 ft below the Middle Devonian Marcellus Shale, the analyzed sample is unlikely to be contaminated by black shale from the Marcellus that caved downhole.

In the No. 1 J. S. Walker well, the very good source rock is located in a 150-ft-thick interval in the upper part of the Salina Group (Camillus Shale) that consists of interbedded medium to dark brown dolomite, dark gray brown limestone, anhydritic dolomite, and dark brown gray shale according to a lithologic log described by the Geological Sample Log Company (Mt. Lebanon, PA). The shale in this interval consists of thin discontinuous laminations in the dolomite and limestone, and thus is difficult to characterize in net feet. Because the upper part of the Salina Group in the No. 1 J. S. Walker well is located about 450 ft below the Middle Devonian Marcellus Shale, the analyzed sample is unlikely to be contaminated by black shale from the Marcellus that caved downhole.

Two sampled intervals in the No. 1-A Walls well were identified as having very good source rocks. The 520-ft-thick lower interval (TOC=3.0 wt%) consists largely of the Wills Creek Formation (400 ft) with interbedded medium to dark gray dolomite, anhydritic dolomite, local anhydrite, medium to dark gray limestone, and gray to black shale (Geological Sample Log Company, Mt. Lebanon, PA). Approximately 60 net ft of gray to black shale is present in the Wills Creek Formation part of the 520-ft-thick. The lower 120 ft of the 520-ft-thick interval consists of the Newburg sandstone (30 ft) and the uppermost 90 ft of the McKenzie Limestone. The McKenzie Limestone, here, consists of interbedded light gray to brown gray fossiliferous limestone and gray to black shale.

Approximately 15 net ft of gray to black shale is present in the McKenzie Limestone. The upper source rock interval (TOC=3.35 wt%) in the No. 1-A Walls is 200 ft thick, rests directly on the lower unit, and consists of the uppermost part of the Wills Creek Formation (40 ft) and lowermost part of the Salina Group (160 ft). Both units have a lithology that is characterized by interbedded medium to dark gray dolomite, anhydrite, and black shale. This 200-ft-thick interval contains about 20 net ft of black shale.

Another sampled interval in the lower part of the Salina Group in the No. 1-A Walls well has a TOC value (0.98 wt%) that qualifies the sample as a source rock. This sample interval is 190 ft thick and is located 50 ft above the previously described upper source rock interval. The lithology of the 190-ft-thick Salina Group interval consists of interbedded medium to dark gray dolomite, anhydrite, and black shale. The black shale constitutes about 25 net ft of the interval. The 0.98 wt% TOC value of this interval, plus the 3.0 and 3.35 wt% TOC values from the underlying intervals, demonstrate the overall source rock potential of the lower part of the Salina Group and the underlying Wills Creek Formation in the No. 1-A Walls well. Because the lower Salina Group-Wills Creek Formation in the No. 1-A Wall well is located about 1,200 ft below the Middle Devonian Marcellus Shale (TOC=1.43 wt%; Repetski and others, 2005), the analyzed samples are unlikely to have been contaminated by black shale from the Marcellus that caved downhole.

<u>RockEval analysis:</u> RockEval analyses of the 308 samples provides additional data that may be useful for characterizing Silurian source rocks. S_1 and S_2 values (in mg HC/g sample) suggest that several samples in the dataset have either generated petroleum or

have the potential to generate petroleum. Overall, the S_1 values (0.66-2.32, ave. 1.41) and S_2 values (0.86-10.08, ave. 4.88) are highest for the 5 samples identified as good to very good source rocks in the Salina/Wills Creek/Tonoloway interval based on TOC values (tables 1 and 2). The S_1 and S_2 values for the 13 samples identified as fair source rocks in the Salina/Wills Creek/Tonoloway interval range from 0.11-1.81 (ave. 0.52) to 0.23-2.28 (ave. 0.83), respectively (tables 1 and 2). Relatively high S_1 and S_2 values were measured in single samples of the Rochester Shale (TOC=0.59 wt%, S_1=3.96, S_2=1.17) and Lockport Dolomite (TOC=0.62 wt%, S_1=3.72, S_2=0.80) (tables 1 and 2), but these values may be influenced by petroleum contamination from the Clinton sandstone and Medina Group sandstones that underlie the samples by about 100 to 200 ft.

Hydrogen Indices (HI) for the 308 samples are relatively low. Two hundred seventy of the samples (about 90%) have HI ≤199 (in mg HC/g org C) and another 26 samples have HI ≥200≤299 (table 1 and 2). Only 7 samples have ≥300 HI ≤600, and, only 2 of these samples are identified as good to very good source rocks. Also, only 8 HI values in the dataset are associated with TOC≥0.9-1.0 wt%, ≥400°C T_{max}≤450°C, and S_2≥0.4-0.5 (tables 1 and 2), which are the generally accepted combination of parameters required for reliable HI values.

About 85% of the samples (n = 263) have T_{max} values that are considered to be unreliable by the analyst, Humble Geochemical Services (table 1 and 2). In general, T_{max} values are considered unreliable when the S_2 values are less than about 0.4 to 0.5 mg HC/g sample and when a sharp well-defined S_2 peak is absent. Of the 45 reliable samples, only about 7 samples have T_{max} values (T_{max} for oil window ≈ 435 to 460°C; T_{max} for gas window ≥460°C) that are consistent with the distribution of Silurian oil and

gas fields shown on figure 1. Such a low reliability of the T_{max} values is another indication of the generally poor (lean) source rock quality of the data set.

CONCLUSIONS AND SUGGESTIONS FOR FURTHER STUDIES

In this study, the only identified Silurian source rocks of possible importance for generating significant amounts of hydrocarbons are the Salina Group and the correlative Wills Creek Formation and Tonoloway Limestone. Silurian source rocks of secondary importance are the Lockport Dolomite and the correlative McKenzie Limestone. Silurian strata with the best source-rock characteristics are concentrated in northern West Virginia and western Pennsylvania within, or near, the Salina-Tonoloway depocenter that Smosna and others (1977) identified (also see fig. 8 for the distribution of Salina Group halite). Silurian reservoirs that may have been charged by Salina/Will Creek/Tonoloway source rocks are the Newburg sandstone, "Newburg zone" in the Lockport Dolomite, and Keefer Sandstone. However, areas where these reservoirs are currently productive of petroleum do not coincide with areas that seem to have the best Silurian source rocks (figs. 1 and 8).

We cannot propose a Silurian total petroleum system based on the results of this study. Such a proposal must be supported by additional geologic, geochemical, and petroleum production studies. First, several bitumen extracts need to be taken from the current data set and analyzed by gas chromatography to establish the geochemical character of oil generated from the Salina Group and its equivalent units. Several samples in the Salina/Wills Creek/Tonoloway interval with $S_1 \geq 1.00$ seem to have sufficient bitumen for extraction (tables 1 and 2). Oil-source rock correlations could be

made between these extracts and oils collected from Silurian reservoirs in nearby parts of the Appalachian basin. Also, natural gas needs to be collected and analyzed for selected isotope distributions, although a gas-source rock correlation is more difficult to establish. Secondly, additional regional stratigraphic studies are needed to improve understanding of the distribution and thickness of black shale-and-carbonate-bearing facies in the Salina Group and equivalent units. The study needs to be concentrated in western and central New York, eastern Ohio, western and central Pennsylvania, and northern and central West Virginia. The Lockport Dolomite and equivalent McKenzie Limestone also could be included in these regional stratigraphic studies. In addition, a map of oil and gas fields (including shows) in Silurian reservoirs, should accompany the facies distribution maps. Once an updated stratigraphic framework has been established for the Salina Group and its equivalent strata, additional subsurface samples should be collected and analyzed for their TOC and RockEval characteristics. Most of these new subsurface samples should be collected from wells in New York and from wells in Ohio, Pennsylvania, and West Virginia that were not included in this reconnaissance investigation. However, in wells where good to very good source rocks seem to be present, samples should be reanalyzed and (or) recollected and analyzed to establish reproducibility. All new samples should be collected from specific stratigraphic units, preferable at intervals of 30 to 50 ft or less.

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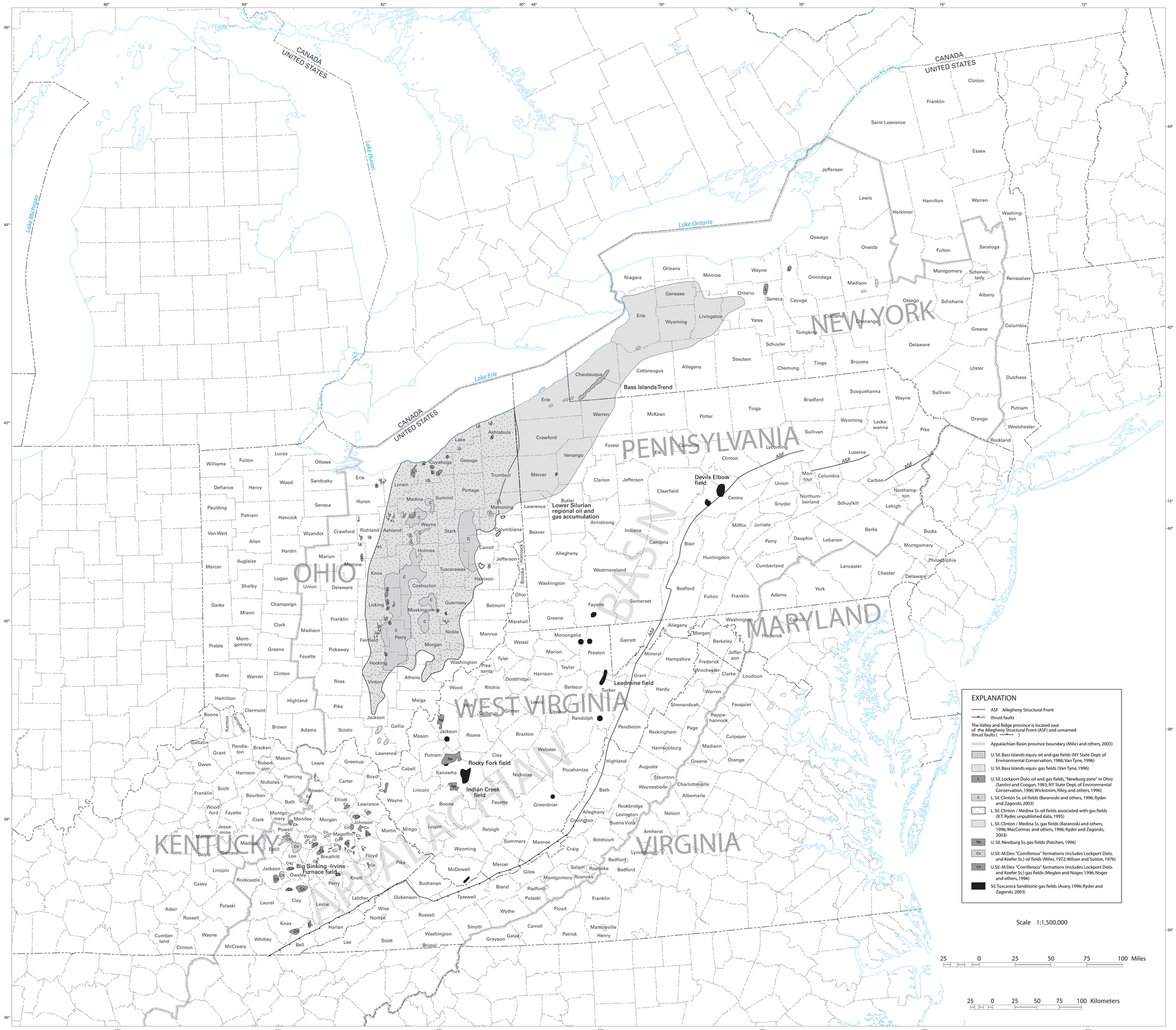

Figure 1. Map showing the distribution of oil and gas fields in Silurian reservoirs in the Appalachian basin of Kentucky, New York, Ohio, Pennsylvania, and West Virginia

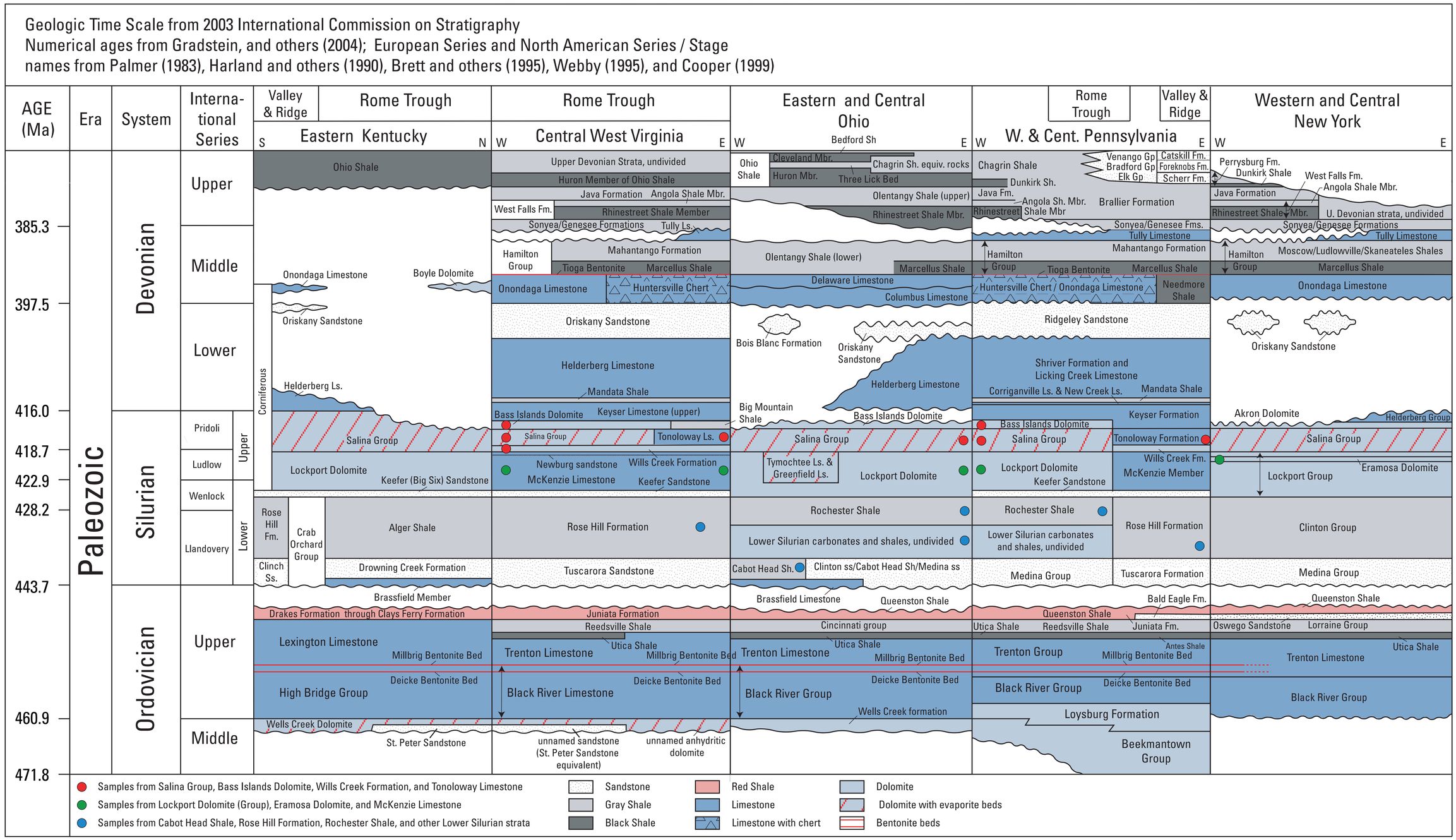

Figure 2. Correlation chart of Middle and Upper Ordovician, Silurian, and Devonian rocks in Kentucky, New York, Ohio, Pennsylvania, and West Virginia showing intervals sampled from Silurian strata for total organic carbon (TOC) and Rock Eval analysis.

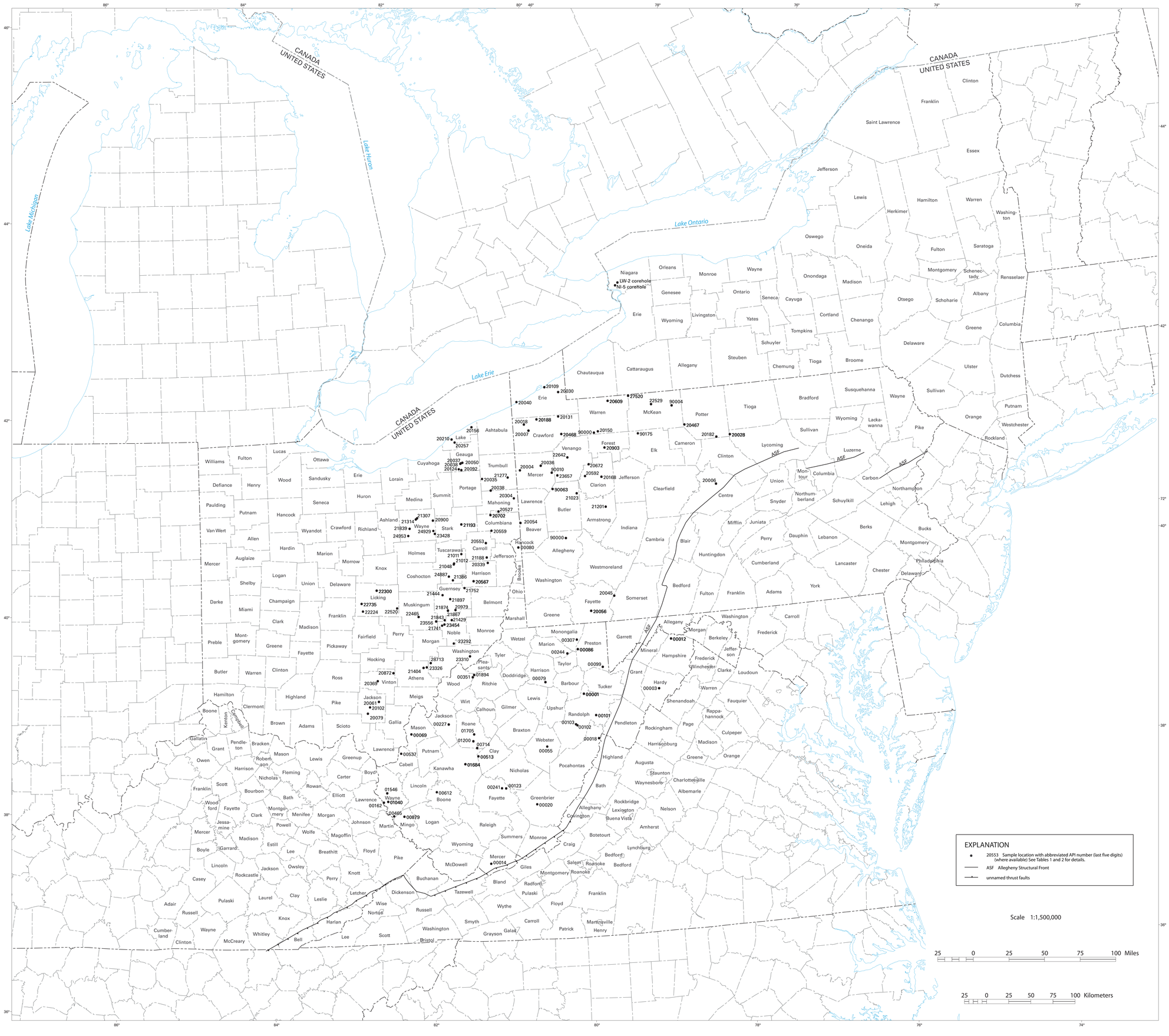

Figure 3. Location of wells in the Appalachian basin where Silurian rocks were sampled for this study.

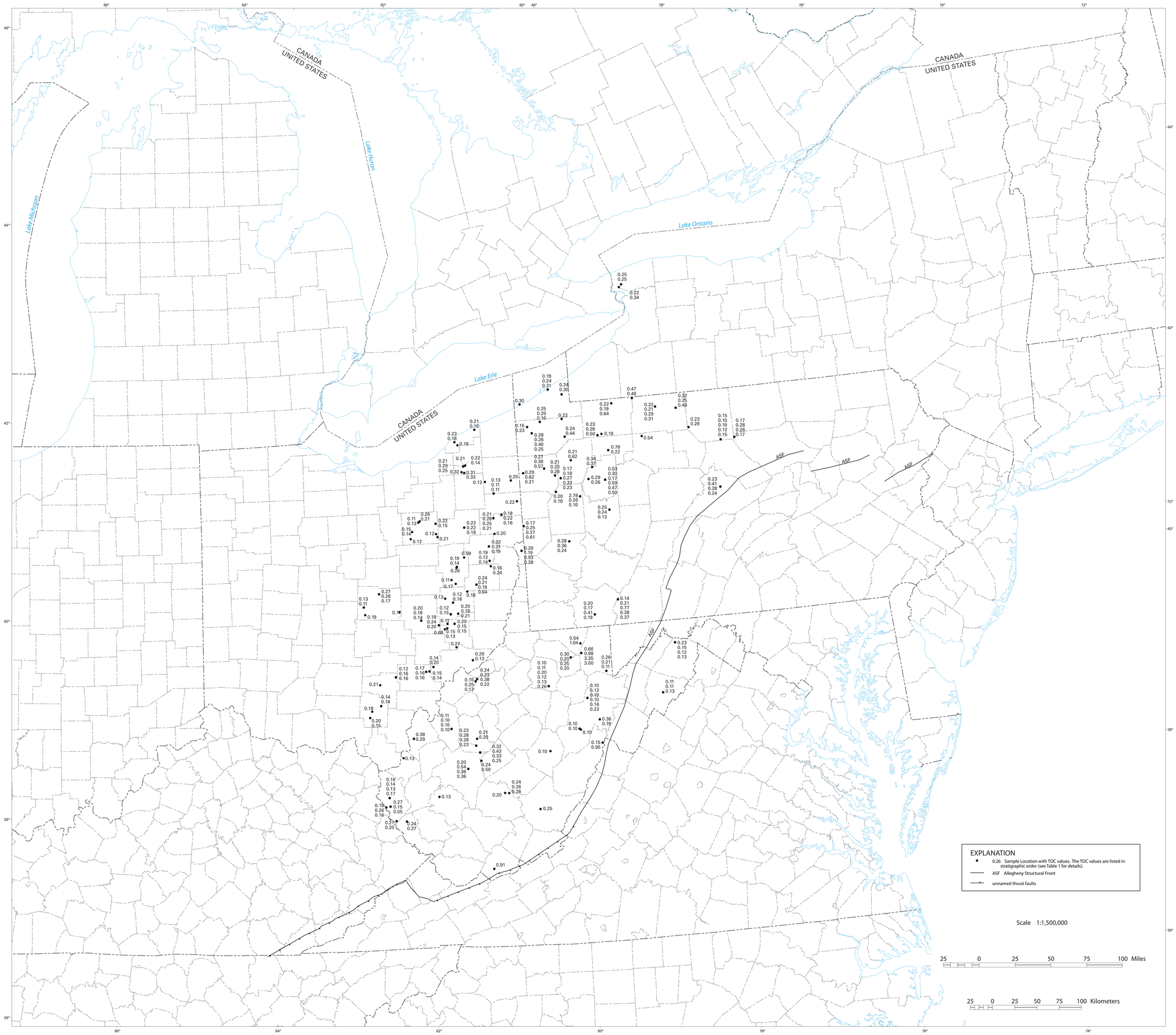

Figure 4. Location of wells in the Appalachian basin where Silurian rocks were sampled for this study. Also shown are total organic carbon (TOC) values in weight percent derived from the samples.

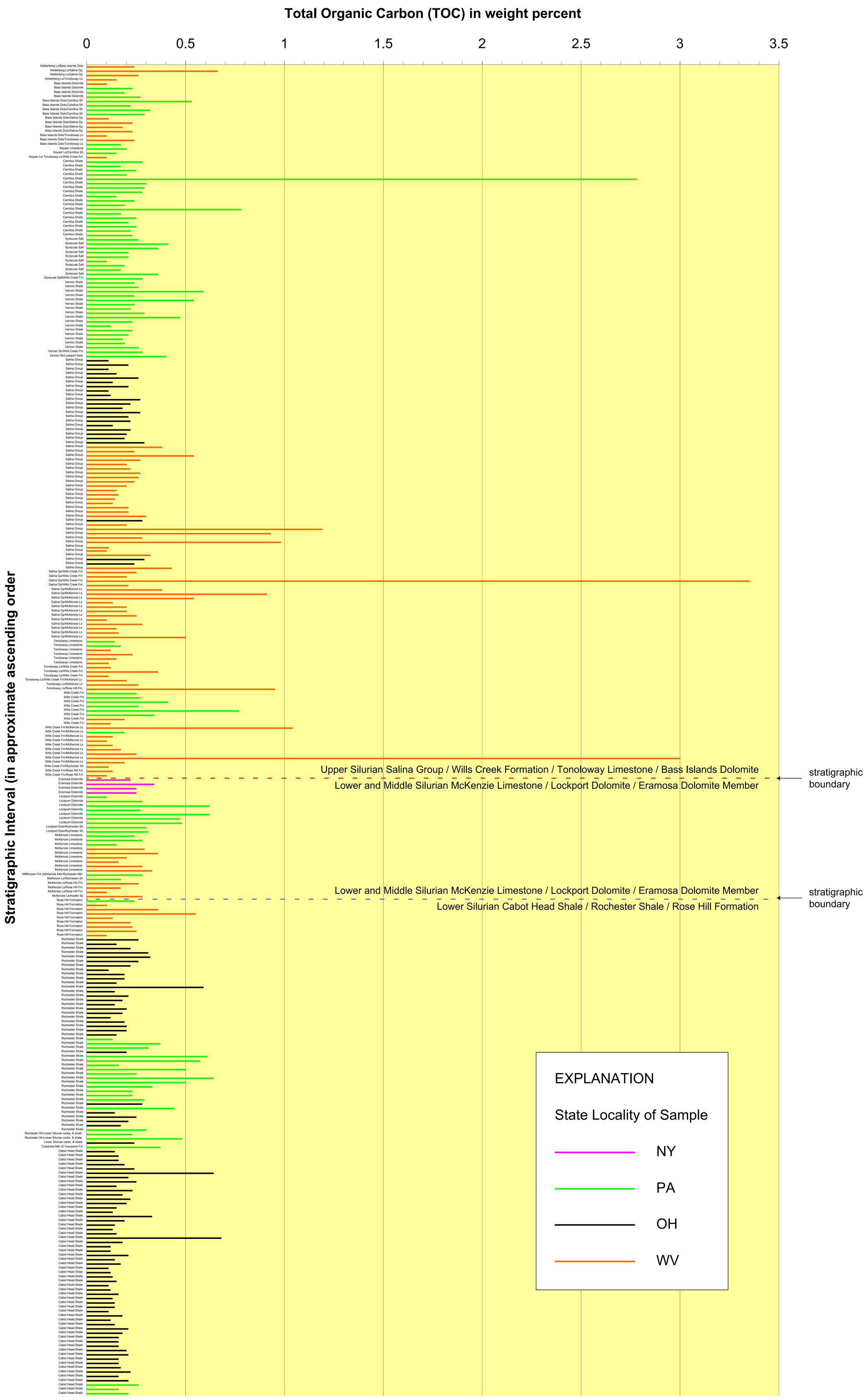

Figure 5. Histogram showing total organic carbon (TOC) values in weight percent for Silurian rocks sampled in this study.

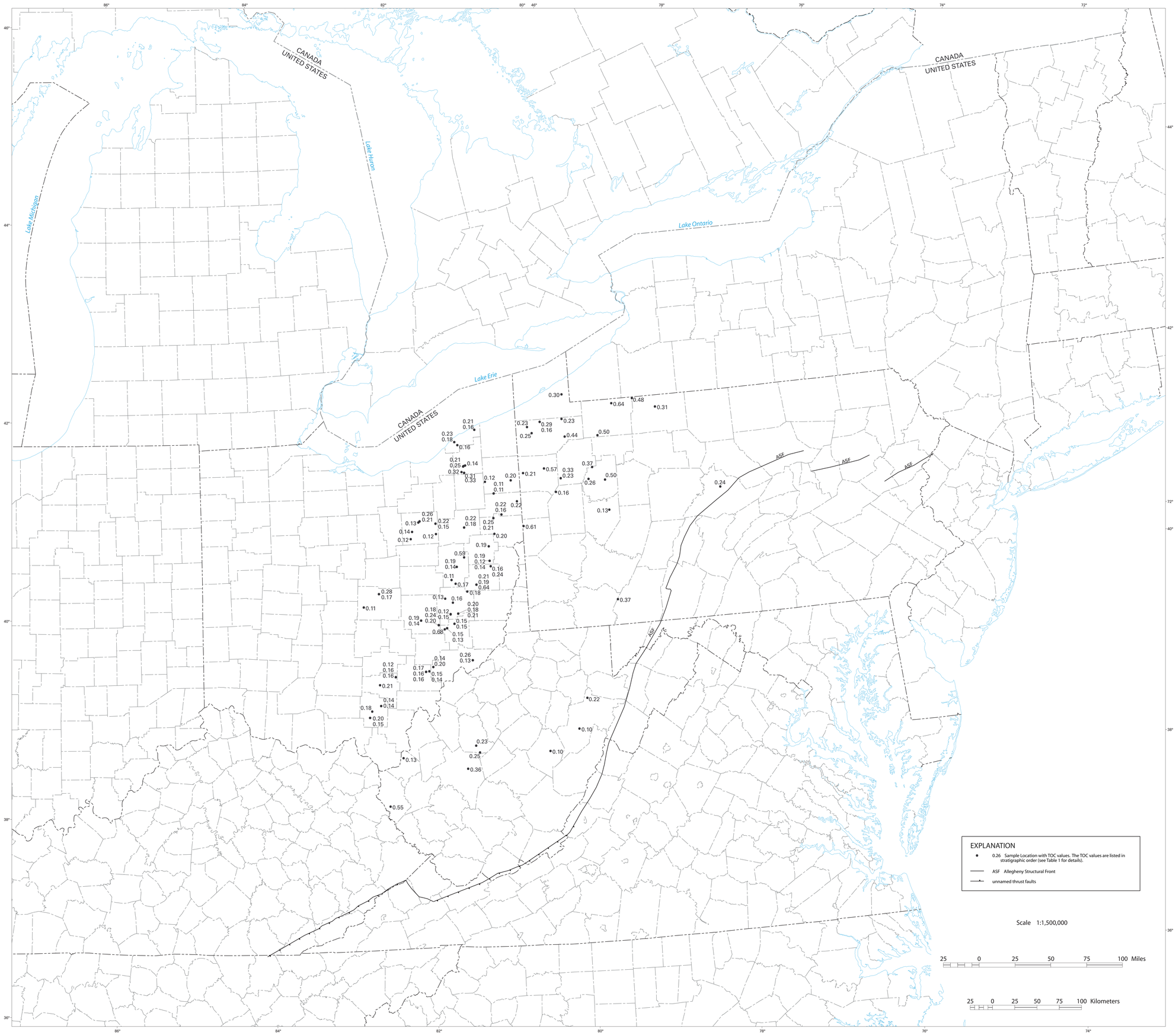

Figure 6. Map showing the location of wells in the Appalachian basin where rock samples (cuttings) were collected from the Lower Silurian Cabot Head Shale, Rochester Shale, and Rose Hill Formation. Also shown are total organic carbon (TOC) values in weight percent derived from the samples.

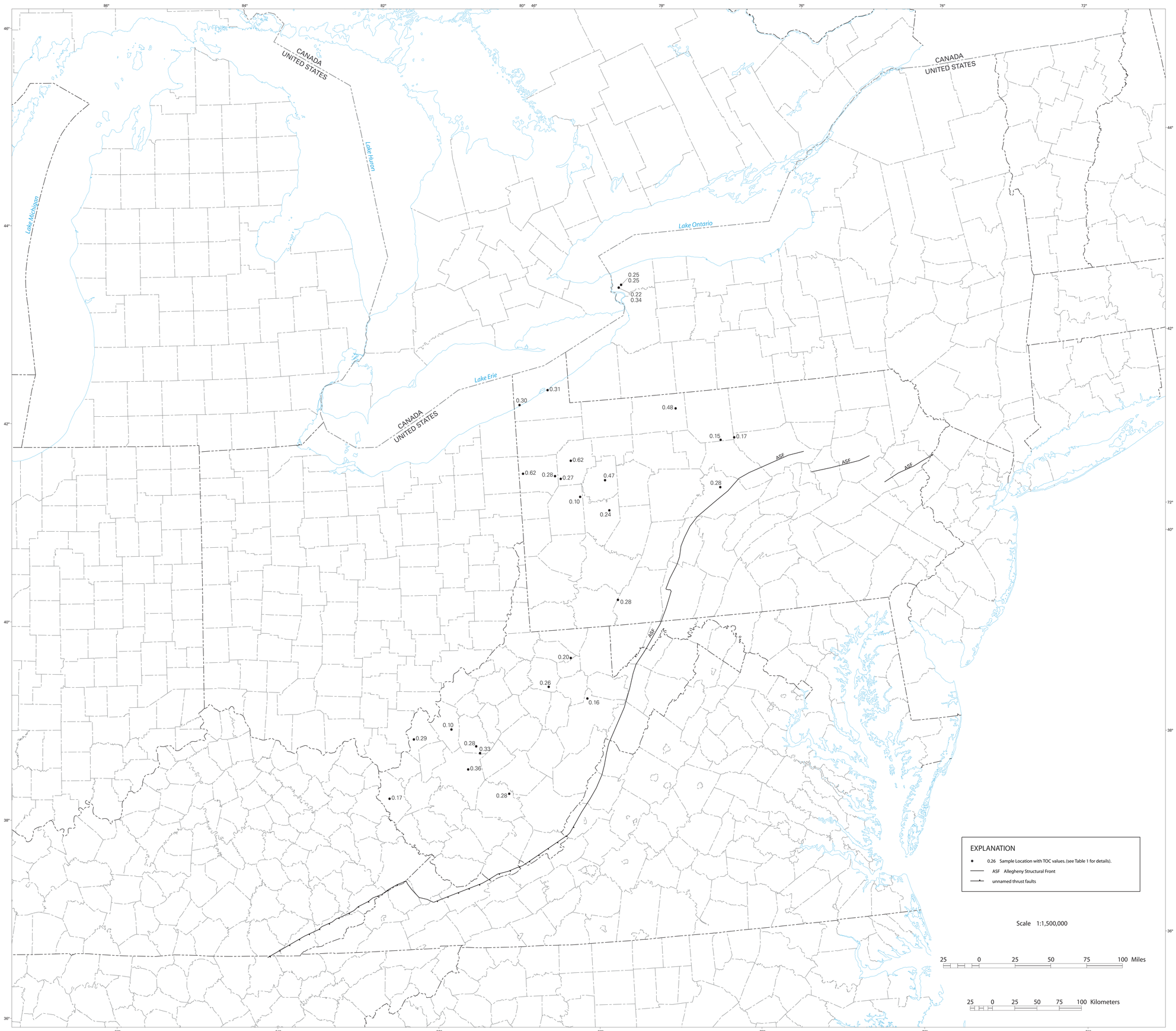

Figure 7. Map showing the location of wells in the Appalachian basin where rock samples (cuttings) were collected from the Lower and Upper Silurian McKenzie Limestone and Lockport Dolomite and the Upper Silurian Eramosa Dolomite of the Lockport Group. Also shown are total organic carbon (TOC) values in weight percent derived from the samples.

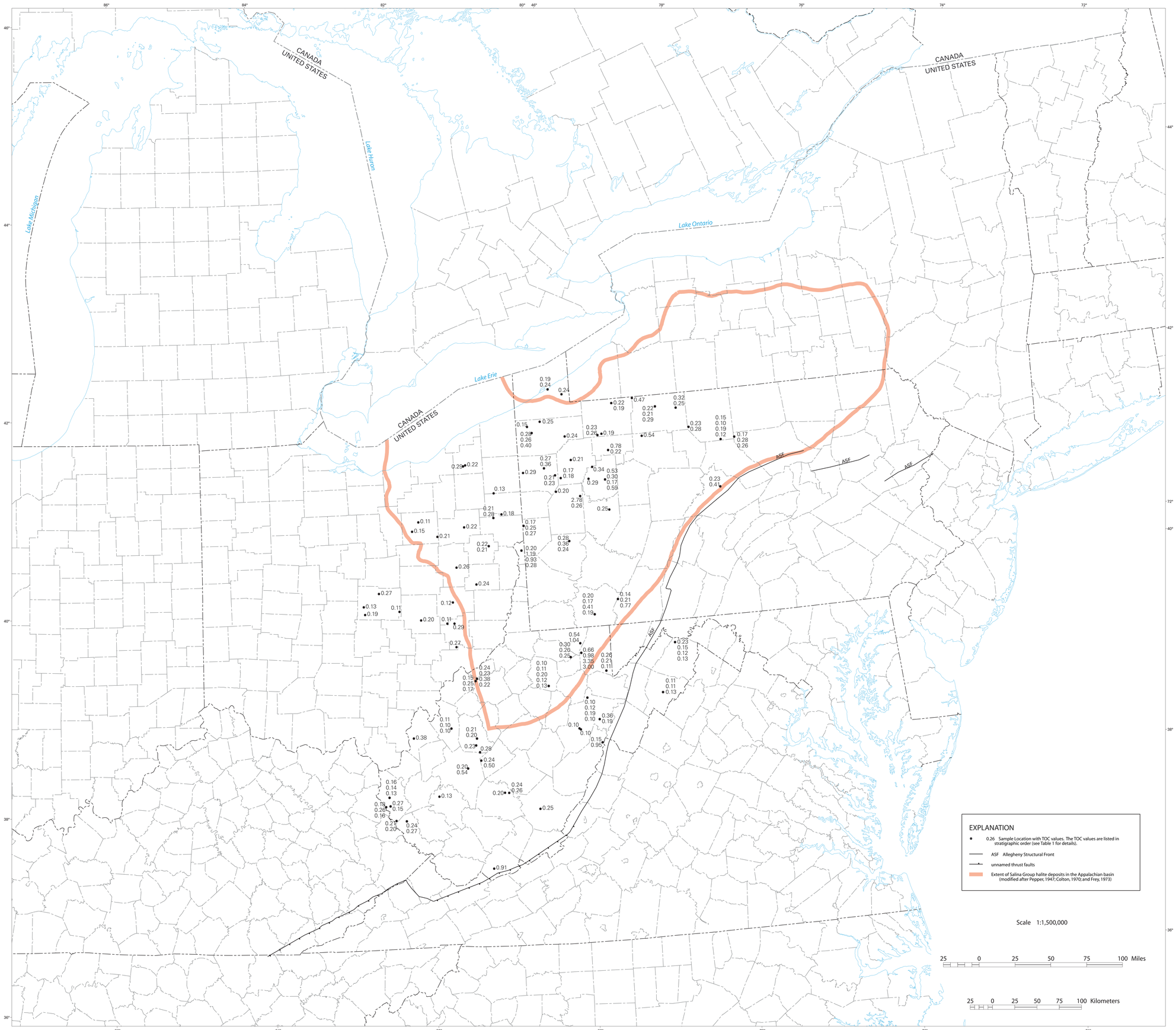

Figure 8. Map showing the location of wells in the Appalachian basin where rock samples (cuttings and core) were collected from the Upper Silurian Salina Group (including the Vernon Shale, Syracuse Salt, and Camillus Shale), Bass Islands Dolomite, Wills Creek Formation, and Tonoloway Limestone. Also shown are the total organic carbon (TOC) value in weight percent derived from the samples. In addition, the extent of the Salina Group halite deposits within the Appalachian basin is shown.

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

(-1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2071-064512		NY	Niagara	Lewiston	43.14278	-78.92611	LW-2 corehole	38	38
03-2071-064513		NY	Niagara	Lewiston	43.14278	-78.92611	LW-2 corehole	45	45
03-2071-064510		NY	Niagara	Niagara	43.11611	-78.96083	NI-5 corehole	76	76
03-2071-064511		NY	Niagara	Niagara	43.11611	-78.96083	NI-5 corehole	81	81
03-2071-064495	34-009-21404	OH	Athens	Bern	39.38153	-81.91051	#1 Christman	4640	4730
03-2071-064496	34-009-21404	OH	Athens	Bern	39.38153	-81.91051	#1 Christman	4800	4830
03-2071-064497	34-009-21404	OH	Athens	Bern	39.38153	-81.91051	#1 Christman	4920	4935
03-2071-064471	34-009-23326	OH	Athens	Bern	39.38442	-81.86713	#1 White	4730	4770
03-2071-064470	34-009-23326	OH	Athens	Bern	39.38442	-81.86713	#1 White	4860	4890
03-2071-064467	34-019-21188	OH	Carroll	Loudon	40.46119	-80.98684	#1-3 Vahalik, Jr.	6210	6260
03-2071-064468	34-019-21188	OH	Carroll	Loudon	40.46119	-80.98684	#1-3 Vahalik, Jr.	6340	6380
03-2071-064469	34-019-21188	OH	Carroll	Loudon	40.46119	-80.98684	#1-3 Vahalik, Jr.	6560	6610
03-2071-064464	34-019-20553	OH	Carroll	Washington	40.60648	-80.98550	#1 McAllister	4610	4650
03-2071-064465	34-019-20553	OH	Carroll	Washington	40.60648	-80.98550	#1 McAllister	5230	5270
03-2071-064466	34-019-20553	OH	Carroll	Washington	40.60648	-80.98550	#1 McAllister	5780	5810
03-2071-064482	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	4210	4240
03-2071-064483	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	4950	5000
03-2071-064480	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	5520	5790
03-2071-064481	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	5790	5830
03-2071-064463	34-029-20559	OH	Columbiana	Hanover	40.72895	-80.89956	#1 Burrows	5680	5710
03-2093-067016	34-055-20124	OH	Geauga	Auburn	41.37198	-81.28617	#1 Vroman	3820	3850
03-2093-067017	34-055-20092	OH	Geauga	Auburn	41.36221	-81.25112	#3 Vrabel	3850	3910
03-2093-067018	34-055-20092	OH	Geauga	Auburn	41.36221	-81.25112	#3 Vrabel	4080	4130
03-2122-068744	34-055-20037	OH	Geauga	Newbury	41.43107	-81.25366	#1-0 Button	3980	4030
03-2122-068745	34-055-20038	OH	Geauga	Newbury	41.42692	-81.26057	#1-0 Frohring	3470	3500
03-2122-068746	34-055-20038	OH	Geauga	Newbury	41.42692	-81.26057	#1-0 Frohring	3990	4030
03-2122-068743	34-055-20050	OH	Geauga	Newbury	41.43589	-81.23160	#1-0 Pizzina	3370	3420
03-2093-067057	34-055-20050	OH	Geauga	Newbury	41.43589	-81.23160	#1-0 Pizzina	4060	4075
03-2093-067050	34-059-21897	OH	Guernsey	Center	40.06305	-81.50666	#1 Brill	4540	4580
03-2093-067051	34-059-21897	OH	Guernsey	Center	40.06305	-81.50666	#1 Brill	5310	5370
03-2093-067049	34-059-21867	OH	Guernsey	Jackson	39.94587	-81.54564	#1-M Ball	5200	5220
03-2093-067045	34-059-21874	OH	Guernsey	Jackson	39.94888	-81.54495	#1-M Watson-Rogers-Ball	5210	5250
03-2093-067044	34-059-21444	OH	Guernsey	Liberty	40.10713	-81.60541	#1 Nelson	5110	5150
03-2071-064475	34-059-21752	OH	Guernsey	Londonderry	40.16572	-81.30917	#3 Bajorek & Hennell	5810	5840
03-2071-064472	34-059-20979	OH	Guernsey	Richland	39.94835	-81.44593	#1 Smith	5320	5350
03-2071-064473	34-059-20979	OH	Guernsey	Richland	39.94835	-81.44593	#1 Smith	5430	5460
03-2071-064474	34-059-20979	OH	Guernsey	Richland	39.94835	-81.44593	#1 Smith	5670	5690
03-2122-068748	34-059-21843	OH	Guernsey	Spencer	39.85292	-81.59625	#2 Young	4485	
03-2071-064491	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	5720	5760
03-2071-064489	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	6210	6260
03-2071-064492	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	6320	6370

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

(-1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2071-064512		Eramosa Dolomite	0.25	core	0.19	0.22	0.15
03-2071-064513		Eramosa Dolomite	0.25	core	0.21	0.40	0.08
03-2071-064510		Eramosa Dolomite	0.22	core	0.12	0.11	0.08
03-2071-064511		Eramosa Dolomite	0.34	core	0.30	0.45	0.12
03-2071-064495	34-009-21404	Rochester Shale	0.17	cuttings	0.05	0.08	0.20
03-2071-064496	34-009-21404	Cabot Head Shale	0.16	cuttings	0.07	0.07	0.19
03-2071-064497	34-009-21404	Cabot Head Shale	0.16	cuttings	0.07	0.10	0.00
03-2071-064471	34-009-23326	Rochester Shale	0.15	cuttings	0.03	0.06	0.14
03-2071-064470	34-009-23326	Rochester Shale	0.14	cuttings	0.05	0.03	0.06
03-2071-064467	34-019-21188	Rochester Shale	0.19	cuttings	0.06	0.10	0.07
03-2071-064468	34-019-21188	Cabot Head Shale	0.12	cuttings	0.04	0.04	0.07
03-2071-064469	34-019-21188	Cabot Head Shale	0.14	cuttings	0.04	0.05	0.08
03-2071-064464	34-019-20553	Salina Group	0.22	cuttings	0.09	0.09	0.08
03-2071-064465	34-019-20553	Salina Group	0.21	cuttings	0.09	0.07	0.06
03-2071-064466	34-019-20553	Rochester Shale	0.19	cuttings	0.03	0.03	0.07
03-2071-064482	34-029-20702	Salina Group	0.21	cuttings	0.60	0.33	0.19
03-2071-064483	34-029-20702	Salina Group	0.28	cuttings	0.34	0.18	0.24
03-2071-064480	34-029-20702	Rochester Shale	0.25	cuttings	0.23	0.24	0.45
03-2071-064481	34-029-20702	Cabot Head Shale	0.21	cuttings	0.35	0.21	0.21
03-2071-064463	34-029-20559	Rochester Shale	0.20	cuttings	0.12	0.18	0.08
03-2093-067016	34-055-20124	Rochester Shale	0.32	cuttings	0.14	0.30	0.35
03-2093-067017	34-055-20092	Rochester Shale	0.31	cuttings	0.35	0.50	0.29
03-2093-067018	34-055-20092	Cabot Head Shale	0.33	cuttings	0.35	0.33	0.10
03-2122-068744	34-055-20037	Cabot Head Shale	0.21	cuttings	0.11	0.07	0.22
03-2122-068745	34-055-20038	Salina Group	0.29	cuttings	0.24	0.35	0.11
03-2122-068746	34-055-20038	Cabot Head Shale	0.25	cuttings	0.29	0.35	0.05
03-2122-068743	34-055-20050	Salina Group	0.22	cuttings	0.20	0.17	0.24
03-2093-067057	34-055-20050	Cabot Head Shale	0.14	cuttings	0.26	0.18	0.12
03-2093-067050	34-059-21897	Salina Group	0.12	cuttings	0.22	0.10	0.06
03-2093-067051	34-059-21897	Cabot Head Shale	0.16	cuttings	0.46	0.29	0.16
03-2093-067049	34-059-21867	Cabot Head Shale	0.12	cuttings	0.13	0.14	0.16
03-2093-067045	34-059-21874	Cabot Head Shale	0.15	cuttings	0.20	0.18	0.38
03-2093-067044	34-059-21444	Cabot Head Shale	0.13	cuttings	0.23	0.18	0.11
03-2071-064475	34-059-21752	Cabot Head Shale	0.18	cuttings	0.09	0.08	0.08
03-2071-064472	34-059-20979	Rochester Shale	0.20	cuttings	0.03	0.10	0.15
03-2071-064473	34-059-20979	Rochester Shale	0.18	cuttings	0.07	0.10	0.25
03-2071-064474	34-059-20979	Cabot Head Shale	0.21	cuttings	0.13	0.26	0.27
03-2122-068748	34-059-21843	Salina Group	0.11	core	0.12	0.16	0.09
03-2071-064491	34-067-20567	Salina Group	0.24	cuttings	0.11	0.12	0.11
03-2071-064489	34-067-20567	Rochester Shale	0.21	cuttings	0.10	0.20	0.02
03-2071-064492	34-067-20567	Cabot Head Shale	0.19	cuttings	0.14	0.13	0.07

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2071-064512		442	*	88	60	76	0.46		n
03-2071-064513		437	*	160	32	84	0.34	c	n
03-2071-064510		439	*	50	36	55	0.52		n
03-2071-064511		443	*	132	35	88	0.40		n
03-2071-064495	34-009-21404	469	*	47	118	29	0.38	c	n
03-2071-064496	34-009-21404	463	*	44	119	44	0.50		n
03-2071-064497	34-009-21404	453	*	63	0	44	0.41		n
03-2071-064471	34-009-23326	331	*	40	93	20	0.33		n
03-2071-064470	34-009-23326	-1	*	21	43	36	0.63		n
03-2071-064467	34-019-21188	361	*	53	37	32	0.37		n
03-2071-064468	34-019-21188	390	*	33	58	33	0.50		n
03-2071-064469	34-019-21188	372	*	36	57	29	0.44		n
03-2071-064464	34-019-20553	380	*	41	36	41	0.50		n
03-2071-064465	34-019-20553	373	*	33	29	43	0.56		n
03-2071-064466	34-019-20553	316	*	16	37	16	0.50		f
03-2071-064482	34-029-20702	426	*	157	90	286	0.65		n
03-2071-064483	34-029-20702	424	*	64	86	121	0.65		n
03-2071-064480	34-029-20702	350	*	96	180	92	0.49	c	n
03-2071-064481	34-029-20702	372	*	100	100	167	0.63		n
03-2071-064463	34-029-20559	414	*	90	40	60	0.40		n
03-2093-067016	34-055-20124	391	*	94	109	44	0.32		n
03-2093-067017	34-055-20092	437		161	94	113	0.41		n
03-2093-067018	34-055-20092	369	*	100	30	106	0.51	c	n
03-2122-068744	34-055-20037	369	*	33	105	52	0.61		n
03-2122-068745	34-055-20038	401	*	121	38	83	0.41		n
03-2122-068746	34-055-20038	382	*	140	20	116	0.45		n
03-2122-068743	34-055-20050	405	*	77	109	91	0.54	c	n
03-2093-067057	34-055-20050	388	*	129	86	186	0.59	c	n
03-2093-067050	34-059-21897	394	*	83	50	183	0.69		n
03-2093-067051	34-059-21897	369	*	181	100	288	0.61		n
03-2093-067049	34-059-21867	422	*	117	133	108	0.48		n
03-2093-067045	34-059-21874	374	*	120	253	133	0.53	c	n
03-2093-067044	34-059-21444	387	*	138	85	177	0.56		n
03-2071-064475	34-059-21752	348	*	44	44	50	0.53		n
03-2071-064472	34-059-20979	442	*	50	75	15	0.23		n
03-2071-064473	34-059-20979	418	*	56	139	39	0.41		n
03-2071-064474	34-059-20979	439	*	124	129	62	0.33		n
03-2122-068748	34-059-21843	441	*	145	82	109	0.43		n
03-2071-064491	34-067-20567	425	*	50	46	46	0.48		n
03-2071-064489	34-067-20567	399	*	95	10	48	0.33		n
03-2071-064492	34-067-20567	353	*	68	37	74	0.52		n

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2071-064490	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	6460	6490
03-2071-064493	34-067-20339	OH	Harrison	Rumley	40.40551	-80.97759	#1-4 Ager-Birney	6310	6380
03-2071-064494	34-067-20339	OH	Harrison	Rumley	40.40551	-80.97759	#1-4 Ager-Birney	6690	6740
03-2071-064477	34-079-20079	OH	Jackson	Franklin	38.94582	-82.66937	#1 Brown	2340	2370
03-2071-064476	34-079-20079	OH	Jackson	Franklin	38.94582	-82.66937	#1 Brown	2600	2630
03-2071-064462	34-079-20102	OH	Jackson	Franklin	39.00872	-82.63855	#1 Trepanier	2500	2540
03-2071-064478	34-079-20061	OH	Jackson	Milton	39.06025	-82.51897	#1 Morrow	2746	2760
03-2071-064479	34-079-20061	OH	Jackson	Milton	39.06025	-82.51897	#1 Morrow	2911	2942
03-2071-064484	34-085-20156	OH	Lake	Madison	41.79033	-81.07755	#1 Hejduk	2780	2810
03-2071-064485	34-085-20156	OH	Lake	Madison	41.79033	-81.07755	#1 Hejduk	2930	2960
03-2071-064486	34-085-20257	OH	Lake	Mentor	41.64546	-81.31872	#1 Beall	3320	3360
03-2071-064487	34-085-20210	OH	Lake	Mentor	41.67789	-81.35742	#1 Towmotor Corp	2940	2970
03-2071-064488	34-085-20210	OH	Lake	Mentor	41.67789	-81.35742	#1 Towmotor Corp	3080	3105
03-2071-064506	34-089-22300	OH	Licking	Burlington	40.18882	-82.47552	#1 Shipley	2200	2260
03-2071-064504	34-089-22300	OH	Licking	Burlington	40.18882	-82.47552	#1 Shipley	2420	2500
03-2071-064505	34-089-22300	OH	Licking	Burlington	40.18882	-82.47552	#1 Shipley	2560	2640
03-2093-067046	34-089-22224	OH	Licking	Harrison	39.98427	-82.67077	#1 Atkinson	1510	1550
03-2093-067047	34-089-22735	OH	Licking	Jersey	40.06194	-82.68467	#1 Helphrey	1638	1680
03-2093-067048	34-089-22735	OH	Licking	Jersey	40.06194	-82.68467	#1 Helphrey	2067	2089
03-2093-067052	34-089-22520	OH	Licking	Hopewell	39.99818	-82.21672	#1 Paul et. al.	2637	2692
03-2071-064509	34-099-20527	OH	Mahoning	Green	40.91819	-80.78975	#1 Wisler	5030	5060
03-2071-064508	34-099-20527	OH	Mahoning	Green	40.91819	-80.78975	#1 Wisler	5670	5700
03-2071-064507	34-099-20527	OH	Mahoning	Green	40.91819	-80.78975	#1 Wisler	5880	5910
03-2093-067006	34-099-20304	OH	Mahoning	Poland	41.04097	-80.57092	#1 Youngstown S&T	5620	5660
03-2093-067007	34-119-23556	OH	Muskingum	Rich Hill	39.84404	-81.70983	#2-E Ohio Power Co.	4700	4760
03-2093-067008	34-119-23556	OH	Muskingum	Rich Hill	39.84404	-81.70983	#2-E Ohio Power Co.	4810	4850
03-2093-067009	34-119-23556	OH	Muskingum	Rich Hill	39.84404	-81.70983	#2-E Ohio Power Co.	4970	5010
03-2093-067019	34-119-22465	OH	Muskingum	Wayne	39.90037	-81.93821	#1 Foster	3527	3580
03-2093-067020	34-119-22465	OH	Muskingum	Wayne	39.90037	-81.93821	#1 Foster	3954	4009
03-2093-067021	34-119-22465	OH	Muskingum	Wayne	39.90037	-81.93821	#1 Foster	4095	4115
03-2093-067027	34-121-21741	OH	Noble	Brookfield	39.79919	-81.63445	#3-E Ohio Power Co.	5425	5440
03-2093-067022	34-121-23454	OH	Noble	Brookfield	39.80845	-81.60247	#41-14 Wheeler-Oliver	5120	5150
03-2093-067023	34-121-23454	OH	Noble	Brookfield	39.80845	-81.60247	#41-14 Wheeler-Oliver	5330	5360
03-2093-067010	34-121-21429	OH	Noble	Buffalo	39.84874	-81.50209	#1 Snode	4870	4900
03-2093-067011	34-121-21429	OH	Noble	Buffalo	39.84874	-81.50209	#1 Snode	5440	5480
03-2093-067012	34-121-21429	OH	Noble	Buffalo	39.84874	-81.50209	#1 Snode	5660	5700
03-2122-068749	34-121-23292	OH	Noble	Jackson	39.61043	-81.49515	#2 Kraps	4708	
03-2093-067028	34-151-21193	OH	Stark	Osnaburg	40.81186	-81.29715	#1 Evergreen Park	4280	4240
03-2093-067029	34-151-21193	OH	Stark	Osnaburg	40.81186	-81.29715	#1 Evergreen Park	4600	4640
03-2093-067030	34-151-21193	OH	Stark	Osnaburg	40.81186	-81.29715	#1 Evergreen Park	4845	4890
03-2093-067043	34-155-20035	OH	Trumbull	Braceville	41.25851	-80.98079	#11165 Crays	4369	4384
03-2093-067040	34-155-20038	OH	Trumbull	Lordstown	41.13570	-80.87484	#1 Salva	4140	4180

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2071-064490	34-067-20567	Cabot Head Shale	0.64	cuttings	0.19	0.10	0.06
03-2071-064493	34-067-20339	Cabot Head Shale	0.16	cuttings	0.06	0.05	0.06
03-2071-064494	34-067-20339	Cabot Head Shale	0.24	cuttings	0.46	0.48	0.57
03-2071-064477	34-079-20079	Rochester Shale	0.20	cuttings	0.07	0.09	0.11
03-2071-064476	34-079-20079	Cabot Head Shale	0.15	cuttings	0.09	0.10	0.08
03-2071-064462	34-079-20102	Cabot Head Shale	0.18	cuttings	0.12	0.22	0.38
03-2071-064478	34-079-20061	Rochester Shale	0.14	cuttings	0.06	0.04	0.06
03-2071-064479	34-079-20061	Cabot Head Shale	0.14	cuttings	0.07	0.03	0.09
03-2071-064484	34-085-20156	Rochester Shale	0.21	cuttings	0.06	0.12	0.05
03-2071-064485	34-085-20156	Cabot Head Shale	0.16	cuttings	0.11	0.13	0.09
03-2071-064486	34-085-20257	Cabot Head Shale	0.16	cuttings	0.02	0.05	0.08
03-2071-064487	34-085-20210	Cabot Head Shale	0.23	cuttings	0.07	0.10	0.02
03-2071-064488	34-085-20210	Cabot Head Shale	0.18	cuttings	0.08	0.10	0.11
03-2071-064506	34-089-22300	Salina Group	0.27	cuttings	0.25	0.45	1.26
03-2071-064504	34-089-22300	Rochester Shale	0.28	cuttings	0.18	0.16	0.08
03-2071-064505	34-089-22300	Cabot Head Shale	0.17	cuttings	0.11	0.14	0.11
03-2093-067046	34-089-22224	Salina Group	0.19	cuttings	0.39	0.76	0.15
03-2093-067047	34-089-22735	Salina Group	0.13	cuttings	0.14	0.26	0.09
03-2093-067048	34-089-22735	Cabot Head Shale	0.11	cuttings	0.07	0.05	0.06
03-2093-067052	34-089-22520	Salina Group	0.11	cuttings	0.04	0.06	0.07
03-2071-064509	34-099-20527	Salina Group	0.18	cuttings	0.11	0.04	0.17
03-2071-064508	34-099-20527	Cabot Head Shale	0.22	cuttings	0.17	0.16	0.16
03-2071-064507	34-099-20527	Cabot Head Shale	0.16	cuttings	0.11	0.09	0.05
03-2093-067006	34-099-20304	Cabot Head Shale	0.22	cuttings	0.52	0.37	0.16
03-2093-067007	34-119-23556	Rochester Shale	0.18	cuttings	0.14	0.12	0.25
03-2093-067008	34-119-23556	Lower Silurian carbs. & shale	0.24	cuttings	0.21	0.25	0.24
03-2093-067009	34-119-23556	Cabot Head Shale	0.20	cuttings	0.21	0.22	0.29
03-2093-067019	34-119-22465	Salina Group	0.20	cuttings	0.16	0.35	0.14
03-2093-067020	34-119-22465	Cabot Head Shale	0.19	cuttings	0.15	0.21	0.30
03-2093-067021	34-119-22465	Cabot Head Shale	0.14	cuttings	0.07	0.10	0.22
03-2093-067027	34-121-21741	Cabot Head Shale	0.68	cuttings	0.36	1.22	0.10
03-2093-067022	34-121-23454	Rochester Shale	0.15	cuttings	0.09	0.11	0.06
03-2093-067023	34-121-23454	Cabot Head Shale	0.13	cuttings	0.06	0.08	0.03
03-2093-067010	34-121-21429	Salina Group	0.29	cuttings	0.20	0.13	0.03
03-2093-067011	34-121-21429	Rochester Shale	0.15	cuttings	0.08	0.07	0.10
03-2093-067012	34-121-21429	Cabot Head Shale	0.15	cuttings	0.07	0.04	0.14
03-2122-068749	34-121-23292	Salina Group	0.27	core	0.04	0.01	0.41
03-2093-067028	34-151-21193	Salina Group	0.22	cuttings	0.16	0.15	0.13
03-2093-067029	34-151-21193	Rochester Shale	0.22	cuttings	0.10	0.12	0.01
03-2093-067030	34-151-21193	Cabot Head Shale	0.18	cuttings	0.43	0.35	0.15
03-2093-067043	34-155-20035	Cabot Head Shale	0.12	cuttings	0.16	0.13	0.10
03-2093-067040	34-155-20038	Salina Group	0.13	cuttings	0.25	0.17	0.14

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2071-064490	34-067-20567	389	*	16	9	30	0.66		n
03-2071-064493	34-067-20339	-1	*	31	37	37	0.55		n
03-2071-064494	34-067-20339	394	*	200	237	192	0.49		n
03-2071-064477	34-079-20079	423	*	45	55	35	0.44		n
03-2071-064476	34-079-20079	418	*	67	53	60	0.47		n
03-2071-064462	34-079-20102	433	*	122	211	67	0.35	c	n
03-2071-064478	34-079-20061	344	*	29	43	43	0.60		n
03-2071-064479	34-079-20061	-1	*	21	64	50	0.70		n
03-2071-064484	34-085-20156	431	*	57	24	29	0.33	c	n
03-2071-064485	34-085-20156	367	*	81	56	69	0.46		n
03-2071-064486	34-085-20257	415	*	31	50	12	0.29		n
03-2071-064487	34-085-20210	396	*	43	9	30	0.41		n
03-2071-064488	34-085-20210	418	*	56	61	44	0.44		n
03-2071-064506	34-089-22300	496	*	167	467	93	0.36		n
03-2071-064504	34-089-22300	387	*	57	29	64	0.53		n
03-2071-064505	34-089-22300	431	*	82	65	65	0.44		n
03-2093-067046	34-089-22224	429		400	79	205	0.34	c	n
03-2093-067047	34-089-22735	435	*	200	69	108	0.35		n
03-2093-067048	34-089-22735	440	*	45	55	64	0.58		n
03-2093-067052	34-089-22520	432	*	55	64	36	0.40		n
03-2071-064509	34-099-20527	343	*	22	94	61	0.73		n
03-2071-064508	34-099-20527	434	*	73	73	77	0.52	c	n
03-2071-064507	34-099-20527	405	*	56	31	69	0.55	c	n
03-2093-067006	34-099-20304	384	*	168	73	236	0.58	c	n
03-2093-067007	34-119-23556	352	*	67	139	78	0.54		n
03-2093-067008	34-119-23556	421	*	104	100	87	0.46		n
03-2093-067009	34-119-23556	378	*	110	145	105	0.49		n
03-2093-067019	34-119-22465	436	*	175	70	80	0.31	c	n
03-2093-067020	34-119-22465	383	*	111	158	79	0.42		n
03-2093-067021	34-119-22465	420	*	71	157	50	0.41		n
03-2093-067027	34-121-21741	446		179	15	53	0.23		n
03-2093-067022	34-121-23454	354	*	73	40	60	0.45		n
03-2093-067023	34-121-23454	364	*	62	23	46	0.43		n
03-2093-067010	34-121-21429	390	*	45	10	69	0.61		n
03-2093-067011	34-121-21429	346	*	47	67	53	0.53		n
03-2093-067012	34-121-21429	340	*	27	93	47	0.64		n
03-2122-068749	34-121-23292	486	*	4	152	15	0.80		n
03-2093-067028	34-151-21193	436	*	68	59	73	0.52		n
03-2093-067029	34-151-21193	381	*	55	5	45	0.45		n
03-2093-067030	34-151-21193	358	*	194	83	239	0.55		n
03-2093-067043	34-155-20035	384	*	108	83	133	0.55		n
03-2093-067040	34-155-20038	411	*	131	108	192	0.60	c	n

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

(-1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2093-067041	34-155-20038	OH	Trumbull	Lordstown	41.13570	-80.87484	#1 Salva	4580	4610
03-2093-067042	34-155-20038	OH	Trumbull	Lordstown	41.13570	-80.87484	#1 Salva	4830	4870
03-2093-067013	34-155-21277	OH	Trumbull	Vienna	41.25537	-80.63315	#1 Wallace	4720	4760
03-2093-067038	34-157-21011	OH	Tuscarawas	Warren	40.51121	-81.32239	#2 Ripley-Pile	5150	5180
03-2093-067036	34-157-21012	OH	Tuscarawas	Warwick	40.42033	-81.42679	#1 Carlisle	4860	4900
03-2093-067037	34-157-21012	OH	Tuscarawas	Warwick	40.42033	-81.42679	#1 Carlisle	5150	5200
03-2093-067035	34-157-21048	OH	Tuscarawas	Warwick	40.41153	-81.43111	#1-C Cross Creek Coal	4344	4402
03-2093-067039	34-157-21386	OH	Tuscarawas	Washington	40.25078	-81.45583	#1 Hursey	5160	5185
03-2122-068747	34-157-24887	OH	Tuscarawas	Washington	40.29121	-81.50731	#3 Poland-Nugen-Bond	4870	4940
03-2071-064503	34-163-20872	OH	Vinton	Brown	39.34362	-82.30976	#1 Litter	3240	3270
03-2071-064502	34-163-20872	OH	Vinton	Brown	39.34362	-82.30976	#1 Litter	3440	3460
03-2071-064501	34-163-20872	OH	Vinton	Brown	39.34362	-82.30976	#1 Litter	3560	3590
03-2071-064500	34-163-20369	OH	Vinton	Elk	39.27081	-82.51988	#1-0-1212 Waldron	2710	2744
03-2093-067014	34-167-23310	OH	Washington	Lawrence	39.47070	-81.29187	#2 Matheny	6460	6490
03-2093-067015	34-167-23310	OH	Washington	Lawrence	39.47070	-81.29187	#2 Matheny	6820	6850
03-2071-064498	34-167-28713	OH	Washington	Wesley	39.42582	-81.81246	#1-A Venham/Turner	4880	4910
03-2071-064499	34-167-28713	OH	Washington	Wesley	39.42582	-81.81246	#1-A Venham/Turner	5090	5120
03-2093-067024	34-169-20900	OH	Wayne	Baughman	40.86811	-81.67465	#1 Shisler	3680	3731
03-2093-067025	34-169-20900	OH	Wayne	Baughman	40.86811	-81.67465	#1 Shisler	3894	3913
03-2093-067031	34-169-24953	OH	Wayne	Plain	40.72676	-82.01691	#7 Sidle	3090	3140
03-2093-067026	34-169-23428	OH	Wayne	Sugar Creek	40.73207	-81.65949	#1 Anstutz	3360	3410
03-2093-067032	34-169-24929	OH	Wayne	Sugar Creek	40.76331	-81.67721	#2-58 Rollason	3920	4000
03-2093-067033	34-169-21307	OH	Wayne	Wayne	40.90046	-81.88577	#1 Hartzler	3340	3370
03-2093-067034	34-169-21307	OH	Wayne	Wayne	40.90046	-81.88577	#1 Hartzler	3525	3550
03-2093-067053	34-169-21314	OH	Wayne	Wayne	40.89009	-81.90411	#1 Yates	2960	3020
03-2093-067054	34-169-21314	OH	Wayne	Wayne	40.89009	-81.90411	#1 Yates	3520	3540
03-2093-067055	34-169-21839	OH	Wayne	Wooster	40.79799	-81.99408	#1 Grossniklaus	2707	2746
03-2093-067056	34-169-21839	OH	Wayne	Wooster	40.79799	-81.99408	#1 Grossniklaus	3247	3275
03-2031-061816	37-003-90000	PA	Allegheny	Glenshaw	40.59995	-79.91389	#5 Backhaus	6845	6885
03-2031-061817	37-003-90000	PA	Allegheny	Glenshaw	40.59995	-79.91389	#5 Backhaus	7000	7110
03-2031-061818	37-003-90000	PA	Allegheny	Glenshaw	40.59995	-79.91389	#5 Backhaus	7300	7465
03-2031-061819	37-005-21201	PA	Armstrong	Distant	40.88483	-79.34708	#1 Nellie Martin	8050	8120
03-2031-061820	37-005-21201	PA	Armstrong	Distant	40.88483	-79.34708	#1 Nellie Martin	8500	8650
03-2031-061821	37-005-21201	PA	Armstrong	Distant	40.88483	-79.34708	#1 Nellie Martin	8840	8920
03-2031-061822	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	4820	4850
03-2031-061823	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	4950	5000
03-2031-061824	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	5610	5650
03-2031-061825	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	6180	6220
03-2031-061826	37-019-21023	PA	Butler	Parker	41.04381	-79.72211	#1 J.S. Walker	5800	5950
03-2031-061827	37-019-21023	PA	Butler	Parker	41.04381	-79.72211	#1 J.S. Walker	6600	6675
03-2031-061828	37-019-21023	PA	Butler	Parker	41.04381	-79.72211	#1 J.S. Walker	6720	6805
03-2031-061829	37-019-90063	PA	Butler	Slippery Rock	41.10660	-80.04028	#1 Jesse Hockenberry	5017	5221

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2093-067041	34-155-20038	Rochester Shale	0.11	cuttings	0.08	0.07	0.07
03-2093-067042	34-155-20038	Cabot Head Shale	0.11	cuttings	0.12	0.07	0.04
03-2093-067013	34-155-21277	Rochester Shale	0.20	cuttings	0.09	0.17	0.09
03-2093-067038	34-157-21011	Rochester Shale	0.59	cuttings	3.96	1.17	0.42
03-2093-067036	34-157-21012	Rochester Shale	0.19	cuttings	0.06	0.11	0.02
03-2093-067037	34-157-21012	Cabot Head Shale	0.14	cuttings	0.08	0.12	0.03
03-2093-067035	34-157-21048	Salina Group	0.26	cuttings	0.54	0.46	0.14
03-2093-067039	34-157-21386	Cabot Head Shale	0.17	cuttings	0.05	0.04	0.07
03-2122-068747	34-157-24887	Cabot Head Shale	0.11	cuttings	0.08	0.17	0.03
03-2071-064503	34-163-20872	Rochester Shale	0.12	cuttings	0.04	0.05	0.14
03-2071-064502	34-163-20872	Cabot Head Shale	0.16	cuttings	0.09	0.10	0.09
03-2071-064501	34-163-20872	Cabot Head Shale	0.16	cuttings	0.09	0.06	0.16
03-2071-064500	34-163-20369	Cabot Head Shale	0.21	cuttings	0.21	0.14	0.19
03-2093-067014	34-167-23310	Rochester Shale	0.26	cuttings	0.05	0.06	0.03
03-2093-067015	34-167-23310	Cabot Head Shale	0.13	cuttings	0.04	0.04	0.13
03-2071-064498	34-167-28713	Rochester Shale	0.14	cuttings	0.04	0.04	0.07
03-2071-064499	34-167-28713	Cabot Head Shale	0.20	cuttings	0.30	0.24	0.13
03-2093-067024	34-169-20900	Rochester Shale	0.22	cuttings	0.11	0.16	0.02
03-2093-067025	34-169-20900	Cabot Head Shale	0.15	cuttings	0.16	0.13	0.02
03-2093-067031	34-169-24953	Cabot Head Shale	0.12	cuttings	0.18	0.07	0.09
03-2093-067026	34-169-23428	Salina Group	0.21	cuttings	0.68	0.21	0.25
03-2093-067032	34-169-24929	Cabot Head Shale	0.12	cuttings	0.05	0.12	0.15
03-2093-067033	34-169-21307	Rochester Shale	0.26	cuttings	0.31	0.30	0.13
03-2093-067034	34-169-21307	Cabot Head Shale	0.21	cuttings	0.12	0.26	0.27
03-2093-067053	34-169-21314	Salina Group	0.11	cuttings	0.10	0.06	0.04
03-2093-067054	34-169-21314	Cabot Head Shale	0.13	cuttings	0.20	0.15	0.04
03-2093-067055	34-169-21839	Salina Group	0.15	cuttings	0.26	0.33	0.29
03-2093-067056	34-169-21839	Cabot Head Shale	0.14	cuttings	0.23	0.22	0.16
03-2031-061816	37-003-90000	Camillus Shale	0.28	cuttings	0.06	0.05	0.01
03-2031-061817	37-003-90000	Syracuse Salt	0.36	cuttings	0.09	0.09	0.07
03-2031-061818	37-003-90000	Vernon Shale	0.24	cuttings	0.08	0.06	0.09
03-2031-061819	37-005-21201	Wills Creek Fm.	0.25	cuttings	0.08	0.07	0.36
03-2031-061820	37-005-21201	McKenzie Limestone	0.24	cuttings	0.21	0.24	0.87
03-2031-061821	37-005-21201	Rochester Shale	0.13	cuttings	0.25	0.13	0.55
03-2031-061822	37-007-20054	Camillus Shale	0.17	cuttings	0.18	0.32	1.09
03-2031-061823	37-007-20054	Camillus Shale	0.25	cuttings	0.25	0.30	1.53
03-2031-061824	37-007-20054	Wills Creek Fm.	0.27	cuttings	0.35	0.44	1.69
03-2031-061825	37-007-20054	Rochester Shale	0.61	cuttings	0.10	0.15	1.00
03-2031-061826	37-019-21023	Camillus Shale	2.78	cuttings	1.69	2.06	0.73
03-2031-061827	37-019-21023	Vernon Shale	0.26	cuttings	0.19	0.16	0.23
03-2031-061828	37-019-21023	Lockport Dolomite	0.10	cuttings	0.10	0.08	0.07
03-2031-061829	37-019-90063	Camillus Shale	0.20	cuttings	0.06	0.07	0.05

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2093-067041	34-155-20038	420	*	64	64	73	0.53		n
03-2093-067042	34-155-20038	372	*	64	36	109	0.63		n
03-2093-067013	34-155-21277	363	*	85	45	45	0.35		n
03-2093-067038	34-157-21011	374		198	71	671	0.77		n
03-2093-067036	34-157-21012	384	*	58	11	32	0.35		n
03-2093-067037	34-157-21012	388	*	86	21	57	0.40		n
03-2093-067035	34-157-21048	439	*	177	54	208	0.54		n
03-2093-067039	34-157-21386	363	*	24	41	29	0.56	c	n
03-2122-068747	34-157-24887	367	*	155	27	73	0.32		n
03-2071-064503	34-163-20872	335	*	42	117	33	0.44		n
03-2071-064502	34-163-20872	386	*	63	56	56	0.47		n
03-2071-064501	34-163-20872	366	*	37	100	56	0.60	c	n
03-2071-064500	34-163-20369	401	*	67	90	100	0.60	c	n
03-2093-067014	34-167-23310	374	*	23	12	19	0.45		n
03-2093-067015	34-167-23310	363	*	31	100	31	0.50		n
03-2071-064498	34-167-28713	322	*	29	50	29	0.50		n
03-2071-064499	34-167-28713	358	*	120	65	150	0.56	c	n
03-2093-067024	34-169-20900	426	*	73	9	50	0.41		n
03-2093-067025	34-169-20900	400	*	87	13	107	0.55		n
03-2093-067031	34-169-24953	380	*	58	75	150	0.72		n
03-2093-067026	34-169-23428	437	*	100	119	324	0.76		n
03-2093-067032	34-169-24929	363	*	100	125	42	0.29		n
03-2093-067033	34-169-21307	377	*	115	50	119	0.51		n
03-2093-067034	34-169-21307	444	*	124	129	57	0.32		n
03-2093-067053	34-169-21314	424	*	55	36	91	0.63		n
03-2093-067054	34-169-21314	414	*	115	31	154	0.57		n
03-2093-067055	34-169-21839	434	*	220	193	173	0.44		n
03-2093-067056	34-169-21839	399	*	157	114	164	0.51		n
03-2031-061816	37-003-90000	329	*	18	4	22	0.55	c	f
03-2031-061817	37-003-90000	379	*	25	19	25	0.50		f
03-2031-061818	37-003-90000	384	*	25	37	33	0.57		f
03-2031-061819	37-005-21201	387	*	28	146	32	0.53		n
03-2031-061820	37-005-21201	408	*	100	364	88	0.47		n
03-2031-061821	37-005-21201	416	*	104	440	200	0.66		n
03-2031-061822	37-007-20054	420	*	192	653	108	0.36		n
03-2031-061823	37-007-20054	394	*	121	617	101	0.45		n
03-2031-061824	37-007-20054	410	*	162	624	129	0.44		n
03-2031-061825	37-007-20054	402	*	25	165	17	0.40		n
03-2031-061826	37-019-21023	441		74	26	61	0.45	c; lc	n; ltS2sh
03-2031-061827	37-019-21023	465	*	61	88	73	0.54		n
03-2031-061828	37-019-21023	355	*	79	69	99	0.56	c	f
03-2031-061829	37-019-90063	467	*	35	25	30	0.46		f

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2031-061830	37-019-90063	PA	Butler	Slippery Rock	41.10660	-80.04028	#1 Jesse Hockenberry	6260	6329
03-2031-061831	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	8500	8600
03-2031-061832	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	9000	9170
03-2031-061833	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	9720	10000
03-2031-061834	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	10200	10300
03-2031-061841	37-031-20592	PA	Clarion	Knox	41.21130	-79.59133	Howard	5740	5800
03-2031-061842	37-031-20592	PA	Clarion	Knox	41.21130	-79.59133	Howard	7300	7355
03-2031-061843	37-031-20672	PA	Clarion	Kossuth	41.32850	-79.53026	#2 UNG	6230	6360
03-2031-061844	37-031-20672	PA	Clarion	Kossuth	41.32850	-79.53026	#2 UNG	6720	6780
03-2031-061835	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6020	6060
03-2031-061836	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6110	6160
03-2031-061837	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6320	6380
03-2031-061838	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6740	6800
03-2031-061839	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	7330	7380
03-2031-061840	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	7400	7470
03-2031-061855	37-039-20468	PA	Crawford	Centerville	41.65623	-79.86645	#1 Eager Beaver Lumber	4690	4720
03-2031-061856	37-039-20468	PA	Crawford	Centerville	41.65623	-79.86645	#1 Eager Beaver Lumber	4920	4940
03-2031-061849	37-039-20018	PA	Crawford	Conneautville	41.78082	-80.36321	#1 J. Lehman	2605	2670
03-2031-061850	37-039-20018	PA	Crawford	Conneautville	41.78082	-80.36321	#1 J. Lehman	3410	3527
03-2031-061852	37-039-20188	PA	Crawford	Edinboro South	41.82400	-80.18721	#1 Flanick & Buckoski	3030	3160
03-2031-061853	37-039-20188	PA	Crawford	Edinboro South	41.82400	-80.18721	#1 Flanick & Buckoski	3860	3950
03-2031-061854	37-039-20188	PA	Crawford	Edinboro South	41.82400	-80.18721	#1 Flanick & Buckoski	4080	4130
03-2031-061845	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3090	3160
03-2031-061846	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3260	3310
03-2031-061847	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3700	3760
03-2031-061848	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3980	4070
03-2031-061851	37-039-20131	PA	Crawford	Millers Station	41.83672	-79.88995	#1 Walter Morton	4370	4470
03-2031-061857	37-047-90175	PA	Elk	James City	41.59796	-78.83005	#3737 Warrant 3788	6085	6140
03-2031-061861	37-049-20109	PA	Erie	Erie North	42.14279	-80.04720	#2 Hammermill	1800	1880
03-2031-061862	37-049-20109	PA	Erie	Erie North	42.14279	-80.04720	#2 Hammermill	2000	2130
03-2031-061863	37-049-20109	PA	Erie	Erie North	42.14279	-80.04720	#2 Hammermill	2210	2410
03-2031-061860	37-049-20040	PA	Erie	Fairview SW	42.01422	-80.44298	#1 PA Forest & Waters Block 1	2350	2400
03-2031-061858	37-049-20030	PA	Erie	Wattsburg	42.08383	-79.86391	#1 James Henderson	2760	2850
03-2031-061859	37-049-20030	PA	Erie	Wattsburg	42.08383	-79.86391	#1 James Henderson	3305	3360
03-2049-062484	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	8540	8620
03-2049-062485	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	8900	9260
03-2049-062486	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	10010	10110
03-2049-062487	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	10470	10600
03-2031-061864	37-053-20903	PA	Forest	Tylersburg	41.48463	-79.29678	#1 Collins-Clinger	5300	5390

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

(-1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2031-061830	37-019-90063	Rochester Shale	0.16	cuttings	0.02	0.00	0.05
03-2031-061831	37-027-20006	Bass Islands Dolomite	0.23	cuttings	0.11	0.06	0.12
03-2031-061832	37-027-20006	Wills Creek Fm.	0.41	cuttings	0.16	0.08	0.21
03-2031-061833	37-027-20006	Mifflintown Fm.(McKenzie Mbr./Rochester Mbr.)	0.28	cuttings	0.10	0.06	0.07
03-2031-061834	37-027-20006	Rose Hill Formation	0.24	cuttings	0.06	0.05	0.05
03-2031-061841	37-031-20592	Camillus Shale	0.29	cuttings	0.19	0.16	0.32
03-2031-061842	37-031-20592	Cabot Head Shale	0.26	cuttings	0.32	0.26	0.23
03-2031-061843	37-031-20672	Wills Creek Fm.	0.34	cuttings	0.31	0.37	1.04
03-2031-061844	37-031-20672	Rochester Shale	0.37	cuttings	0.32	0.55	1.29
03-2031-061835	37-031-20168	Bass Islands Dolo/Camillus Shale	0.53	cuttings	0.51	0.64	0.67
03-2031-061836	37-031-20168	Camillus Shale	0.30	cuttings	0.31	0.20	0.25
03-2031-061837	37-031-20168	Syracuse Salt	0.17	cuttings	0.13	0.14	0.30
03-2031-061838	37-031-20168	Vernon Shale	0.59	cuttings	0.11	0.32	0.66
03-2031-061839	37-031-20168	Lockport Dolomite	0.47	cuttings	0.11	0.15	0.45
03-2031-061840	37-031-20168	Rochester Shale	0.50	cuttings	0.05	0.08	0.27
03-2031-061855	37-039-20468	Vernon Shale	0.24	cuttings	0.18	0.24	0.34
03-2031-061856	37-039-20468	Rochester Shale	0.44	cuttings	0.09	0.14	0.33
03-2031-061849	37-039-20018	Camillus Shale	0.15	cuttings	0.10	0.22	0.09
03-2031-061850	37-039-20018	Rochester Shale	0.23	cuttings	0.06	0.09	0.07
03-2031-061852	37-039-20188	Camillus Shale	0.25	cuttings	0.39	0.54	0.40
03-2031-061853	37-039-20188	Rochester Shale	0.29	cuttings	0.11	0.13	0.21
03-2031-061854	37-039-20188	Cabot Head Shale	0.16	cuttings	0.07	0.07	0.04
03-2031-061845	37-039-20007	Camillus Shale	0.28	cuttings	0.33	0.74	0.41
03-2031-061846	37-039-20007	Syracuse Salt	0.26	cuttings	0.24	0.53	0.34
03-2031-061847	37-039-20007	Vernon Shale/Lockport Dolomite	0.40	cuttings	0.12	0.14	0.26
03-2031-061848	37-039-20007	Rochester Shale	0.25	cuttings	0.11	0.15	0.44
03-2031-061851	37-039-20131	Rochester Shale	0.23	cuttings	0.08	0.15	0.16
03-2031-061857	37-047-90175	Vernon Shale	0.54	cuttings	0.18	0.23	0.27
03-2031-061861	37-049-20109	Camillus Shale	0.19	cuttings	0.14	0.14	0.07
03-2031-061862	37-049-20109	Vernon Shale	0.24	cuttings	0.20	0.16	0.16
03-2031-061863	37-049-20109	Lockport Dolomite/Rochester Shale	0.31	cuttings	0.12	0.11	0.07
03-2031-061860	37-049-20040	Lockport Dolomite/Rochester Shale	0.30	cuttings	0.16	0.23	0.07
03-2031-061858	37-049-20030	Camillus Shale	0.24	cuttings	0.16	0.24	0.13
03-2031-061859	37-049-20030	Rochester Shale	0.30	cuttings	0.09	0.10	0.18
03-2049-062484	37-051-20056	Keyser Limestone	0.20	cuttings	4.34	1.30	0.34
03-2049-062485	37-051-20056	Tonoloway Limestone	0.17	cuttings	0.14	0.13	0.38
03-2049-062486	37-051-20056	Syracuse Salt	0.41	cuttings	0.21	0.27	0.62
03-2049-062487	37-051-20056	Wills Creek Fm/McKenzie Ls	0.19	cuttings	0.71	0.92	0.72
03-2031-061864	37-053-20903	Camillus Shale	0.78	cuttings	0.45	0.54	0.30

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2031-061830	37-019-90063	-1	*	0	32	13	1.00		f
03-2031-061831	37-027-20006	366	*	26	51	47	0.65	c	f
03-2031-061832	37-027-20006	382	*	19	51	39	0.67		f
03-2031-061833	37-027-20006	364	*	21	25	36	0.63		f
03-2031-061834	37-027-20006	479	*	21	21	25	0.55		n
03-2031-061841	37-031-20592	397	*	56	112	66	0.54		n
03-2031-061842	37-031-20592	387	*	101	89	124	0.55		n
03-2031-061843	37-031-20672	411	*	109	308	92	0.46		n
03-2031-061844	37-031-20672	404		150	352	87	0.37		n
03-2031-061835	37-031-20168	424		121	127	97	0.44		n
03-2031-061836	37-031-20168	415	*	67	83	103	0.61	c	n
03-2031-061837	37-031-20168	337	*	82	175	76	0.48	c	n
03-2031-061838	37-031-20168	407	*	54	112	19	0.26		n
03-2031-061839	37-031-20168	409	*	32	97	24	0.42		n
03-2031-061840	37-031-20168	397	*	16	54	10	0.38		n
03-2031-061855	37-039-20468	361	*	101	142	75	0.43		n
03-2031-061856	37-039-20468	372	*	32	75	20	0.39		n
03-2031-061849	37-039-20018	437	*	146	60	66	0.31		n
03-2031-061850	37-039-20018	411	*	39	31	26	0.40	lc	n
03-2031-061852	37-039-20188	394		217	161	157	0.42	c	n
03-2031-061853	37-039-20188	400	*	44	71	37	0.46		n
03-2031-061854	37-039-20188	356	*	44	25	44	0.50		n
03-2031-061845	37-039-20007	439		266	148	119	0.31		n
03-2031-061846	37-039-20007	441		200	129	91	0.31		n
03-2031-061847	37-039-20007	433	*	35	66	30	0.46		n
03-2031-061848	37-039-20007	417	*	60	177	44	0.42		n
03-2031-061851	37-039-20131	397	*	65	70	35	0.35		n
03-2031-061857	37-047-90175	437	*	43	50	33	0.44		n
03-2031-061861	37-049-20109	432	*	72	36	72	0.50		n
03-2031-061862	37-049-20109	427	*	66	66	82	0.56		n
03-2031-061863	37-049-20109	437	*	36	23	39	0.52		n
03-2031-061860	37-049-20040	499	*	75	23	53	0.41		n
03-2031-061858	37-049-20030	434	*	101	55	67	0.40		n
03-2031-061859	37-049-20030	405	*	34	61	30	0.47		n
03-2049-062484	37-051-20056	320		635	166	2120	0.77		n; ltS2p
03-2049-062485	37-051-20056	386	*	76	223	82	0.52		n
03-2049-062486	37-051-20056	403	*	67	153	52	0.44		n
03-2049-062487	37-051-20056	407		477	373	368	0.44		n
03-2031-061864	37-053-20903	440		69	38	58	0.45		n

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2031-061865	37-053-20903	PA	Forest	Tylersburg	41.48463	-79.29678	#1 Collins-Clinger	5800	5910
03-2049-062488	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	7900	8070
03-2049-062489	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	8640	8770
03-2049-062490	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	9160	9290
03-2049-062491	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	9570	9800
03-2049-062496	37-083-27520	PA	McKean	Cornplanter Run	41.98697	-78.91703	#1 Kewanee Warrant 3703	4390	4460
03-2049-062497	37-083-27520	PA	McKean	Cornplanter Run	41.98697	-78.91703	#1 Kewanee Warrant 3703	4810	4880
03-2049-062492	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	5250	5450
03-2049-062493	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	5580	5700
03-2049-062494	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	6050	6120
03-2049-062495	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	6330	6440
03-2049-062498	37-083-90004	PA	McKean	Port Allegany	41.84989	-78.33858	#2 Nunn	4631	4682
03-2049-062499	37-083-90004	PA	McKean	Port Allegany	41.84989	-78.33858	#2 Nunn	4753	4822
03-2049-062500	37-083-90004	PA	McKean	Port Allegany	41.84989	-78.33858	#2 Nunn	6062	6150
03-2049-062504	37-085-20036	PA	Mercer	Jackson Center	41.35126	-80.17643	#1 Temple	4150	4190
03-2049-062505	37-085-20036	PA	Mercer	Jackson Center	41.35126	-80.17643	#1 Temple	4750	4800
03-2049-062506	37-085-20036	PA	Mercer	Jackson Center	41.35126	-80.17643	#1 Temple	5230	5300
03-2049-062507	37-085-90010	PA	Mercer	Sandy Lake	41.27245	-80.03601	#1 Davidson	4440	4516
03-2049-062508	37-085-90010	PA	Mercer	Sandy Lake	41.27245	-80.03601	#1 Davidson	5150	5200
03-2049-062509	37-085-90010	PA	Mercer	Sandy Lake	41.27245	-80.03601	#1 Davidson	5300	5330
03-2049-062501	37-085-20004	PA	Mercer	Sharpsville	41.31989	-80.46161	#1 McKnight	3400	3550
03-2049-062502	37-085-20004	PA	Mercer	Sharpsville	41.31989	-80.46161	#1 McKnight	4345	4400
03-2049-062503	37-085-20004	PA	Mercer	Sharpsville	41.31989	-80.46161	#1 McKnight	4760	4860
03-2049-062515	37-105-20467	PA	Potter	Keating Summit	41.64375	-78.18990	#1 PA Tract 204	7060	7100
03-2049-062516	37-105-20467	PA	Potter	Keating Summit	41.64375	-78.18990	#1 PA Tract 204	7350	7400
03-2049-062510	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	6600	6770
03-2049-062511	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	7320	7420
03-2049-062512	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	7600	7660
03-2049-062513	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	8140	8330
03-2049-062514	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	9230	9305
03-2049-062517	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	9080	9200
03-2049-062518	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	9800	10000
03-2049-062519	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	10220	10330
03-2049-062520	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	10560	10870
03-2049-062521	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	11460	11530
03-2049-062524	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	4950	5150
03-2049-062525	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	5580	5680
03-2049-062526	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	5800	5950
03-2049-062527	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	6070	6160

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2031-061865	37-053-20903	Vernon Shale	0.22	cuttings	0.14	0.09	0.09
03-2049-062488	37-081-20028	Bass Islands-Tonoloway Ls.	0.17	cuttings	0.07	0.05	0.04
03-2049-062489	37-081-20028	Syracuse Salt/Wills Creek Fm	0.28	cuttings	0.07	0.18	0.26
03-2049-062490	37-081-20028	Wills Creek Fm.	0.26	cuttings	0.04	0.07	0.60
03-2049-062491	37-081-20028	McKenzie Ls/Rochester Shale	0.17	cuttings	0.05	0.04	0.30
03-2049-062496	37-083-27520	Vernon Shale	0.47	cuttings	0.44	0.38	0.41
03-2049-062497	37-083-27520	Rochester Sh/Lower Silurian carbs. & shale	0.48	cuttings	0.25	0.33	0.41
03-2049-062492	37-083-22529	Bass Islands Dolo/Camillus Shale	0.22	cuttings	0.24	0.33	0.37
03-2049-062493	37-083-22529	Syracuse Salt	0.21	cuttings	0.22	0.17	0.41
03-2049-062494	37-083-22529	Vernon Shale	0.29	cuttings	0.22	0.24	0.57
03-2049-062495	37-083-22529	Rochester Shale	0.31	cuttings	0.32	0.34	0.47
03-2049-062498	37-083-90004	Bass Islands Dolo/Camillus Shale	0.32	cuttings	0.18	0.20	0.21
03-2049-062499	37-083-90004	Camillus Shale	0.25	cuttings	0.18	0.17	0.17
03-2049-062500	37-083-90004	Lockport Dolomite	0.48	cuttings	0.35	0.19	0.28
03-2049-062504	37-085-20036	Bass Islands Dolomite	0.27	cuttings	0.37	0.63	0.81
03-2049-062505	37-085-20036	Syracuse Salt	0.36	cuttings	0.36	0.50	0.61
03-2049-062506	37-085-20036	Rochester Shale	0.57	cuttings	0.42	0.67	1.09
03-2049-062507	37-085-90010	Camillus Shale	0.21	cuttings	0.20	0.16	0.19
03-2049-062508	37-085-90010	Vernon Shale	0.23	cuttings	0.14	0.16	0.22
03-2049-062509	37-085-90010	Lockport Dolomite	0.28	cuttings	0.13	0.20	0.17
03-2049-062501	37-085-20004	Bass Islands Dolo/Camillus Shale	0.29	cuttings	0.31	0.45	0.58
03-2049-062502	37-085-20004	Lockport Dolomite	0.62	cuttings	1.11	1.00	1.25
03-2049-062503	37-085-20004	Cabot Head Shale	0.21	cuttings	0.43	0.33	0.31
03-2049-062515	37-105-20467	Vernon Shale	0.23	cuttings	0.14	0.37	0.55
03-2049-062516	37-105-20467	Vernon Shale/Wills Creek Fm	0.28	cuttings	0.19	0.26	0.63
03-2049-062510	37-105-20182	Keyser Ls/Camillus Sh.	0.15	cuttings	0.06	0.04	0.25
03-2049-062511	37-105-20182	Syracuse Salt	0.10	cuttings	0.08	0.10	0.36
03-2049-062512	37-105-20182	Syracuse Salt	0.19	cuttings	0.09	0.10	0.48
03-2049-062513	37-105-20182	Vernon Shale	0.12	cuttings	0.16	0.16	0.45
03-2049-062514	37-105-20182	McKenzie Limestone	0.15	cuttings	0.10	0.07	0.23
03-2049-062517	37-111-20045	Tonoloway Limestone	0.14	cuttings	0.17	0.33	1.02
03-2049-062518	37-111-20045	Syracuse Salt	0.21	cuttings	0.21	0.31	0.89
03-2049-062519	37-111-20045	Wills Creek Fm.	0.77	cuttings	0.35	0.68	1.46
03-2049-062520	37-111-20045	McKenzie Limestone	0.28	cuttings	0.99	1.81	0.34
03-2049-062521	37-111-20045	Castanea Member of Tuscarora Fm.	0.37	cuttings	0.08	0.16	0.28
03-2049-062524	37-121-23657	Camillus Shale	0.17	cuttings	0.19	0.34	0.26
03-2049-062525	37-121-23657	Vernon Shale	0.18	cuttings	0.13	0.27	0.47
03-2049-062526	37-121-23657	Lockport Dolomite	0.27	cuttings	0.15	0.29	0.33
03-2049-062527	37-121-23657	Rochester Shale	0.33	cuttings	0.23	0.45	0.36

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2031-061865	37-053-20903	431	*	40	40	63	0.61	c	n
03-2049-062488	37-081-20028	376	*	29	23	41	0.58		n
03-2049-062489	37-081-20028	433	*	64	93	25	0.28	c	n
03-2049-062490	37-081-20028	390	*	27	234	16	0.36		n
03-2049-062491	37-081-20028	320	*	23	172	29	0.56		n
03-2049-062496	37-083-27520	357	*	81	88	94	0.54		n
03-2049-062497	37-083-27520	364	*	69	86	53	0.43		n
03-2049-062492	37-083-22529	423	*	153	172	112	0.42		n
03-2049-062493	37-083-22529	404	*	80	194	104	0.56		n
03-2049-062494	37-083-22529	419	*	84	199	77	0.48		n
03-2049-062495	37-083-22529	424	*	111	153	104	0.48		n
03-2049-062498	37-083-90004	401	*	62	65	56	0.47		n
03-2049-062499	37-083-90004	443	*	67	67	71	0.51		n
03-2049-062500	37-083-90004	365	*	40	59	73	0.65	c;lc	n
03-2049-062504	37-085-20036	399		234	300	137	0.37		n/a
03-2049-062505	37-085-20036	419		139	170	100	0.42		n/a
03-2049-062506	37-085-20036	408		117	191	74	0.39		n/a
03-2049-062507	37-085-90010	415	*	76	90	94	0.56		n/a
03-2049-062508	37-085-90010	399	*	69	95	61	0.47		n/a
03-2049-062509	37-085-90010	385	*	71	60	46	0.39	d	n/a
03-2049-062501	37-085-20004	435	*	156	202	108	0.41		n/a
03-2049-062502	37-085-20004	432		162	202	179	0.53		n/a
03-2049-062503	37-085-20004	377	*	157	147	204	0.57		n/a
03-2049-062515	37-105-20467	423	*	163	242	62	0.27		n
03-2049-062516	37-105-20467	415	*	94	227	68	0.42	c	n
03-2049-062510	37-105-20182	393	*	27	169	41	0.60		n
03-2049-062511	37-105-20182	505	*	102	369	82	0.44	c	n
03-2049-062512	37-105-20182	450	*	53	256	48	0.47		n
03-2049-062513	37-105-20182	393	*	131	369	131	0.50		n
03-2049-062514	37-105-20182	386	*	48	157	68	0.59		n
03-2049-062517	37-111-20045	415	*	240	741	123	0.34		n
03-2049-062518	37-111-20045	383	*	145	418	99	0.40	lc	n
03-2049-062519	37-111-20045	399		88	189	45	0.34		n
03-2049-062520	37-111-20045	391		635	119	347	0.35		n
03-2049-062521	37-111-20045	395	*	44	77	22	0.33		n
03-2049-062524	37-121-23657	427	*	203	155	114	0.36		n
03-2049-062525	37-121-23657	418	*	149	259	72	0.32		n
03-2049-062526	37-121-23657	416	*	106	121	55	0.34		n
03-2049-062527	37-121-23657	393	*	135	108	69	0.34		n

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2049-062528	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	6200	6300
03-2049-062522	37-121-22642	PA	Venango	Franklin	41.41420	-79.80935	#348 Grant Fee	5150	5200
03-2049-062523	37-121-22642	PA	Venango	Franklin	41.41420	-79.80935	#348 Grant Fee	5640	5680
03-2049-062529	37-123-20150	PA	Warren	Cobham	41.65390	-79.36919	#1 Shaw	4635	4695
03-2049-062530	37-123-20609	PA	Warren	Russell	41.95339	-79.20122	#1 Marsh-Childs	3850	3920
03-2049-062531	37-123-20609	PA	Warren	Russell	41.95339	-79.20122	#1 Marsh-Childs	4150	4230
03-2049-062532	37-123-20609	PA	Warren	Russell	41.95339	-79.20122	#1 Marsh-Childs	4630	4660
03-2049-062533	37-123-90000	PA	Warren	Tidioute	41.64361	-79.42325	#1 Proper	4578	4651
03-2049-062534	37-123-90000	PA	Warren	Tidioute	41.64361	-79.42325	#1 Proper	5037	5128
03-2049-062535	37-123-90000	PA	Warren	Tidioute	41.64361	-79.42325	#1 Proper	5506	5581
03-2138-069904	47-005-00612	WV	Boone	Madison	38.11417	-81.82945	Allen & Pryor 41 (675)	4480	4920
03-2138-069880	47-011-00537	WV	Cabell	Athalia	38.52389	-82.26306	#1 Kingery	4300	4500
03-2138-069878	47-015-00513	WV	Clay	Clendenin	38.45305	-81.26389	UFG (8000-T)	6170	6505
03-2138-069879	47-015-00513	WV	Clay	Clendenin	38.45305	-81.26389	UFG (8000-T)	6510	7130
03-2122-068753	47-019-00123	WV	Fayette	Winona	38.10944	-80.93250	#1 Foulke Meadow	7420	7710
03-2122-068754	47-019-00123	WV	Fayette	Winona	38.10944	-80.93250	#1 Foulke Meadow	7760	7930
03-2122-068755	47-019-00123	WV	Fayette	Winona	38.10944	-80.93250	#1 Foulke Meadow	7930	8080
03-2138-069905	47-019-00241	WV	Fayette	Winona	38.11361	-80.98528	Nutall Estate (2000T)	7580	8110
03-2122-068752	47-025-00020	WV	Greenbrier	Cornstalk	37.92722	-80.54667	#9546 Bryant	6880	7610
03-2138-069893	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	1390	1600
03-2138-069894	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	1800	2000
03-2138-069895	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	2150	2500
03-2138-069896	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	2550	2870
03-2122-068762	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5250	5305
03-2122-068763	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5305	5435
03-2122-068764	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5435	5600
03-2122-068765	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5740	6200
03-2122-068777	47-031-00003	WV	Hardy	Needmore	39.00277	-78.85000	Baughman (9058-T)	7460	8150
03-2122-068778	47-031-00003	WV	Hardy	Needmore	39.00277	-78.85000	Baughman (9058-T)	8150	8450
03-2122-068779	47-031-00003	WV	Hardy	Needmore	39.00277	-78.85000	Baughman (9058-T)	8450	9190
03-2138-069881	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	7770	7895
03-2138-069882	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	7895	8180
03-2138-069883	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	8300	8550
03-2138-069884	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	8640	8750
03-2138-069885	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	8880	9000
03-2138-069886	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	9070	9420
03-2122-068780	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	5550	5735
03-2122-068781	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	5735	5920
03-2122-068782	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	5920	6215
03-2122-068783	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	6215	6520

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2049-062528	37-121-23657	Rochester Sh/Lower Silurian carbs. & shale	0.23	cuttings	0.31	0.32	0.31
03-2049-062522	37-121-22642	Vernon Shale	0.21	cuttings	0.67	0.26	0.60
03-2049-062523	37-121-22642	Lockport Dolomite	0.62	cuttings	3.72	0.80	0.66
03-2049-062529	37-123-20150	Bass Islands Dolomite	0.19	cuttings	0.19	0.27	0.24
03-2049-062530	37-123-20609	Camillus Shale	0.22	cuttings	0.16	0.43	0.25
03-2049-062531	37-123-20609	Vernon Shale	0.19	cuttings	0.08	0.07	0.35
03-2049-062532	37-123-20609	Rochester Shale	0.64	cuttings	0.86	0.61	0.37
03-2049-062533	37-123-90000	Camillus Shale	0.23	cuttings	0.30	0.33	0.32
03-2049-062534	37-123-90000	Vernon Shale	0.26	cuttings	0.41	0.49	0.35
03-2049-062535	37-123-90000	Rochester Shale	0.50	cuttings	0.12	0.09	0.42
03-2138-069904	47-005-00612	Salina-McKenzie Ls.	0.13	cuttings	0.16	0.11	0.10
03-2138-069880	47-011-00537	Rose Hill Formation	0.13	cuttings	0.18	0.27	0.07
03-2138-069878	47-015-00513	Salina Group	0.24	cuttings	0.23	0.26	0.14
03-2138-069879	47-015-00513	Salina-Rose Hill Fm.	0.50	cuttings	0.33	1.00	0.12
03-2122-068753	47-019-00123	Bass Islands-Tonoloway Ls.	0.24	cuttings	0.03	0.03	0.44
03-2122-068754	47-019-00123	Tonoloway-McKenzie Ls.	0.26	cuttings	1.13	0.32	0.22
03-2122-068755	47-019-00123	McKenzie Ls./Keefer Ss.	0.28	cuttings	1.45	0.46	0.12
03-2138-069905	47-019-00241	Tonoloway Ls. - Wills Creek Fm. - McKenzie Ls.	0.20	cuttings	0.24	0.56	0.04
03-2122-068752	47-025-00020	Salina-McKenzie Ls.	0.25	cuttings	0.10	0.17	0.08
03-2138-069893	47-025-00012	Tonoloway Limestone	0.23	cuttings	0.09	0.08	0.29
03-2138-069894	47-025-00012	Tonoloway Limestone	0.15	cuttings	0.15	0.38	0.02
03-2138-069895	47-025-00012	Tonoloway-Wills Creek Fm.	0.12	cuttings	0.15	0.16	0.08
03-2138-069896	47-025-00012	Wills Creek Fm/McKenzie Ls	0.13	cuttings	0.24	0.28	0.03
03-2122-068762	47-029-00080	Salina Group	0.20	cuttings	0.18	0.17	0.17
03-2122-068763	47-029-00080	Salina Group	1.19	cuttings	1.36	0.86	1.32
03-2122-068764	47-029-00080	Salina Group	0.93	cuttings	0.95	0.62	0.38
03-2122-068765	47-029-00080	Salina Group	0.28	cuttings	0.14	0.10	0.20
03-2122-068777	47-031-00003	Tonoloway Limestone	0.11	cuttings	0.09	0.09	0.02
03-2122-068778	47-031-00003	Tonoloway-Wills Creek Fm.	0.11	cuttings	0.13	0.12	0.10
03-2122-068779	47-031-00003	Wills Creek/Rose Hill Fm.	0.13	cuttings	0.17	0.30	0.07
03-2138-069881	47-033-00079	Bass Islands Dolomite	0.10	cuttings	0.04	0.08	0.10
03-2138-069882	47-033-00079	Bass Islands-Salina Gp.	0.11	cuttings	0.02	0.03	0.09
03-2138-069883	47-033-00079	Salina Group	0.20	cuttings	0.05	0.09	0.11
03-2138-069884	47-033-00079	Wills Creek Fm.	0.12	cuttings	0.02	0.10	0.06
03-2138-069885	47-033-00079	Wills Creek Fm/McKenzie Ls	0.13	cuttings	0.03	0.03	0.08
03-2138-069886	47-033-00079	McKenzie Ls./Rose Hill Fm.	0.26	cuttings	0.06	0.08	0.39
03-2122-068780	47-035-00227	Salina Group	0.11	cuttings	0.09	0.16	0.02
03-2122-068781	47-035-00227	Salina Group	0.10	cuttings	0.06	0.07	0.05
03-2122-068782	47-035-00227	Salina-McKenzie Ls.	0.10	cuttings	0.04	0.11	0.04
03-2122-068783	47-035-00227	McKenzie Ls./Rose Hill Fm.	0.10	cuttings	0.04	0.07	0.11

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2049-062528	37-121-23657	374	*	140	136	136	0.49		n
03-2049-062522	37-121-22642	387	*	123	284	317	0.72		n
03-2049-062523	37-121-22642	440		128	106	597	0.82		n; ltS2sh
03-2049-062529	37-123-20150	431	*	144	128	101	0.41		n
03-2049-062530	37-123-20609	434	*	196	114	73	0.27		n
03-2049-062531	37-123-20609	390	*	38	189	43	0.53		n
03-2049-062532	37-123-20609	391		95	58	134	0.59		n
03-2049-062533	37-123-90000	431	*	143	139	130	0.48		n
03-2049-062534	37-123-90000	425	*	188	134	157	0.46		n
03-2049-062535	37-123-90000	401	*	18	84	24	0.57	lc	n
03-2138-069904	47-005-00612	469	*	85	77	123	0.59		n
03-2138-069880	47-011-00537	382	*	208	54	138	0.40		n
03-2138-069878	47-015-00513	438	*	108	58	96	0.47	c	n
03-2138-069879	47-015-00513	431		200	24	66	0.25		n
03-2122-068753	47-019-00123	432	*	12	183	12	0.50		n
03-2122-068754	47-019-00123	372	*	123	85	435	0.78		n
03-2122-068755	47-019-00123	388	*	164	43	518	0.76		spikes
03-2138-069905	47-019-00241	443		280	20	120	0.30		spikes
03-2122-068752	47-025-00020	428	*	68	32	40	0.37		n
03-2138-069893	47-025-00012	435	*	35	126	39	0.53		n
03-2138-069894	47-025-00012	440	*	253	13	100	0.28	c	n
03-2138-069895	47-025-00012	439	*	133	67	125	0.48		n
03-2138-069896	47-025-00012	434	*	215	23	185	0.46		spikes
03-2122-068762	47-029-00080	447	*	85	85	90	0.51		n
03-2122-068763	47-029-00080	420		72	111	114	0.61		n
03-2122-068764	47-029-00080	409		67	41	102	0.61		n
03-2122-068765	47-029-00080	453	*	36	71	50	0.58		n
03-2122-068777	47-031-00003	387	*	82	18	82	0.50		n
03-2122-068778	47-031-00003	368	*	109	91	118	0.52		n
03-2122-068779	47-031-00003	365	*	231	54	131	0.36		n
03-2138-069881	47-033-00079	435	*	80	100	40	0.33		n
03-2138-069882	47-033-00079	434	*	27	82	18	0.40		n
03-2138-069883	47-033-00079	438	*	45	55	25	0.36		n
03-2138-069884	47-033-00079	438	*	83	50	17	0.17		n
03-2138-069885	47-033-00079	428	*	23	62	23	0.50		n
03-2138-069886	47-033-00079	433	*	31	150	23	0.43		n
03-2122-068780	47-035-00227	420	*	145	18	82	0.36		n
03-2122-068781	47-035-00227	392	*	70	50	60	0.46		n
03-2122-068782	47-035-00227	409	*	110	40	40	0.27		n
03-2122-068783	47-035-00227	412	*	70	110	40	0.36		n

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2138-069868	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	5440	5660
03-2138-069869	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	5650	5980
03-2138-069870	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	5980	6200
03-2138-069871	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	6300	6510
03-2122-068758	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	7970	8180
03-2122-068759	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	8600	8900
03-2122-068760	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	8930	9300
03-2122-068761	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	9360	9440
03-2138-069865	47-053-00069	WV	Mason	Arlee	38.71390	-82.11723	Arrington (8803)	3530	3950
03-2138-069866	47-053-00069	WV	Mason	Arlee	38.71390	-82.11723	Arrington (8803)	3990	4130
03-2138-069867	47-055-00014	WV	Mercer	Bluefield	37.35611	-81.18611	#H-1 Wilson	8000	8550
03-2138-069863	47-059-00879	WV	Mingo	Wilsondale	37.88361	-82.26222	Huntington Realty (20500-T)	4050	4200
03-2138-069864	47-059-00879	WV	Mingo	Wilsondale	37.88361	-82.26222	Huntington Realty (20500-T)	4240	4420
03-2138-069861	47-061-00307	WV	Monongalia	Masontown	39.56417	-79.87306	#A-1 May	9070	9430
03-2138-069862	47-061-00307	WV	Monongalia	Masontown	39.56417	-79.87306	#A-1 May	9600	10100
03-2122-068775	47-075-00018	WV	Pocahontas	Thornwood	38.54917	-79.68583	#L-1 USA (GW 1329)	6890	7530
03-2122-068776	47-075-00018	WV	Pocahontas	Thornwood	38.54917	-79.68583	#L-1 USA (GW 1329)	7530	8300
03-2122-068770	47-077-00099	WV	Preston	Aurora	39.26750	-79.56194	#N-1 USA (GW1374)	5050	5590
03-2122-068771	47-077-00099	WV	Preston	Aurora	39.26750	-79.56194	#N-1 USA (GW1374)	5600	6100
03-2122-068772	47-077-00099	WV	Preston	Aurora	39.26750	-79.56194	#N-1 USA (GW1374)	6150	6570
03-2122-068766	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	8240	8670
03-2122-068767	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	8670	8860
03-2122-068768	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	8910	9110
03-2122-068769	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	9110	9630
03-2122-068773	47-083-00101	WV	Randolph	Glady	38.78556	-79.69861	#2 Hill Arnold (GW 1293)	5700	6300
03-2122-068774	47-083-00101	WV	Randolph	Glady	38.78556	-79.69861	#2 Hill Arnold (GW 1293)	6300	6740
03-2122-068792	47-083-00102	WV	Randolph	Mill Creek	38.69639	-79.95250	WV Board of Control (10182)	3300	4150
03-2122-068793	47-083-00103	WV	Randolph	Mill Creek	38.70722	-79.96917	WV Board of Control (10228)	4150	4660
03-2122-068794	47-083-00103	WV	Randolph	Mill Creek	38.70722	-79.96917	WV Board of Control (10228)	4660	5430
03-2138-069887	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	2408	2745
03-2138-069888	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	2745	3120
03-2138-069889	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3120	3280
03-2138-069890	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3430	3544
03-2138-069891	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3544	3700
03-2138-069892	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3833	3957
03-2138-069856	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	5750	5920
03-2138-069857	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	5920	6200
03-2138-069858	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	6200	6300
03-2138-069859	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	6300	6770
03-2122-068788	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	5850	6010
03-2122-068789	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	6050	6260

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2138-069868	47-039-01684	Salina Group	0.20	cuttings	0.31	0.37	0.04
03-2138-069869	47-039-01684	Salina-McKenzie Ls.	0.54	cuttings	0.55	0.63	0.24
03-2138-069870	47-039-01684	McKenzie Limestone	0.36	cuttings	0.63	0.56	0.11
03-2138-069871	47-039-01684	Rose Hill Formation	0.36	cuttings	0.41	0.62	0.23
03-2122-068758	47-049-00244	Salina Group	0.30	cuttings	0.83	0.35	0.12
03-2122-068759	47-049-00244	Salina-Wills Creek Fm.	0.20	cuttings	0.05	0.05	0.10
03-2122-068760	47-049-00244	Wills Creek Fm/McKenzie Ls	0.25	cuttings	0.33	1.06	0.11
03-2122-068761	47-049-00244	McKenzie Limestone	0.20	cuttings	0.17	0.28	0.05
03-2138-069865	47-053-00069	Salina-McKenzie Ls.	0.38	cuttings	0.34	0.78	0.24
03-2138-069866	47-053-00069	McKenzie Limestone	0.29	cuttings	0.11	0.13	0.09
03-2138-069867	47-055-00014	Salina-McKenzie Ls.	0.91	cuttings	0.40	0.95	0.46
03-2138-069863	47-059-00879	Salina Group	0.24	cuttings	0.24	0.41	0.18
03-2138-069864	47-059-00879	Salina Group	0.27	cuttings	0.14	0.21	0.08
03-2138-069861	47-061-00307	Salina Group	0.54	cuttings	0.27	0.62	0.29
03-2138-069862	47-061-00307	Wills Creek Fm.-McKenzie Ls.	1.04	cuttings	2.32	1.84	0.71
03-2122-068775	47-075-00018	Helderberg-Tonoloway Ls.	0.15	cuttings	0.33	0.21	0.10
03-2122-068776	47-075-00018	Tonoloway-Rose Hill Fm.	0.95	cuttings	0.42	0.84	0.52
03-2122-068770	47-077-00099	Helderberg-Salina Gp.	0.26	cuttings	0.06	0.08	0.28
03-2122-068771	47-077-00099	Salina-Wills Creek Fm.	0.21	cuttings	0.11	0.10	0.28
03-2122-068772	47-077-00099	Wills Creek Fm/Rochester S.	0.11	cuttings	0.11	0.16	0.05
03-2122-068766	47-077-00086	Helderberg-Salina Gp.	0.66	cuttings	1.81	1.47	0.17
03-2122-068767	47-077-00086	Salina Group	0.98	cuttings	0.50	2.28	0.16
03-2122-068768	47-077-00086	Salina-Wills Creek Fm.	3.35	cuttings	1.03	10.08	1.68
03-2122-068769	47-077-00086	Wills Creek Fm/McKenzie Ls	3.00	cuttings	0.66	9.56	0.21
03-2122-068773	47-083-00101	Tonoloway-Wills Creek Fm.	0.36	cuttings	0.43	0.49	0.06
03-2122-068774	47-083-00101	Wills Creek Fm/McKenzie Ls	0.19	cuttings	0.44	0.46	0.13
03-2122-068792	47-083-00102	Keyser Ls.- Tonoloway Ls.-Wills Creek Fm.	0.10	cuttings	0.01	0.05	0.06
03-2122-068793	47-083-00103	Wills Creek/Rose Hill Fm.	0.10	cuttings	0.03	0.09	0.10
03-2122-068794	47-083-00103	Rose Hill Formation	0.10	cuttings	0.03	0.04	0.07
03-2138-069887	47-083-00001	Bass Islands-Tonoloway Ls.	0.10	cuttings	0.01	0.01	0.17
03-2138-069888	47-083-00001	Tonoloway Limestone	0.12	cuttings	0.03	0.03	0.12
03-2138-069889	47-083-00001	Wills Creek Fm.	0.19	cuttings	0.06	0.18	0.12
03-2138-069890	47-083-00001	Wills Creek Fm/McKenzie Ls	0.10	cuttings	0.03	0.03	0.03
03-2138-069891	47-083-00001	McKenzie Limestone	0.16	cuttings	0.06	0.07	0.18
03-2138-069892	47-083-00001	Rose Hill Formation	0.22	cuttings	0.14	0.60	0.06
03-2138-069856	47-085-01894	Helderberg-Bass Islands	0.24	cuttings	0.17	0.16	0.27
03-2138-069857	47-085-01894	Bass Islands-Salina Gp.	0.23	cuttings	0.23	0.21	0.06
03-2138-069858	47-085-01894	Salina Group	0.38	cuttings	0.16	0.12	0.41
03-2138-069859	47-085-01894	Salina Group	0.22	cuttings	0.14	0.13	0.16
03-2122-068788	47-087-00714	Salina Group	0.32	cuttings	0.40	0.57	0.13
03-2122-068789	47-087-00714	Salina Group	0.43	cuttings	0.24	0.33	0.32

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2138-069868	47-039-01684	439	*	185	20	155	0.46		n
03-2138-069869	47-039-01684	433		117	44	102	0.47		n
03-2138-069870	47-039-01684	439		156	31	175	0.53		n
03-2138-069871	47-039-01684	439		172	64	114	0.40		n
03-2122-068758	47-049-00244	396	*	117	40	277	0.70		n
03-2122-068759	47-049-00244	358	*	25	50	25	0.50		n
03-2122-068760	47-049-00244	368		424	44	132	0.24		n
03-2122-068761	47-049-00244	400	*	140	25	85	0.38	c	n
03-2138-069865	47-053-00069	434		205	63	89	0.30		n
03-2138-069866	47-053-00069	431	*	45	31	38	0.46		n
03-2138-069867	47-055-00014	440		104	51	44	0.30		n
03-2138-069863	47-059-00879	439	*	171	75	100	0.37		n
03-2138-069864	47-059-00879	439	*	78	30	52	0.40		n
03-2138-069861	47-061-00307	426		115	54	50	0.30		n
03-2138-069862	47-061-00307	391		177	68	223	0.56		n; ltS2p
03-2122-068775	47-075-00018	418	*	140	67	220	0.61		n
03-2122-068776	47-075-00018	432		88	55	44	0.33		n; ltS2p
03-2122-068770	47-077-00099	310	*	31	108	23	0.43		n
03-2122-068771	47-077-00099	378	*	48	133	52	0.52	c	n
03-2122-068772	47-077-00099	391	*	145	45	100	0.41	c	n
03-2122-068766	47-077-00086	354		223	26	274	0.55		n
03-2122-068767	47-077-00086	418		233	16	51	0.18		n
03-2122-068768	47-077-00086	427		301	50	31	0.09	c	n
03-2122-068769	47-077-00086	413		319	7	22	0.06		spikes
03-2122-068773	47-083-00101	411	*	136	17	119	0.47		n
03-2122-068774	47-083-00101	399	*	242	68	232	0.49		n
03-2122-068792	47-083-00102	374	*	50	60	10	0.17		f
03-2122-068793	47-083-00103	402	*	90	100	30	0.25		n
03-2122-068794	47-083-00103	357	*	40	70	30	0.43	c	f
03-2138-069887	47-083-00001	430	*	10	170	10	0.50		n
03-2138-069888	47-083-00001	435	*	25	100	25	0.50		n
03-2138-069889	47-083-00001	440	*	95	63	32	0.25		n
03-2138-069890	47-083-00001	414	*	30	30	30	0.50		n
03-2138-069891	47-083-00001	427	*	44	113	37	0.46		n
03-2138-069892	47-083-00001	436		273	27	64	0.19		n
03-2138-069856	47-085-01894	416	*	67	113	71	0.52	c	n
03-2138-069857	47-085-01894	340	*	91	26	100	0.52		n
03-2138-069858	47-085-01894	372	*	32	108	42	0.57		n
03-2138-069859	47-085-01894	424	*	59	73	64	0.52		n
03-2122-068788	47-087-00714	428		178	41	125	0.41		n
03-2122-068789	47-087-00714	430	*	77	74	56	0.42		n

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2122-068790	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	6300	6520
03-2122-068791	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	6600	6800
03-2122-068784	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	5850	6100
03-2122-068785	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	6200	6500
03-2122-068786	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	6510	6740
03-2122-068787	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	6790	7180
03-2122-068756	47-087-01705	WV	Roane	Looneyville	38.67778	-81.30139	#3 Dougherty	6150	6560
03-2122-068757	47-087-01705	WV	Roane	Looneyville	38.67778	-81.30139	#3 Dougherty	6560	6800
03-2138-069875	47-099-00162	WV	Wayne	Louisa	38.03722	-82.51778	#3 Glenhayes (559)	3000	3190
03-2138-069876	47-099-00162	WV	Wayne	Louisa	38.03722	-82.51778	#3 Glenhayes (559)	3190	3367
03-2138-069877	47-099-00162	WV	Wayne	Louisa	38.03722	-82.51778	#3 Glenhayes (559)	3367	3830
03-2138-069872	47-099-01040	WV	Wayne	Radnor	38.04306	-82.46194	UFG Tract 1 (8181)	3261	3596
03-2138-069873	47-099-01040	WV	Wayne	Radnor	38.04306	-82.46194	UFG Tract 1 (8181)	3660	3905
03-2138-069874	47-099-01040	WV	Wayne	Radnor	38.04306	-82.46194	UFG Tract 1 (8181)	3943	4204
03-2138-069900	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3121	3281
03-2138-069901	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3281	3425
03-2138-069902	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3425	3566
03-2138-069903	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3566	4114
03-2122-068750	47-099-00465	WV	Wayne	Webb	37.89222	-82.39389	#42 (6161) Caldwell	3270	3430
03-2122-068751	47-099-00465	WV	Wayne	Webb	37.89222	-82.39389	#42 (6161) Caldwell	3490	3670
03-2138-069860	47-101-00055	WV	Webster	Skelt	38.50389	-80.36500	#1 Pardee-Curtin Lumber	8120	8470
03-2138-069897	47-107-00351	WV	Wood	Willow Island	39.25695	-81.27250	Power Oil Co. (9634)	6460	6700
03-2138-069898	47-107-00351	WV	Wood	Willow Island	39.25695	-81.27250	Power Oil Co. (9634)	6700	6900
03-2138-069899	47-107-00351	WV	Wood	Willow Island	39.25695	-81.27250	Power Oil Co. (9634)	6900	7100

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

(-1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2122-068790	47-087-00714	McKenzie Limestone	0.33	cuttings	0.38	0.52	0.29
03-2122-068791	47-087-00714	Rose Hill Formation	0.25	cuttings	0.39	0.60	0.13
03-2122-068784	47-087-01200	Bass Islands-Salina Gp.	0.23	cuttings	0.32	0.39	0.10
03-2122-068785	47-087-01200	Salina-McKenzie Ls.	0.28	cuttings	0.34	0.42	0.22
03-2122-068786	47-087-01200	McKenzie Limestone	0.28	cuttings	0.27	0.36	0.15
03-2122-068787	47-087-01200	Rose Hill Formation	0.23	cuttings	0.40	0.59	0.10
03-2122-068756	47-087-01705	Salina Group	0.21	cuttings	0.06	0.10	0.22
03-2122-068757	47-087-01705	Salina-McKenzie Ls.	0.20	cuttings	0.04	0.03	0.10
03-2138-069875	47-099-00162	Bass Islands-Salina Gp.	0.18	cuttings	0.05	0.16	0.14
03-2138-069876	47-099-00162	Salina Group	0.26	cuttings	0.06	0.12	0.10
03-2138-069877	47-099-00162	Salina-Rose Hill Fm.	0.16	cuttings	0.10	0.24	0.03
03-2138-069872	47-099-01040	Salina Group	0.27	cuttings	0.23	0.45	0.21
03-2138-069873	47-099-01040	Salina-Rose Hill Fm.	0.15	cuttings	0.17	0.19	0.09
03-2138-069874	47-099-01040	Rose Hill Formation	0.55	cuttings	0.47	1.27	0.17
03-2138-069900	47-099-01546	Salina Group	0.16	cuttings	0.30	0.38	0.10
03-2138-069901	47-099-01546	Salina Group	0.14	cuttings	0.25	0.32	0.02
03-2138-069902	47-099-01546	Salina Group	0.13	cuttings	0.24	0.25	0.05
03-2138-069903	47-099-01546	McKenzie Ls./Rose Hill Fm.	0.17	cuttings	0.40	0.45	0.02
03-2122-068750	47-099-00465	Salina Group	0.21	cuttings	0.07	0.08	0.15
03-2122-068751	47-099-00465	Salina-McKenzie Ls.	0.20	cuttings	0.06	0.03	0.27
03-2138-069860	47-101-00055	Rose Hill Formation	0.10	cuttings	0.04	0.02	0.07
03-2138-069897	47-107-00351	Salina Group	0.15	cuttings	0.23	0.22	0.12
03-2138-069898	47-107-00351	Salina-Wills Creek Fm.	0.25	cuttings	0.27	0.54	0.04
03-2138-069899	47-107-00351	Wills Creek Fm/McKenzie Ls	0.17	cuttings	0.20	0.26	0.03

Table 1. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (sorted by State, County, Township, Well, Top Depth)

(-1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2122-068790	47-087-00714	428		158	88	115	0.42		n
03-2122-068791	47-087-00714	386		240	52	156	0.39		n
03-2122-068784	47-087-01200	433	*	170	43	139	0.45		n
03-2122-068785	47-087-01200	425	*	150	79	121	0.45		n
03-2122-068786	47-087-01200	401	*	129	54	96	0.43		n
03-2122-068787	47-087-01200	397		257	43	174	0.40		n
03-2122-068756	47-087-01705	404	*	48	105	29	0.37		n
03-2122-068757	47-087-01705	394	*	15	50	20	0.57		n
03-2138-069875	47-099-00162	438	*	89	78	28	0.24		n
03-2138-069876	47-099-00162	437	*	46	38	23	0.33		n
03-2138-069877	47-099-00162	441	*	150	19	63	0.29		n
03-2138-069872	47-099-01040	439	*	167	78	85	0.34		n
03-2138-069873	47-099-01040	433	*	127	60	113	0.47		n
03-2138-069874	47-099-01040	439		231	31	85	0.27		n
03-2138-069900	47-099-01546	437	*	237	63	188	0.44	c	n
03-2138-069901	47-099-01546	433	*	229	14	179	0.44		n
03-2138-069902	47-099-01546	433	*	192	38	185	0.49		n
03-2138-069903	47-099-01546	431	*	265	12	235	0.47		n
03-2122-068750	47-099-00465	422	*	38	71	33	0.47		n
03-2122-068751	47-099-00465	343	*	15	135	30	0.67		n
03-2138-069860	47-101-00055	338	*	20	70	40	0.67		n
03-2138-069897	47-107-00351	438	*	147	80	153	0.51		n
03-2138-069898	47-107-00351	441		216	16	108	0.33		n
03-2138-069899	47-107-00351	510	*	153	18	118	0.43		spikes

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2138-069856	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	5750	5920
03-2122-068766	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	8240	8670
03-2122-068770	47-077-00099	WV	Preston	Aurora	39.26750	-79.56194	#N-1 USA (GW1374)	5050	5590
03-2122-068775	47-075-00018	WV	Pocahontas	Thornwood	38.54917	-79.68583	#L-1 USA (GW 1329)	6890	7530
03-2138-069881	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	7770	7895
03-2031-061831	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	8500	8600
03-2049-062529	37-123-20150	PA	Warren	Cobham	41.65390	-79.36919	#1 Shaw	4635	4695
03-2049-062504	37-085-20036	PA	Mercer	Jackson Center	41.35126	-80.17643	#1 Temple	4150	4190
03-2031-061835	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6020	6060
03-2049-062492	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	5250	5450
03-2049-062498	37-083-90004	PA	McKean	Port Allegany	41.84989	-78.33858	#2 Nunn	4631	4682
03-2049-062501	37-085-20004	PA	Mercer	Sharpsville	41.31989	-80.46161	#1 McKnight	3400	3550
03-2138-069882	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	7895	8180
03-2138-069857	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	5920	6200
03-2138-069875	47-099-00162	WV	Wayne	Louisa	38.03722	-82.51778	#3 Glenhayes (559)	3000	3190
03-2122-068784	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	5850	6100
03-2138-069887	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	2408	2745
03-2122-068753	47-019-00123	WV	Fayette	Winona	38.10944	-80.93250	#1 Foulke Meadow	7420	7710
03-2049-062488	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	7900	8070
03-2049-062484	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	8540	8620
03-2049-062510	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	6600	6770
03-2122-068792	47-083-00102	WV	Randolph	Mill Creek	38.69639	-79.95250	WV Board of Control (10182)	3300	4150
03-2031-061816	37-003-90000	PA	Allegheny	Glenshaw	40.59995	-79.91389	#5 Backhaus	6845	6885
03-2031-061822	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	4820	4850
03-2031-061823	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	4950	5000
03-2031-061829	37-019-90063	PA	Butler	Slippery Rock	41.10660	-80.04028	#1 Jesse Hockenberry	5017	5221
03-2031-061826	37-019-21023	PA	Butler	Parker	41.04381	-79.72211	#1 J.S. Walker	5800	5950
03-2031-061836	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6110	6160
03-2031-061841	37-031-20592	PA	Clarion	Knox	41.21130	-79.59133	Howard	5740	5800
03-2031-061845	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3090	3160
03-2031-061849	37-039-20018	PA	Crawford	Conneautville	41.78082	-80.36321	#1 J. Lehman	2605	2670
03-2031-061858	37-049-20030	PA	Erie	Wattsburg	42.08383	-79.86391	#1 James Henderson	2760	2850
03-2031-061861	37-049-20109	PA	Erie	Erie North	42.14279	-80.04720	#2 Hammermill	1800	1880
03-2031-061864	37-053-20903	PA	Forest	Tylersburg	41.48463	-79.29678	#1 Collins-Clinger	5300	5390
03-2049-062524	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	4950	5150
03-2049-062499	37-083-90004	PA	McKean	Port Allegany	41.84989	-78.33858	#2 Nunn	4753	4822
03-2049-062507	37-085-90010	PA	Mercer	Sandy Lake	41.27245	-80.03601	#1 Davidson	4440	4516
03-2031-061852	37-039-20188	PA	Crawford	Edinboro South	41.82400	-80.18721	#1 Flanick & Buckoski	3030	3160
03-2049-062530	37-123-20609	PA	Warren	Russell	41.95339	-79.20122	#1 Marsh-Childs	3850	3920
03-2049-062533	37-123-90000	PA	Warren	Tidioute	41.64361	-79.42325	#1 Proper	4578	4651
03-2031-061846	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3260	3310
03-2049-062486	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	10010	10110
03-2049-062505	37-085-20036	PA	Mercer	Jackson Center	41.35126	-80.17643	#1 Temple	4750	4800
03-2049-062493	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	5580	5700

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2138-069856	47-085-01894	Helderberg Ls/Bass Islands Dolo	0.24	cuttings	0.17	0.16	0.27
03-2122-068766	47-077-00086	Helderberg Ls/Salina Gp	0.66	cuttings	1.81	1.47	0.17
03-2122-068770	47-077-00099	Helderberg Ls/Salina Gp	0.26	cuttings	0.06	0.08	0.28
03-2122-068775	47-075-00018	Helderberg Ls/Tonoloway Ls	0.15	cuttings	0.33	0.21	0.10
03-2138-069881	47-033-00079	Bass Islands Dolomite	0.10	cuttings	0.04	0.08	0.10
03-2031-061831	37-027-20006	Bass Islands Dolomite	0.23	cuttings	0.11	0.06	0.12
03-2049-062529	37-123-20150	Bass Islands Dolomite	0.19	cuttings	0.19	0.27	0.24
03-2049-062504	37-085-20036	Bass Islands Dolomite	0.27	cuttings	0.37	0.63	0.81
03-2031-061835	37-031-20168	Bass Islands Dolo/Camillus Sh	0.53	cuttings	0.51	0.64	0.67
03-2049-062492	37-083-22529	Bass Islands Dolo/Camillus Sh	0.22	cuttings	0.24	0.33	0.37
03-2049-062498	37-083-90004	Bass Islands Dolo/Camillus Sh	0.32	cuttings	0.18	0.20	0.21
03-2049-062501	37-085-20004	Bass Islands Dolo/Camillus Sh	0.29	cuttings	0.31	0.45	0.58
03-2138-069882	47-033-00079	Bass Islands Dolo/Salina Gp	0.11	cuttings	0.02	0.03	0.09
03-2138-069857	47-085-01894	Bass Islands Dolo/Salina Gp	0.23	cuttings	0.23	0.21	0.06
03-2138-069875	47-099-00162	Bass Islands Dolo/Salina Gp	0.18	cuttings	0.05	0.16	0.14
03-2122-068784	47-087-01200	Bass Islands Dolo/Salina Gp	0.23	cuttings	0.32	0.39	0.10
03-2138-069887	47-083-00001	Bass Islands Dolo/Tonoloway Ls	0.10	cuttings	0.01	0.01	0.17
03-2122-068753	47-019-00123	Bass Islands Dolo/Tonoloway Ls	0.24	cuttings	0.03	0.03	0.44
03-2049-062488	37-081-20028	Bass Islands Dolo/Tonoloway Ls	0.17	cuttings	0.07	0.05	0.04
03-2049-062484	37-051-20056	Keyser Limestone	0.20	cuttings	4.34	1.30	0.34
03-2049-062510	37-105-20182	Keyser Ls/Camillus Sh	0.15	cuttings	0.06	0.04	0.25
03-2122-068792	47-083-00102	Keyser Ls/ Tonoloway Ls/Wills Creek Fm	0.10	cuttings	0.01	0.05	0.06
03-2031-061816	37-003-90000	Camillus Shale	0.28	cuttings	0.06	0.05	0.01
03-2031-061822	37-007-20054	Camillus Shale	0.17	cuttings	0.18	0.32	1.09
03-2031-061823	37-007-20054	Camillus Shale	0.25	cuttings	0.25	0.30	1.53
03-2031-061829	37-019-90063	Camillus Shale	0.20	cuttings	0.06	0.07	0.05
03-2031-061826	37-019-21023	Camillus Shale	2.78	cuttings	1.69	2.06	0.73
03-2031-061836	37-031-20168	Camillus Shale	0.30	cuttings	0.31	0.20	0.25
03-2031-061841	37-031-20592	Camillus Shale	0.29	cuttings	0.19	0.16	0.32
03-2031-061845	37-039-20007	Camillus Shale	0.28	cuttings	0.33	0.74	0.41
03-2031-061849	37-039-20018	Camillus Shale	0.15	cuttings	0.10	0.22	0.09
03-2031-061858	37-049-20030	Camillus Shale	0.24	cuttings	0.16	0.24	0.13
03-2031-061861	37-049-20109	Camillus Shale	0.19	cuttings	0.14	0.14	0.07
03-2031-061864	37-053-20903	Camillus Shale	0.78	cuttings	0.45	0.54	0.30
03-2049-062524	37-121-23657	Camillus Shale	0.17	cuttings	0.19	0.34	0.26
03-2049-062499	37-083-90004	Camillus Shale	0.25	cuttings	0.18	0.17	0.17
03-2049-062507	37-085-90010	Camillus Shale	0.21	cuttings	0.20	0.16	0.19
03-2031-061852	37-039-20188	Camillus Shale	0.25	cuttings	0.39	0.54	0.40
03-2049-062530	37-123-20609	Camillus Shale	0.22	cuttings	0.16	0.43	0.25
03-2049-062533	37-123-90000	Camillus Shale	0.23	cuttings	0.30	0.33	0.32
03-2031-061846	37-039-20007	Syracuse Salt	0.26	cuttings	0.24	0.53	0.34
03-2049-062486	37-051-20056	Syracuse Salt	0.41	cuttings	0.21	0.27	0.62
03-2049-062505	37-085-20036	Syracuse Salt	0.36	cuttings	0.36	0.50	0.61
03-2049-062493	37-083-22529	Syracuse Salt	0.21	cuttings	0.22	0.17	0.41

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2138-069856	47-085-01894	416	*	67	113	71	0.52	c	n
03-2122-068766	47-077-00086	354		223	26	274	0.55		n
03-2122-068770	47-077-00099	310	*	31	108	23	0.43		n
03-2122-068775	47-075-00018	418	*	140	67	220	0.61		n
03-2138-069881	47-033-00079	435	*	80	100	40	0.33		n
03-2031-061831	37-027-20006	366	*	26	51	47	0.65	c	f
03-2049-062529	37-123-20150	431	*	144	128	101	0.41		n
03-2049-062504	37-085-20036	399		234	300	137	0.37		n/a
03-2031-061835	37-031-20168	424		121	127	97	0.44		n
03-2049-062492	37-083-22529	423	*	153	172	112	0.42		n
03-2049-062498	37-083-90004	401	*	62	65	56	0.47		n
03-2049-062501	37-085-20004	435	*	156	202	108	0.41		n/a
03-2138-069882	47-033-00079	434	*	27	82	18	0.40		n
03-2138-069857	47-085-01894	340	*	91	26	100	0.52		n
03-2138-069875	47-099-00162	438	*	89	78	28	0.24		n
03-2122-068784	47-087-01200	433	*	170	43	139	0.45		n
03-2138-069887	47-083-00001	430	*	10	170	10	0.50		n
03-2122-068753	47-019-00123	432	*	12	183	12	0.50		n
03-2049-062488	37-081-20028	376	*	29	23	41	0.58		n
03-2049-062484	37-051-20056	320		635	166	2120	0.77		n; ltS2p
03-2049-062510	37-105-20182	393	*	27	169	41	0.60		n
03-2122-068792	47-083-00102	374	*	50	60	10	0.17		f
03-2031-061816	37-003-90000	329	*	18	4	22	0.55	c	f
03-2031-061822	37-007-20054	420	*	192	653	108	0.36		n
03-2031-061823	37-007-20054	394	*	121	617	101	0.45		n
03-2031-061829	37-019-90063	467	*	35	25	30	0.46		f
03-2031-061826	37-019-21023	441		74	26	61	0.45	c; lc	n; ltS2sh
03-2031-061836	37-031-20168	415	*	67	83	103	0.61	c	n
03-2031-061841	37-031-20592	397	*	56	112	66	0.54		n
03-2031-061845	37-039-20007	439		266	148	119	0.31		n
03-2031-061849	37-039-20018	437	*	146	60	66	0.31		n
03-2031-061858	37-049-20030	434	*	101	55	67	0.40		n
03-2031-061861	37-049-20109	432	*	72	36	72	0.50		n
03-2031-061864	37-053-20903	440		69	38	58	0.45		n
03-2049-062524	37-121-23657	427	*	203	155	114	0.36		n
03-2049-062499	37-083-90004	443	*	67	67	71	0.51		n
03-2049-062507	37-085-90010	415	*	76	90	94	0.56		n/a
03-2031-061852	37-039-20188	394		217	161	157	0.42	c	n
03-2049-062530	37-123-20609	434	*	196	114	73	0.27		n
03-2049-062533	37-123-90000	431	*	143	139	130	0.48		n
03-2031-061846	37-039-20007	441		200	129	91	0.31		n
03-2049-062486	37-051-20056	403	*	67	153	52	0.44		n
03-2049-062505	37-085-20036	419		139	170	100	0.42		n/a
03-2049-062493	37-083-22529	404	*	80	194	104	0.56		n

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2049-062518	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	9800	10000
03-2049-062511	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	7320	7420
03-2049-062512	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	7600	7660
03-2031-061837	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6320	6380
03-2031-061817	37-003-90000	PA	Allegheny	Glenshaw	40.59995	-79.91389	#5 Backhaus	7000	7110
03-2049-062489	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	8640	8770
03-2031-061818	37-003-90000	PA	Allegheny	Glenshaw	40.59995	-79.91389	#5 Backhaus	7300	7465
03-2031-061827	37-019-21023	PA	Butler	Parker	41.04381	-79.72211	#1 J.S. Walker	6600	6675
03-2031-061838	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	6740	6800
03-2031-061855	37-039-20468	PA	Crawford	Centerville	41.65623	-79.86645	#1 Eager Beaver Lumber	4690	4720
03-2031-061857	37-047-90175	PA	Elk	James City	41.59796	-78.83005	#3737 Warrant 3788	6085	6140
03-2031-061862	37-049-20109	PA	Erie	Erie North	42.14279	-80.04720	#2 Hammermill	2000	2130
03-2031-061865	37-053-20903	PA	Forest	Tylersburg	41.48463	-79.29678	#1 Collins-Clinger	5800	5910
03-2049-062494	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	6050	6120
03-2049-062496	37-083-27520	PA	McKean	Cornplanter Run	41.98697	-78.91703	#1 Kewanee Warrant 3703	4390	4460
03-2049-062508	37-085-90010	PA	Mercer	Sandy Lake	41.27245	-80.03601	#1 Davidson	5150	5200
03-2049-062513	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	8140	8330
03-2049-062515	37-105-20467	PA	Potter	Keating Summit	41.64375	-78.18990	#1 PA Tract 204	7060	7100
03-2049-062522	37-121-22642	PA	Venango	Franklin	41.41420	-79.80935	#348 Grant Fee	5150	5200
03-2049-062525	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	5580	5680
03-2049-062531	37-123-20609	PA	Warren	Russell	41.95339	-79.20122	#1 Marsh-Childs	4150	4230
03-2049-062534	37-123-90000	PA	Warren	Tidioute	41.64361	-79.42325	#1 Proper	5037	5128
03-2049-062516	37-105-20467	PA	Potter	Keating Summit	41.64375	-78.18990	#1 PA Tract 204	7350	7400
03-2031-061847	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3700	3760
03-2093-067052	34-089-22520	OH	Licking	Hopewell	39.99818	-82.21672	#1 Paul et. al.	2637	2692
03-2093-067026	34-169-23428	OH	Wayne	Sugar Creek	40.73207	-81.65949	#1 Anstutz	3360	3410
03-2122-068748	34-059-21843	OH	Guernsey	Spencer	39.85292	-81.59625	#2 Young	4485	
03-2093-067055	34-169-21839	OH	Wayne	Wooster	40.79799	-81.99408	#1 Grossniklaus	2707	2746
03-2093-067035	34-157-21048	OH	Tuscarawas	Warwick	40.41153	-81.43111	#1-C Cross Creek Coal	4344	4402
03-2093-067040	34-155-20038	OH	Trumbull	Lordstown	41.13570	-80.87484	#1 Salva	4140	4180
03-2071-064465	34-019-20553	OH	Carroll	Washington	40.60648	-80.98550	#1 McAllister	5230	5270
03-2093-067053	34-169-21314	OH	Wayne	Wayne	40.89009	-81.90411	#1 Yates	2960	3020
03-2093-067050	34-059-21897	OH	Guernsey	Center	40.06305	-81.50666	#1 Brill	4540	4580
03-2122-068749	34-121-23292	OH	Noble	Jackson	39.61043	-81.49515	#2 Kraps	4708	
03-2093-067028	34-151-21193	OH	Stark	Osnaburg	40.81186	-81.29715	#1 Evergreen Park	4280	4240
03-2071-064509	34-099-20527	OH	Mahoning	Green	40.91819	-80.78975	#1 Wisler	5030	5060
03-2071-064506	34-089-22300	OH	Licking	Burlington	40.18882	-82.47552	#1 Shipley	2200	2260
03-2071-064482	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	4210	4240
03-2071-064464	34-019-20553	OH	Carroll	Washington	40.60648	-80.98550	#1 McAllister	4610	4650
03-2093-067047	34-089-22735	OH	Licking	Jersey	40.06194	-82.68467	#1 Helphrey	1638	1680
03-2122-068743	34-055-20050	OH	Geauga	Newbury	41.43589	-81.23160	#1-0 Pizzina	3370	3420
03-2093-067019	34-119-22465	OH	Muskingum	Wayne	39.90037	-81.93821	#1 Foster	3527	3580
03-2093-067046	34-089-22224	OH	Licking	Harrison	39.98427	-82.67077	#1 Atkinson	1510	1550
03-2093-067010	34-121-21429	OH	Noble	Buffalo	39.84874	-81.50209	#1 Snode	4870	4900
03-2138-069858	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	6200	6300

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2049-062518	37-111-20045	Syracuse Salt	0.21	cuttings	0.21	0.31	0.89
03-2049-062511	37-105-20182	Syracuse Salt	0.10	cuttings	0.08	0.10	0.36
03-2049-062512	37-105-20182	Syracuse Salt	0.19	cuttings	0.09	0.10	0.48
03-2031-061837	37-031-20168	Syracuse Salt	0.17	cuttings	0.13	0.14	0.30
03-2031-061817	37-003-90000	Syracuse Salt	0.36	cuttings	0.09	0.09	0.07
03-2049-062489	37-081-20028	Syracuse Salt/Wills Creek Fm	0.28	cuttings	0.07	0.18	0.26
03-2031-061818	37-003-90000	Vernon Shale	0.24	cuttings	0.08	0.06	0.09
03-2031-061827	37-019-21023	Vernon Shale	0.26	cuttings	0.19	0.16	0.23
03-2031-061838	37-031-20168	Vernon Shale	0.59	cuttings	0.11	0.32	0.66
03-2031-061855	37-039-20468	Vernon Shale	0.24	cuttings	0.18	0.24	0.34
03-2031-061857	37-047-90175	Vernon Shale	0.54	cuttings	0.18	0.23	0.27
03-2031-061862	37-049-20109	Vernon Shale	0.24	cuttings	0.20	0.16	0.16
03-2031-061865	37-053-20903	Vernon Shale	0.22	cuttings	0.14	0.09	0.09
03-2049-062494	37-083-22529	Vernon Shale	0.29	cuttings	0.22	0.24	0.57
03-2049-062496	37-083-27520	Vernon Shale	0.47	cuttings	0.44	0.38	0.41
03-2049-062508	37-085-90010	Vernon Shale	0.23	cuttings	0.14	0.16	0.22
03-2049-062513	37-105-20182	Vernon Shale	0.12	cuttings	0.16	0.16	0.45
03-2049-062515	37-105-20467	Vernon Shale	0.23	cuttings	0.14	0.37	0.55
03-2049-062522	37-121-22642	Vernon Shale	0.21	cuttings	0.67	0.26	0.60
03-2049-062525	37-121-23657	Vernon Shale	0.18	cuttings	0.13	0.27	0.47
03-2049-062531	37-123-20609	Vernon Shale	0.19	cuttings	0.08	0.07	0.35
03-2049-062534	37-123-90000	Vernon Shale	0.26	cuttings	0.41	0.49	0.35
03-2049-062516	37-105-20467	Vernon Sh/Wills Creek Fm	0.28	cuttings	0.19	0.26	0.63
03-2031-061847	37-039-20007	Vernon Sh/Lockport Dolo	0.40	cuttings	0.12	0.14	0.26
03-2093-067052	34-089-22520	Salina Group	0.11	cuttings	0.04	0.06	0.07
03-2093-067026	34-169-23428	Salina Group	0.21	cuttings	0.68	0.21	0.25
03-2122-068748	34-059-21843	Salina Group	0.11	core	0.12	0.16	0.09
03-2093-067055	34-169-21839	Salina Group	0.15	cuttings	0.26	0.33	0.29
03-2093-067035	34-157-21048	Salina Group	0.26	cuttings	0.54	0.46	0.14
03-2093-067040	34-155-20038	Salina Group	0.13	cuttings	0.25	0.17	0.14
03-2071-064465	34-019-20553	Salina Group	0.21	cuttings	0.09	0.07	0.06
03-2093-067053	34-169-21314	Salina Group	0.11	cuttings	0.10	0.06	0.04
03-2093-067050	34-059-21897	Salina Group	0.12	cuttings	0.22	0.10	0.06
03-2122-068749	34-121-23292	Salina Group	0.27	core	0.04	0.01	0.41
03-2093-067028	34-151-21193	Salina Group	0.22	cuttings	0.16	0.15	0.13
03-2071-064509	34-099-20527	Salina Group	0.18	cuttings	0.11	0.04	0.17
03-2071-064506	34-089-22300	Salina Group	0.27	cuttings	0.25	0.45	1.26
03-2071-064482	34-029-20702	Salina Group	0.21	cuttings	0.60	0.33	0.19
03-2071-064464	34-019-20553	Salina Group	0.22	cuttings	0.09	0.09	0.08
03-2093-067047	34-089-22735	Salina Group	0.13	cuttings	0.14	0.26	0.09
03-2122-068743	34-055-20050	Salina Group	0.22	cuttings	0.20	0.17	0.24
03-2093-067019	34-119-22465	Salina Group	0.20	cuttings	0.16	0.35	0.14
03-2093-067046	34-089-22224	Salina Group	0.19	cuttings	0.39	0.76	0.15
03-2093-067010	34-121-21429	Salina Group	0.29	cuttings	0.20	0.13	0.03
03-2138-069858	47-085-01894	Salina Group	0.38	cuttings	0.16	0.12	0.41

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2049-062518	37-111-20045	383	*	145	418	99	0.40	lc	n
03-2049-062511	37-105-20182	505	*	102	369	82	0.44	c	n
03-2049-062512	37-105-20182	450	*	53	256	48	0.47		n
03-2031-061837	37-031-20168	337	*	82	175	76	0.48	c	n
03-2031-061817	37-003-90000	379	*	25	19	25	0.50		f
03-2049-062489	37-081-20028	433	*	64	93	25	0.28	c	n
03-2031-061818	37-003-90000	384	*	25	37	33	0.57		f
03-2031-061827	37-019-21023	465	*	61	88	73	0.54		n
03-2031-061838	37-031-20168	407	*	54	112	19	0.26		n
03-2031-061855	37-039-20468	361	*	101	142	75	0.43		n
03-2031-061857	37-047-90175	437	*	43	50	33	0.44		n
03-2031-061862	37-049-20109	427	*	66	66	82	0.56		n
03-2031-061865	37-053-20903	431	*	40	40	63	0.61	c	n
03-2049-062494	37-083-22529	419	*	84	199	77	0.48		n
03-2049-062496	37-083-27520	357	*	81	88	94	0.54		n
03-2049-062508	37-085-90010	399	*	69	95	61	0.47		n/a
03-2049-062513	37-105-20182	393	*	131	369	131	0.50		n
03-2049-062515	37-105-20467	423	*	163	242	62	0.27		n
03-2049-062522	37-121-22642	387	*	123	284	317	0.72		n
03-2049-062525	37-121-23657	418	*	149	259	72	0.32		n
03-2049-062531	37-123-20609	390	*	38	189	43	0.53		n
03-2049-062534	37-123-90000	425	*	188	134	157	0.46		n
03-2049-062516	37-105-20467	415	*	94	227	68	0.42	c	n
03-2031-061847	37-039-20007	433	*	35	66	30	0.46		n
03-2093-067052	34-089-22520	432	*	55	64	36	0.40		n
03-2093-067026	34-169-23428	437	*	100	119	324	0.76		n
03-2122-068748	34-059-21843	441	*	145	82	109	0.43		n
03-2093-067055	34-169-21839	434	*	220	193	173	0.44		n
03-2093-067035	34-157-21048	439	*	177	54	208	0.54		n
03-2093-067040	34-155-20038	411	*	131	108	192	0.60	c	n
03-2071-064465	34-019-20553	373	*	33	29	43	0.56		n
03-2093-067053	34-169-21314	424	*	55	36	91	0.63		n
03-2093-067050	34-059-21897	394	*	83	50	183	0.69		n
03-2122-068749	34-121-23292	486	*	4	152	15	0.80		n
03-2093-067028	34-151-21193	436	*	68	59	73	0.52		n
03-2071-064509	34-099-20527	343	*	22	94	61	0.73		n
03-2071-064506	34-089-22300	496	*	167	467	93	0.36		n
03-2071-064482	34-029-20702	426	*	157	90	286	0.65		n
03-2071-064464	34-019-20553	380	*	41	36	41	0.50		n
03-2093-067047	34-089-22735	435	*	200	69	108	0.35		n
03-2122-068743	34-055-20050	405	*	77	109	91	0.54	c	n
03-2093-067019	34-119-22465	436	*	175	70	80	0.31	c	n
03-2093-067046	34-089-22224	429		400	79	205	0.34	c	n
03-2093-067010	34-121-21429	390	*	45	10	69	0.61		n
03-2138-069858	47-085-01894	372	*	32	108	42	0.57		n

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2138-069863	47-059-00879	WV	Mingo	Wilsondale	37.88361	-82.26222	Huntington Realty (20500-T)	4050	4200
03-2138-069861	47-061-00307	WV	Monongalia	Masontown	39.56417	-79.87306	#A-1 May	9070	9430
03-2138-069864	47-059-00879	WV	Mingo	Wilsondale	37.88361	-82.26222	Huntington Realty (20500-T)	4240	4420
03-2138-069868	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	5440	5660
03-2138-069859	47-085-01894	WV	Ritchie	Willow Island	39.27973	-81.25250	Elliott (10160)	6300	6770
03-2138-069872	47-099-01040	WV	Wayne	Radnor	38.04306	-82.46194	UFG Tract 1 (8181)	3261	3596
03-2138-069876	47-099-00162	WV	Wayne	Louisa	38.03722	-82.51778	#3 Glenhayes (559)	3190	3367
03-2138-069878	47-015-00513	WV	Clay	Clendenin	38.45305	-81.26389	UFG (8000-T)	6170	6505
03-2138-069883	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	8300	8550
03-2138-069897	47-107-00351	WV	Wood	Willow Island	39.25695	-81.27250	Power Oil Co. (9634)	6460	6700
03-2138-069900	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3121	3281
03-2138-069901	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3281	3425
03-2138-069902	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3425	3566
03-2122-068750	47-099-00465	WV	Wayne	Webb	37.89222	-82.39389	#42 (6161) Caldwell	3270	3430
03-2122-068756	47-087-01705	WV	Roane	Looneyville	38.67778	-81.30139	#3 Dougherty	6150	6560
03-2122-068758	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	7970	8180
03-2071-064483	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	4950	5000
03-2122-068762	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5250	5305
03-2122-068763	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5305	5435
03-2122-068764	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5435	5600
03-2122-068765	47-029-00080	WV	Hancock	East Liverpool South	40.53972	-80.55611	Minesinger	5740	6200
03-2122-068767	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	8670	8860
03-2122-068780	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	5550	5735
03-2122-068781	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	5735	5920
03-2122-068788	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	5850	6010
03-2122-068745	34-055-20038	OH	Geauga	Newbury	41.42692	-81.26057	#1-0 Frohring	3470	3500
03-2071-064491	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	5720	5760
03-2122-068789	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	6050	6260
03-2138-069898	47-107-00351	WV	Wood	Willow Island	39.25695	-81.27250	Power Oil Co. (9634)	6700	6900
03-2122-068759	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	8600	8900
03-2122-068768	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	8910	9110
03-2122-068771	47-077-00099	WV	Preston	Aurora	39.26750	-79.56194	#N-1 USA (GW1374)	5600	6100
03-2138-069865	47-053-00069	WV	Mason	Arlee	38.71390	-82.11723	Arrington (8803)	3530	3950
03-2138-069867	47-055-00014	WV	Mercer	Bluefield	37.35611	-81.18611	#H-1 Wilson	8000	8550
03-2138-069869	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	5650	5980
03-2138-069904	47-005-00612	WV	Boone	Madison	38.11417	-81.82945	Allen & Pryor 41 (675)	4480	4920
03-2122-068751	47-099-00465	WV	Wayne	Webb	37.89222	-82.39389	#42 (6161) Caldwell	3490	3670
03-2122-068757	47-087-01705	WV	Roane	Looneyville	38.67778	-81.30139	#3 Dougherty	6560	6800
03-2122-068752	47-025-00020	WV	Greenbrier	Cornstalk	37.92722	-80.54667	#9546 Bryant	6880	7610
03-2122-068782	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	5920	6215
03-2122-068785	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	6200	6500
03-2138-069873	47-099-01040	WV	Wayne	Radnor	38.04306	-82.46194	UFG Tract 1 (8181)	3660	3905
03-2138-069877	47-099-00162	WV	Wayne	Louisa	38.03722	-82.51778	#3 Glenhayes (559)	3367	3830
03-2138-069879	47-015-00513	WV	Clay	Clendenin	38.45305	-81.26389	UFG (8000-T)	6510	7130
03-2049-062517	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	9080	9200
03-2049-062485	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	8900	9260

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2138-069863	47-059-00879	Salina Group	0.24	cuttings	0.24	0.41	0.18
03-2138-069861	47-061-00307	Salina Group	0.54	cuttings	0.27	0.62	0.29
03-2138-069864	47-059-00879	Salina Group	0.27	cuttings	0.14	0.21	0.08
03-2138-069868	47-039-01684	Salina Group	0.20	cuttings	0.31	0.37	0.04
03-2138-069859	47-085-01894	Salina Group	0.22	cuttings	0.14	0.13	0.16
03-2138-069872	47-099-01040	Salina Group	0.27	cuttings	0.23	0.45	0.21
03-2138-069876	47-099-00162	Salina Group	0.26	cuttings	0.06	0.12	0.10
03-2138-069878	47-015-00513	Salina Group	0.24	cuttings	0.23	0.26	0.14
03-2138-069883	47-033-00079	Salina Group	0.20	cuttings	0.05	0.09	0.11
03-2138-069897	47-107-00351	Salina Group	0.15	cuttings	0.23	0.22	0.12
03-2138-069900	47-099-01546	Salina Group	0.16	cuttings	0.30	0.38	0.10
03-2138-069901	47-099-01546	Salina Group	0.14	cuttings	0.25	0.32	0.02
03-2138-069902	47-099-01546	Salina Group	0.13	cuttings	0.24	0.25	0.05
03-2122-068750	47-099-00465	Salina Group	0.21	cuttings	0.07	0.08	0.15
03-2122-068756	47-087-01705	Salina Group	0.21	cuttings	0.06	0.10	0.22
03-2122-068758	47-049-00244	Salina Group	0.30	cuttings	0.83	0.35	0.12
03-2071-064483	34-029-20702	Salina Group	0.28	cuttings	0.34	0.18	0.24
03-2122-068762	47-029-00080	Salina Group	0.20	cuttings	0.18	0.17	0.17
03-2122-068763	47-029-00080	Salina Group	1.19	cuttings	1.36	0.86	1.32
03-2122-068764	47-029-00080	Salina Group	0.93	cuttings	0.95	0.62	0.38
03-2122-068765	47-029-00080	Salina Group	0.28	cuttings	0.14	0.10	0.20
03-2122-068767	47-077-00086	Salina Group	0.98	cuttings	0.50	2.28	0.16
03-2122-068780	47-035-00227	Salina Group	0.11	cuttings	0.09	0.16	0.02
03-2122-068781	47-035-00227	Salina Group	0.10	cuttings	0.06	0.07	0.05
03-2122-068788	47-087-00714	Salina Group	0.32	cuttings	0.40	0.57	0.13
03-2122-068745	34-055-20038	Salina Group	0.29	cuttings	0.24	0.35	0.11
03-2071-064491	34-067-20567	Salina Group	0.24	cuttings	0.11	0.12	0.11
03-2122-068789	47-087-00714	Salina Group	0.43	cuttings	0.24	0.33	0.32
03-2138-069898	47-107-00351	Salina Gp/Wills Creek Fm	0.25	cuttings	0.27	0.54	0.04
03-2122-068759	47-049-00244	Salina Gp/Wills Creek Fm	0.20	cuttings	0.05	0.05	0.10
03-2122-068768	47-077-00086	Salina Gp/Wills Creek Fm	3.35	cuttings	1.03	10.08	1.68
03-2122-068771	47-077-00099	Salina Gp/Wills Creek Fm	0.21	cuttings	0.11	0.10	0.28
03-2138-069865	47-053-00069	Salina Gp/McKenzie Ls	0.38	cuttings	0.34	0.78	0.24
03-2138-069867	47-055-00014	Salina Gp/McKenzie Ls	0.91	cuttings	0.40	0.95	0.46
03-2138-069869	47-039-01684	Salina Gp/McKenzie Ls	0.54	cuttings	0.55	0.63	0.24
03-2138-069904	47-005-00612	Salina Gp/McKenzie Ls	0.13	cuttings	0.16	0.11	0.10
03-2122-068751	47-099-00465	Salina Gp/McKenzie Ls	0.20	cuttings	0.06	0.03	0.27
03-2122-068757	47-087-01705	Salina Gp/McKenzie Ls	0.20	cuttings	0.04	0.03	0.10
03-2122-068752	47-025-00020	Salina Gp/McKenzie Ls	0.25	cuttings	0.10	0.17	0.08
03-2122-068782	47-035-00227	Salina Gp/McKenzie Ls	0.10	cuttings	0.04	0.11	0.04
03-2122-068785	47-087-01200	Salina Gp/McKenzie Ls	0.28	cuttings	0.34	0.42	0.22
03-2138-069873	47-099-01040	Salina Gp/McKenzie Ls	0.15	cuttings	0.17	0.19	0.09
03-2138-069877	47-099-00162	Salina Gp/McKenzie Ls	0.16	cuttings	0.10	0.24	0.03
03-2138-069879	47-015-00513	Salina Gp/McKenzie Ls	0.50	cuttings	0.33	1.00	0.12
03-2049-062517	37-111-20045	Tonoloway Limestone	0.14	cuttings	0.17	0.33	1.02
03-2049-062485	37-051-20056	Tonoloway Limestone	0.17	cuttings	0.14	0.13	0.38

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2138-069863	47-059-00879	439	*	171	75	100	0.37		n
03-2138-069861	47-061-00307	426		115	54	50	0.30		n
03-2138-069864	47-059-00879	439	*	78	30	52	0.40		n
03-2138-069868	47-039-01684	439	*	185	20	155	0.46		n
03-2138-069859	47-085-01894	424	*	59	73	64	0.52		n
03-2138-069872	47-099-01040	439	*	167	78	85	0.34		n
03-2138-069876	47-099-00162	437	*	46	38	23	0.33		n
03-2138-069878	47-015-00513	438	*	108	58	96	0.47	c	n
03-2138-069883	47-033-00079	438	*	45	55	25	0.36		n
03-2138-069897	47-107-00351	438	*	147	80	153	0.51		n
03-2138-069900	47-099-01546	437	*	237	63	188	0.44	c	n
03-2138-069901	47-099-01546	433	*	229	14	179	0.44		n
03-2138-069902	47-099-01546	433	*	192	38	185	0.49		n
03-2122-068750	47-099-00465	422	*	38	71	33	0.47		n
03-2122-068756	47-087-01705	404	*	48	105	29	0.37		n
03-2122-068758	47-049-00244	396	*	117	40	277	0.70		n
03-2071-064483	34-029-20702	424	*	64	86	121	0.65		n
03-2122-068762	47-029-00080	447	*	85	85	90	0.51		n
03-2122-068763	47-029-00080	420		72	111	114	0.61		n
03-2122-068764	47-029-00080	409		67	41	102	0.61		n
03-2122-068765	47-029-00080	453	*	36	71	50	0.58		n
03-2122-068767	47-077-00086	418		233	16	51	0.18		n
03-2122-068780	47-035-00227	420	*	145	18	82	0.36		n
03-2122-068781	47-035-00227	392	*	70	50	60	0.46		n
03-2122-068788	47-087-00714	428		178	41	125	0.41		n
03-2122-068745	34-055-20038	401	*	121	38	83	0.41		n
03-2071-064491	34-067-20567	425	*	50	46	46	0.48		n
03-2122-068789	47-087-00714	430	*	77	74	56	0.42		n
03-2138-069898	47-107-00351	441		216	16	108	0.33		n
03-2122-068759	47-049-00244	358	*	25	50	25	0.50		n
03-2122-068768	47-077-00086	427		301	50	31	0.09	c	n
03-2122-068771	47-077-00099	378	*	48	133	52	0.52	c	n
03-2138-069865	47-053-00069	434		205	63	89	0.30		n
03-2138-069867	47-055-00014	440		104	51	44	0.30		n
03-2138-069869	47-039-01684	433		117	44	102	0.47		n
03-2138-069904	47-005-00612	469	*	85	77	123	0.59		n
03-2122-068751	47-099-00465	343	*	15	135	30	0.67		n
03-2122-068757	47-087-01705	394	*	15	50	20	0.57		n
03-2122-068752	47-025-00020	428	*	68	32	40	0.37		n
03-2122-068782	47-035-00227	409	*	110	40	40	0.27		n
03-2122-068785	47-087-01200	425	*	150	79	121	0.45		n
03-2138-069873	47-099-01040	433	*	127	60	113	0.47		n
03-2138-069877	47-099-00162	441	*	150	19	63	0.29		n
03-2138-069879	47-015-00513	431		200	24	66	0.25		n
03-2049-062517	37-111-20045	415	*	240	741	123	0.34		n
03-2049-062485	37-051-20056	386	*	76	223	82	0.52		n

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(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2138-069888	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	2745	3120
03-2138-069893	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	1390	1600
03-2138-069894	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	1800	2000
03-2122-068777	47-031-00003	WV	Hardy	Needmore	39.00277	-78.85000	Baughman (9058-T)	7460	8150
03-2138-069895	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	2150	2500
03-2122-068773	47-083-00101	WV	Randolph	Glady	38.78556	-79.69861	#2 Hill Arnold (GW 1293)	5700	6300
03-2122-068778	47-031-00003	WV	Hardy	Needmore	39.00277	-78.85000	Baughman (9058-T)	8150	8450
03-2138-069905	47-019-00241	WV	Fayette	Winona	38.11361	-80.98528	Nutall Estate (2000T)	7580	8110
03-2122-068754	47-019-00123	WV	Fayette	Winona	38.10944	-80.93250	#1 Foulke Meadow	7760	7930
03-2122-068776	47-075-00018	WV	Pocahontas	Thornwood	38.54917	-79.68583	#L-1 USA (GW 1329)	7530	8300
03-2031-061819	37-005-21201	PA	Armstrong	Distant	40.88483	-79.34708	#1 Nellie Martin	8050	8120
03-2031-061824	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	5610	5650
03-2031-061832	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	9000	9170
03-2049-062490	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	9160	9290
03-2049-062519	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	10220	10330
03-2031-061843	37-031-20672	PA	Clarion	Kossuth	41.32850	-79.53026	#2 UNG	6230	6360
03-2138-069889	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3120	3280
03-2138-069884	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	8640	8750
03-2138-069862	47-061-00307	WV	Monongalia	Masontown	39.56417	-79.87306	#A-1 May	9600	10100
03-2049-062487	37-051-20056	PA	Fayette	Brownfield	39.84356	-79.65349	#1 EC Ricks	10470	10600
03-2138-069885	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	8880	9000
03-2138-069890	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3430	3544
03-2138-069896	47-025-00012	WV	Hampshire	Springfield	39.49444	-78.63667	#1 Duckworth	2550	2870
03-2138-069899	47-107-00351	WV	Wood	Willow Island	39.25695	-81.27250	Power Oil Co. (9634)	6900	7100
03-2122-068760	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	8930	9300
03-2122-068769	47-077-00086	WV	Preston	Newburg	39.46667	-79.87028	#1-A Walls	9110	9630
03-2122-068774	47-083-00101	WV	Randolph	Glady	38.78556	-79.69861	#2 Hill Arnold (GW 1293)	6300	6740
03-2122-068772	47-077-00099	WV	Preston	Aurora	39.26750	-79.56194	#N-1 USA (GW1374)	6150	6570
03-2122-068779	47-031-00003	WV	Hardy	Needmore	39.00277	-78.85000	Baughman (9058-T)	8450	9190
03-2122-068793	47-083-00103	WV	Randolph	Mill Creek	38.70722	-79.96917	WV Board of Control (10228)	4150	4660
03-2071-064510		NY	Niagara	Niagara	43.11611	-78.96083	NI-5 corehole	76	76
03-2071-064511		NY	Niagara	Niagara	43.11611	-78.96083	NI-5 corehole	81	81
03-2071-064512		NY	Niagara	Lewiston	43.14278	-78.92611	LW-2 corehole	38	38
03-2071-064513		NY	Niagara	Lewiston	43.14278	-78.92611	LW-2 corehole	45	45
03-2031-061828	37-019-21023	PA	Butler	Parker	41.04381	-79.72211	#1 J.S. Walker	6720	6805
03-2049-062509	37-085-90010	PA	Mercer	Sandy Lake	41.27245	-80.03601	#1 Davidson	5300	5330
03-2049-062523	37-121-22642	PA	Venango	Franklin	41.41420	-79.80935	#348 Grant Fee	5640	5680
03-2049-062526	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	5800	5950
03-2049-062502	37-085-20004	PA	Mercer	Sharpsville	41.31989	-80.46161	#1 McKnight	4345	4400
03-2031-061839	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	7330	7380
03-2049-062500	37-083-90004	PA	McKean	Port Allegany	41.84989	-78.33858	#2 Nunn	6062	6150
03-2031-061860	37-049-20040	PA	Erie	Fairview SW	42.01422	-80.44298	#1 PA Forest & Waters Block 1	2350	2400
03-2031-061863	37-049-20109	PA	Erie	Erie North	42.14279	-80.04720	#2 Hammermill	2210	2410
03-2031-061820	37-005-21201	PA	Armstrong	Distant	40.88483	-79.34708	#1 Nellie Martin	8500	8650
03-2049-062520	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	10560	10870

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2138-069888	47-083-00001	Tonoloway Limestone	0.12	cuttings	0.03	0.03	0.12
03-2138-069893	47-025-00012	Tonoloway Limestone	0.23	cuttings	0.09	0.08	0.29
03-2138-069894	47-025-00012	Tonoloway Limestone	0.15	cuttings	0.15	0.38	0.02
03-2122-068777	47-031-00003	Tonoloway Limestone	0.11	cuttings	0.09	0.09	0.02
03-2138-069895	47-025-00012	Tonoloway Ls/Wills Creek Fm	0.12	cuttings	0.15	0.16	0.08
03-2122-068773	47-083-00101	Tonoloway Ls/Wills Creek Fm	0.36	cuttings	0.43	0.49	0.06
03-2122-068778	47-031-00003	Tonoloway Ls/Wills Creek Fm	0.11	cuttings	0.13	0.12	0.10
03-2138-069905	47-019-00241	Tonoloway Ls/Wills Creek Fm/McKenzie Ls	0.20	cuttings	0.24	0.56	0.04
03-2122-068754	47-019-00123	Tonoloway Ls/McKenzie Ls	0.26	cuttings	1.13	0.32	0.22
03-2122-068776	47-075-00018	Tonoloway Ls/Rose Hill Fm	0.95	cuttings	0.42	0.84	0.52
03-2031-061819	37-005-21201	Wills Creek Fm	0.25	cuttings	0.08	0.07	0.36
03-2031-061824	37-007-20054	Wills Creek Fm	0.27	cuttings	0.35	0.44	1.69
03-2031-061832	37-027-20006	Wills Creek Fm	0.41	cuttings	0.16	0.08	0.21
03-2049-062490	37-081-20028	Wills Creek Fm	0.26	cuttings	0.04	0.07	0.60
03-2049-062519	37-111-20045	Wills Creek Fm	0.77	cuttings	0.35	0.68	1.46
03-2031-061843	37-031-20672	Wills Creek Fm	0.34	cuttings	0.31	0.37	1.04
03-2138-069889	47-083-00001	Wills Creek Fm	0.19	cuttings	0.06	0.18	0.12
03-2138-069884	47-033-00079	Wills Creek Fm	0.12	cuttings	0.02	0.10	0.06
03-2138-069862	47-061-00307	Wills Creek Fm/McKenzie Ls	1.04	cuttings	2.32	1.84	0.71
03-2049-062487	37-051-20056	Wills Creek Fm/McKenzie Ls	0.19	cuttings	0.71	0.92	0.72
03-2138-069885	47-033-00079	Wills Creek Fm/McKenzie Ls	0.13	cuttings	0.03	0.03	0.08
03-2138-069890	47-083-00001	Wills Creek Fm/McKenzie Ls	0.10	cuttings	0.03	0.03	0.03
03-2138-069896	47-025-00012	Wills Creek Fm/McKenzie Ls	0.13	cuttings	0.24	0.28	0.03
03-2138-069899	47-107-00351	Wills Creek Fm/McKenzie Ls	0.17	cuttings	0.20	0.26	0.03
03-2122-068760	47-049-00244	Wills Creek Fm/McKenzie Ls	0.25	cuttings	0.33	1.06	0.11
03-2122-068769	47-077-00086	Wills Creek Fm/McKenzie Ls	3.00	cuttings	0.66	9.56	0.21
03-2122-068774	47-083-00101	Wills Creek Fm/McKenzie Ls	0.19	cuttings	0.44	0.46	0.13
03-2122-068772	47-077-00099	Wills Creek Fm/Rochester Sh	0.11	cuttings	0.11	0.16	0.05
03-2122-068779	47-031-00003	Wills Creek Fm/Rose Hill Fm	0.13	cuttings	0.17	0.30	0.07
03-2122-068793	47-083-00103	Wills Creek Fm/Rose Hill Fm	0.10	cuttings	0.03	0.09	0.10
03-2071-064510		Eramosa Dolomite	0.22	core	0.12	0.11	0.08
03-2071-064511		Eramosa Dolomite	0.34	core	0.30	0.45	0.12
03-2071-064512		Eramosa Dolomite	0.25	core	0.19	0.22	0.15
03-2071-064513		Eramosa Dolomite	0.25	core	0.21	0.40	0.08
03-2031-061828	37-019-21023	Lockport Dolomite	0.10	cuttings	0.10	0.08	0.07
03-2049-062509	37-085-90010	Lockport Dolomite	0.28	cuttings	0.13	0.20	0.17
03-2049-062523	37-121-22642	Lockport Dolomite	0.62	cuttings	3.72	0.80	0.66
03-2049-062526	37-121-23657	Lockport Dolomite	0.27	cuttings	0.15	0.29	0.33
03-2049-062502	37-085-20004	Lockport Dolomite	0.62	cuttings	1.11	1.00	1.25
03-2031-061839	37-031-20168	Lockport Dolomite	0.47	cuttings	0.11	0.15	0.45
03-2049-062500	37-083-90004	Lockport Dolomite	0.48	cuttings	0.35	0.19	0.28
03-2031-061860	37-049-20040	Lockport Dolo/Rochester Sh	0.30	cuttings	0.16	0.23	0.07
03-2031-061863	37-049-20109	Lockport Dolo/Rochester Sh	0.31	cuttings	0.12	0.11	0.07
03-2031-061820	37-005-21201	McKenzie Limestone	0.24	cuttings	0.21	0.24	0.87
03-2049-062520	37-111-20045	McKenzie Limestone	0.28	cuttings	0.99	1.81	0.34

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2138-069888	47-083-00001	435	*	25	100	25	0.50		n
03-2138-069893	47-025-00012	435	*	35	126	39	0.53		n
03-2138-069894	47-025-00012	440	*	253	13	100	0.28	c	n
03-2122-068777	47-031-00003	387	*	82	18	82	0.50		n
03-2138-069895	47-025-00012	439	*	133	67	125	0.48		n
03-2122-068773	47-083-00101	411	*	136	17	119	0.47		n
03-2122-068778	47-031-00003	368	*	109	91	118	0.52		n
03-2138-069905	47-019-00241	443		280	20	120	0.30		spikes
03-2122-068754	47-019-00123	372	*	123	85	435	0.78		n
03-2122-068776	47-075-00018	432		88	55	44	0.33		n; ltS2p
03-2031-061819	37-005-21201	387	*	28	146	32	0.53		n
03-2031-061824	37-007-20054	410	*	162	624	129	0.44		n
03-2031-061832	37-027-20006	382	*	19	51	39	0.67		f
03-2049-062490	37-081-20028	390	*	27	234	16	0.36		n
03-2049-062519	37-111-20045	399		88	189	45	0.34		n
03-2031-061843	37-031-20672	411	*	109	308	92	0.46		n
03-2138-069889	47-083-00001	440	*	95	63	32	0.25		n
03-2138-069884	47-033-00079	438	*	83	50	17	0.17		n
03-2138-069862	47-061-00307	391		177	68	223	0.56		n; ltS2p
03-2049-062487	37-051-20056	407		477	373	368	0.44		n
03-2138-069885	47-033-00079	428	*	23	62	23	0.50		n
03-2138-069890	47-083-00001	414	*	30	30	30	0.50		n
03-2138-069896	47-025-00012	434	*	215	23	185	0.46		spikes
03-2138-069899	47-107-00351	510	*	153	18	118	0.43		spikes
03-2122-068760	47-049-00244	368		424	44	132	0.24		n
03-2122-068769	47-077-00086	413		319	7	22	0.06		spikes
03-2122-068774	47-083-00101	399	*	242	68	232	0.49		n
03-2122-068772	47-077-00099	391	*	145	45	100	0.41	c	n
03-2122-068779	47-031-00003	365	*	231	54	131	0.36		n
03-2122-068793	47-083-00103	402	*	90	100	30	0.25		n
03-2071-064510		439	*	50	36	55	0.52		n
03-2071-064511		443	*	132	35	88	0.40		n
03-2071-064512		442	*	88	60	76	0.46		n
03-2071-064513		437	*	160	32	84	0.34	c	n
03-2031-061828	37-019-21023	355	*	79	69	99	0.56	c	f
03-2049-062509	37-085-90010	385	*	71	60	46	0.39	d	n/a
03-2049-062523	37-121-22642	440		128	106	597	0.82		n; ltS2sh
03-2049-062526	37-121-23657	416	*	106	121	55	0.34		n
03-2049-062502	37-085-20004	432		162	202	179	0.53		n/a
03-2031-061839	37-031-20168	409	*	32	97	24	0.42		n
03-2049-062500	37-083-90004	365	*	40	59	73	0.65	c;lc	n
03-2031-061860	37-049-20040	499	*	75	23	53	0.41		n
03-2031-061863	37-049-20109	437	*	36	23	39	0.52		n
03-2031-061820	37-005-21201	408	*	100	364	88	0.47		n
03-2049-062520	37-111-20045	391		635	119	347	0.35		n

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2049-062514	37-105-20182	PA	Potter	Tamarack	41.48929	-77.77445	#1 PA Tract 129	9230	9305
03-2138-069866	47-053-00069	WV	Mason	Arlee	38.71390	-82.11723	Arrington (8803)	3990	4130
03-2138-069870	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	5980	6200
03-2122-068761	47-049-00244	WV	Marion	Fairmont East	39.43195	-80.01222	#1 Finch	9360	9440
03-2138-069891	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3544	3700
03-2122-068786	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	6510	6740
03-2122-068790	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	6300	6520
03-2031-061833	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	9720	10000
03-2049-062491	37-081-20028	PA	Lycoming	Slate Run	41.50000	-77.58877	#1 PA Tract 552	9570	9800
03-2138-069886	47-033-00079	WV	Harrison	Mount Clare	39.15778	-80.32723	Gribble (8517)	9070	9420
03-2138-069903	47-099-01546	WV	Wayne	Wayne	38.12944	-82.46917	UFG (9474)	3566	4114
03-2122-068783	47-035-00227	WV	Jackson	Gay	38.79278	-81.62361	#1 Pfost (8585)	6215	6520
03-2122-068755	47-019-00123	WV	Fayette	Winona	38.10944	-80.93250	#1 Foulke Meadow	7930	8080
03-2031-061834	37-027-20006	PA	Centre	Snow Shoe SE	41.01477	-77.84239	#1 Texas Gulf, Inc.	10200	10300
03-2138-069860	47-101-00055	WV	Webster	Skelt	38.50389	-80.36500	#1 Pardee-Curtin Lumber	8120	8470
03-2138-069871	47-039-01684	WV	Kanawha	Blue Creek	38.38056	-81.43861	UFG (8804-7)	6300	6510
03-2138-069874	47-099-01040	WV	Wayne	Radnor	38.04306	-82.46194	UFG Tract 1 (8181)	3943	4204
03-2138-069880	47-011-00537	WV	Cabell	Athalia	38.52389	-82.26306	#1 Kingery	4300	4500
03-2138-069892	47-083-00001	WV	Randolph	Montrose	39.01056	-79.83667	#1 Hartman	3833	3957
03-2122-068787	47-087-01200	WV	Roane	Clio	38.60861	-81.31778	UFG (9375-T)	6790	7180
03-2122-068791	47-087-00714	WV	Roane	Clio	38.53756	-81.27298	#2 Osborne (8100)	6600	6800
03-2122-068794	47-083-00103	WV	Randolph	Mill Creek	38.70722	-79.96917	WV Board of Control (10228)	4660	5430
03-2093-067014	34-167-23310	OH	Washington	Lawrence	39.47070	-81.29187	#2 Matheny	6460	6490
03-2093-067022	34-121-23454	OH	Noble	Brookfield	39.80845	-81.60247	#41-14 Wheeler-Oliver	5120	5150
03-2093-067024	34-169-20900	OH	Wayne	Baughman	40.86811	-81.67465	#1 Shisler	3680	3731
03-2093-067017	34-055-20092	OH	Geauga	Auburn	41.36221	-81.25112	#3 Vrabel	3850	3910
03-2093-067016	34-055-20124	OH	Geauga	Auburn	41.37198	-81.28617	#1 Vroman	3820	3850
03-2093-067033	34-169-21307	OH	Wayne	Wayne	40.90046	-81.88577	#1 Hartzler	3340	3370
03-2093-067029	34-151-21193	OH	Stark	Osnaburg	40.81186	-81.29715	#1 Evergreen Park	4600	4640
03-2093-067041	34-155-20038	OH	Trumbull	Lordstown	41.13570	-80.87484	#1 Salva	4580	4610
03-2093-067036	34-157-21012	OH	Tuscarawas	Warwick	40.42033	-81.42679	#1 Carlisle	4860	4900
03-2071-064466	34-019-20553	OH	Carroll	Washington	40.60648	-80.98550	#1 McAllister	5780	5810
03-2071-064471	34-009-23326	OH	Athens	Bern	39.38442	-81.86713	#1 White	4730	4770
03-2093-067038	34-157-21011	OH	Tuscarawas	Warren	40.51121	-81.32239	#2 Ripley-Pile	5150	5180
03-2071-064498	34-167-28713	OH	Washington	Wesley	39.42582	-81.81246	#1-A Venham/Turner	4880	4910
03-2071-064484	34-085-20156	OH	Lake	Madison	41.79033	-81.07755	#1 Hejduk	2780	2810
03-2093-067007	34-119-23556	OH	Muskingum	Rich Hill	39.84404	-81.70983	#2-E Ohio Power Co.	4700	4760
03-2071-064470	34-009-23326	OH	Athens	Bern	39.38442	-81.86713	#1 White	4860	4890
03-2071-064472	34-059-20979	OH	Guernsey	Richland	39.94835	-81.44593	#1 Smith	5320	5350
03-2071-064473	34-059-20979	OH	Guernsey	Richland	39.94835	-81.44593	#1 Smith	5430	5460
03-2071-064503	34-163-20872	OH	Vinton	Brown	39.34362	-82.30976	#1 Litter	3240	3270
03-2071-064467	34-019-21188	OH	Carroll	Loudon	40.46119	-80.98684	#1-3 Vahalik, Jr.	6210	6260
03-2071-064463	34-029-20559	OH	Columbiana	Hanover	40.72895	-80.89956	#1 Burrows	5680	5710
03-2093-067013	34-155-21277	OH	Trumbull	Vienna	41.25537	-80.63315	#1 Wallace	4720	4760
03-2093-067011	34-121-21429	OH	Noble	Buffalo	39.84874	-81.50209	#1 Snode	5440	5480

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2049-062514	37-105-20182	McKenzie Limestone	0.15	cuttings	0.10	0.07	0.23
03-2138-069866	47-053-00069	McKenzie Limestone	0.29	cuttings	0.11	0.13	0.09
03-2138-069870	47-039-01684	McKenzie Limestone	0.36	cuttings	0.63	0.56	0.11
03-2122-068761	47-049-00244	McKenzie Limestone	0.20	cuttings	0.17	0.28	0.05
03-2138-069891	47-083-00001	McKenzie Limestone	0.16	cuttings	0.06	0.07	0.18
03-2122-068786	47-087-01200	McKenzie Limestone	0.28	cuttings	0.27	0.36	0.15
03-2122-068790	47-087-00714	McKenzie Limestone	0.33	cuttings	0.38	0.52	0.29
03-2031-061833	37-027-20006	Mifflintown Fm (McKenzie Mbr/Rochester Mbr)	0.28	cuttings	0.10	0.06	0.07
03-2049-062491	37-081-20028	McKenzie Ls/Rochester Sh	0.17	cuttings	0.05	0.04	0.30
03-2138-069886	47-033-00079	McKenzie Ls/Rose Hill Fm	0.26	cuttings	0.06	0.08	0.39
03-2138-069903	47-099-01546	McKenzie Ls/Rose Hill Fm	0.17	cuttings	0.40	0.45	0.02
03-2122-068783	47-035-00227	McKenzie Ls/Rose Hill Fm	0.10	cuttings	0.04	0.07	0.11
03-2122-068755	47-019-00123	McKenzie Ls/Keefer Ss	0.28	cuttings	1.45	0.46	0.12
03-2031-061834	37-027-20006	Rose Hill Formation	0.24	cuttings	0.06	0.05	0.05
03-2138-069860	47-101-00055	Rose Hill Formation	0.10	cuttings	0.04	0.02	0.07
03-2138-069871	47-039-01684	Rose Hill Formation	0.36	cuttings	0.41	0.62	0.23
03-2138-069874	47-099-01040	Rose Hill Formation	0.55	cuttings	0.47	1.27	0.17
03-2138-069880	47-011-00537	Rose Hill Formation	0.13	cuttings	0.18	0.27	0.07
03-2138-069892	47-083-00001	Rose Hill Formation	0.22	cuttings	0.14	0.60	0.06
03-2122-068787	47-087-01200	Rose Hill Formation	0.23	cuttings	0.40	0.59	0.10
03-2122-068791	47-087-00714	Rose Hill Formation	0.25	cuttings	0.39	0.60	0.13
03-2122-068794	47-083-00103	Rose Hill Formation	0.10	cuttings	0.03	0.04	0.07
03-2093-067014	34-167-23310	Rochester Shale	0.26	cuttings	0.05	0.06	0.03
03-2093-067022	34-121-23454	Rochester Shale	0.15	cuttings	0.09	0.11	0.06
03-2093-067024	34-169-20900	Rochester Shale	0.22	cuttings	0.11	0.16	0.02
03-2093-067017	34-055-20092	Rochester Shale	0.31	cuttings	0.35	0.50	0.29
03-2093-067016	34-055-20124	Rochester Shale	0.32	cuttings	0.14	0.30	0.35
03-2093-067033	34-169-21307	Rochester Shale	0.26	cuttings	0.31	0.30	0.13
03-2093-067029	34-151-21193	Rochester Shale	0.22	cuttings	0.10	0.12	0.01
03-2093-067041	34-155-20038	Rochester Shale	0.11	cuttings	0.08	0.07	0.07
03-2093-067036	34-157-21012	Rochester Shale	0.19	cuttings	0.06	0.11	0.02
03-2071-064466	34-019-20553	Rochester Shale	0.19	cuttings	0.03	0.03	0.07
03-2071-064471	34-009-23326	Rochester Shale	0.15	cuttings	0.03	0.06	0.14
03-2093-067038	34-157-21011	Rochester Shale	0.59	cuttings	3.96	1.17	0.42
03-2071-064498	34-167-28713	Rochester Shale	0.14	cuttings	0.04	0.04	0.07
03-2071-064484	34-085-20156	Rochester Shale	0.21	cuttings	0.06	0.12	0.05
03-2093-067007	34-119-23556	Rochester Shale	0.18	cuttings	0.14	0.12	0.25
03-2071-064470	34-009-23326	Rochester Shale	0.14	cuttings	0.05	0.03	0.06
03-2071-064472	34-059-20979	Rochester Shale	0.20	cuttings	0.03	0.10	0.15
03-2071-064473	34-059-20979	Rochester Shale	0.18	cuttings	0.07	0.10	0.25
03-2071-064503	34-163-20872	Rochester Shale	0.12	cuttings	0.04	0.05	0.14
03-2071-064467	34-019-21188	Rochester Shale	0.19	cuttings	0.06	0.10	0.07
03-2071-064463	34-029-20559	Rochester Shale	0.20	cuttings	0.12	0.18	0.08
03-2093-067013	34-155-21277	Rochester Shale	0.20	cuttings	0.09	0.17	0.09
03-2093-067011	34-121-21429	Rochester Shale	0.15	cuttings	0.08	0.07	0.10

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2049-062514	37-105-20182	386	*	48	157	68	0.59		n
03-2138-069866	47-053-00069	431	*	45	31	38	0.46		n
03-2138-069870	47-039-01684	439		156	31	175	0.53		n
03-2122-068761	47-049-00244	400	*	140	25	85	0.38	c	n
03-2138-069891	47-083-00001	427	*	44	113	37	0.46		n
03-2122-068786	47-087-01200	401	*	129	54	96	0.43		n
03-2122-068790	47-087-00714	428		158	88	115	0.42		n
03-2031-061833	37-027-20006	364	*	21	25	36	0.63		f
03-2049-062491	37-081-20028	320	*	23	172	29	0.56		n
03-2138-069886	47-033-00079	433	*	31	150	23	0.43		n
03-2138-069903	47-099-01546	431	*	265	12	235	0.47		n
03-2122-068783	47-035-00227	412	*	70	110	40	0.36		n
03-2122-068755	47-019-00123	388	*	164	43	518	0.76		spikes
03-2031-061834	37-027-20006	479	*	21	21	25	0.55		n
03-2138-069860	47-101-00055	338	*	20	70	40	0.67		n
03-2138-069871	47-039-01684	439		172	64	114	0.40		n
03-2138-069874	47-099-01040	439		231	31	85	0.27		n
03-2138-069880	47-011-00537	382	*	208	54	138	0.40		n
03-2138-069892	47-083-00001	436		273	27	64	0.19		n
03-2122-068787	47-087-01200	397		257	43	174	0.40		n
03-2122-068791	47-087-00714	386		240	52	156	0.39		n
03-2122-068794	47-083-00103	357	*	40	70	30	0.43	c	f
03-2093-067014	34-167-23310	374	*	23	12	19	0.45		n
03-2093-067022	34-121-23454	354	*	73	40	60	0.45		n
03-2093-067024	34-169-20900	426	*	73	9	50	0.41		n
03-2093-067017	34-055-20092	437		161	94	113	0.41		n
03-2093-067016	34-055-20124	391	*	94	109	44	0.32		n
03-2093-067033	34-169-21307	377	*	115	50	119	0.51		n
03-2093-067029	34-151-21193	381	*	55	5	45	0.45		n
03-2093-067041	34-155-20038	420	*	64	64	73	0.53		n
03-2093-067036	34-157-21012	384	*	58	11	32	0.35		n
03-2071-064466	34-019-20553	316	*	16	37	16	0.50		f
03-2071-064471	34-009-23326	331	*	40	93	20	0.33		n
03-2093-067038	34-157-21011	374		198	71	671	0.77		n
03-2071-064498	34-167-28713	322	*	29	50	29	0.50		n
03-2071-064484	34-085-20156	431	*	57	24	29	0.33	c	n
03-2093-067007	34-119-23556	352	*	67	139	78	0.54		n
03-2071-064470	34-009-23326	-1	*	21	43	36	0.63		n
03-2071-064472	34-059-20979	442	*	50	75	15	0.23		n
03-2071-064473	34-059-20979	418	*	56	139	39	0.41		n
03-2071-064503	34-163-20872	335	*	42	117	33	0.44		n
03-2071-064467	34-019-21188	361	*	53	37	32	0.37		n
03-2071-064463	34-029-20559	414	*	90	40	60	0.40		n
03-2093-067013	34-155-21277	363	*	85	45	45	0.35		n
03-2093-067011	34-121-21429	346	*	47	67	53	0.53		n

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2031-061821	37-005-21201	PA	Armstrong	Distant	40.88483	-79.34708	#1 Nellie Martin	8840	8920
03-2031-061844	37-031-20672	PA	Clarion	Kossuth	41.32850	-79.53026	#2 UNG	6720	6780
03-2049-062495	37-083-22529	PA	McKean	Derrick City	41.88214	-78.61509	#1 Minard Run Lot 1 (Moody)	6330	6440
03-2071-064477	34-079-20079	OH	Jackson	Franklin	38.94582	-82.66937	#1 Brown	2340	2370
03-2031-061825	37-007-20054	PA	Beaver	East Palestine	40.78618	-80.50433	#1 Metropolitan Brick	6180	6220
03-2049-062506	37-085-20036	PA	Mercer	Jackson Center	41.35126	-80.17643	#1 Temple	5230	5300
03-2031-061830	37-019-90063	PA	Butler	Slippery Rock	41.10660	-80.04028	#1 Jesse Hockenberry	6260	6329
03-2031-061840	37-031-20168	PA	Clarion	Strattanville	41.19076	-79.37112	#1 James A. Mays	7400	7470
03-2031-061848	37-039-20007	PA	Crawford	Harmonsburg	41.71556	-80.30705	#1 Joseph Kardosh	3980	4070
03-2049-062532	37-123-20609	PA	Warren	Russell	41.95339	-79.20122	#1 Marsh-Childs	4630	4660
03-2049-062535	37-123-90000	PA	Warren	Tidioute	41.64361	-79.42325	#1 Proper	5506	5581
03-2049-062527	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	6070	6160
03-2031-061850	37-039-20018	PA	Crawford	Conneautville	41.78082	-80.36321	#1 J. Lehman	3410	3527
03-2031-061851	37-039-20131	PA	Crawford	Millers Station	41.83672	-79.88995	#1 Walter Morton	4370	4470
03-2031-061853	37-039-20188	PA	Crawford	Edinboro South	41.82400	-80.18721	#1 Flanick & Buckoski	3860	3950
03-2071-064504	34-089-22300	OH	Licking	Burlington	40.18882	-82.47552	#1 Shipley	2420	2500
03-2031-061856	37-039-20468	PA	Crawford	Centerville	41.65623	-79.86645	#1 Eager Beaver Lumber	4920	4940
03-2071-064478	34-079-20061	OH	Jackson	Milton	39.06025	-82.51897	#1 Morrow	2746	2760
03-2071-064480	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	5520	5790
03-2071-064489	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	6210	6260
03-2071-064495	34-009-21404	OH	Athens	Bern	39.38153	-81.91051	#1 Christman	4640	4730
03-2031-061859	37-049-20030	PA	Erie	Wattsburg	42.08383	-79.86391	#1 James Henderson	3305	3360
03-2049-062528	37-121-23657	PA	Venango	Barkeyville	41.24067	-79.96324	#1 FE Smith	6200	6300
03-2049-062497	37-083-27520	PA	McKean	Cornplanter Run	41.98697	-78.91703	#1 Kewanee Warrant 3703	4810	4880
03-2093-067008	34-119-23556	OH	Muskingum	Rich Hill	39.84404	-81.70983	#2-E Ohio Power Co.	4810	4850
03-2049-062521	37-111-20045	PA	Somerset	Kingwood	39.97776	-79.33387	#1 Svetz	11460	11530
03-2071-064479	34-079-20061	OH	Jackson	Milton	39.06025	-82.51897	#1 Morrow	2911	2942
03-2071-064496	34-009-21404	OH	Athens	Bern	39.38153	-81.91051	#1 Christman	4800	4830
03-2071-064497	34-009-21404	OH	Athens	Bern	39.38153	-81.91051	#1 Christman	4920	4935
03-2071-064492	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	6320	6370
03-2071-064494	34-067-20339	OH	Harrison	Rumley	40.40551	-80.97759	#1-4 Ager-Birney	6690	6740
03-2071-064490	34-067-20567	OH	Harrison	Nottingham	40.22900	-81.18198	#2 Hamilton	6460	6490
03-2071-064481	34-029-20702	OH	Columbiana	Butler	40.88731	-80.89968	#1 Sanor	5790	5830
03-2122-068746	34-055-20038	OH	Geauga	Newbury	41.42692	-81.26057	#1-0 Frohring	3990	4030
03-2071-064476	34-079-20079	OH	Jackson	Franklin	38.94582	-82.66937	#1 Brown	2600	2630
03-2071-064487	34-085-20210	OH	Lake	Mentor	41.67789	-81.35742	#1 Towmotor Corp	2940	2970
03-2071-064488	34-085-20210	OH	Lake	Mentor	41.67789	-81.35742	#1 Towmotor Corp	3080	3105
03-2093-067006	34-099-20304	OH	Mahoning	Poland	41.04097	-80.57092	#1 Youngstown S&T	5620	5660
03-2093-067009	34-119-23556	OH	Muskingum	Rich Hill	39.84404	-81.70983	#2-E Ohio Power Co.	4970	5010
03-2093-067012	34-121-21429	OH	Noble	Buffalo	39.84874	-81.50209	#1 Snode	5660	5700
03-2093-067015	34-167-23310	OH	Washington	Lawrence	39.47070	-81.29187	#2 Matheny	6820	6850
03-2093-067018	34-055-20092	OH	Geauga	Auburn	41.36221	-81.25112	#3 Vrabel	4080	4130
03-2093-067020	34-119-22465	OH	Muskingum	Wayne	39.90037	-81.93821	#1 Foster	3954	4009
03-2093-067021	34-119-22465	OH	Muskingum	Wayne	39.90037	-81.93821	#1 Foster	4095	4115

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2031-061821	37-005-21201	Rochester Shale	0.13	cuttings	0.25	0.13	0.55
03-2031-061844	37-031-20672	Rochester Shale	0.37	cuttings	0.32	0.55	1.29
03-2049-062495	37-083-22529	Rochester Shale	0.31	cuttings	0.32	0.34	0.47
03-2071-064477	34-079-20079	Rochester Shale	0.20	cuttings	0.07	0.09	0.11
03-2031-061825	37-007-20054	Rochester Shale	0.61	cuttings	0.10	0.15	1.00
03-2049-062506	37-085-20036	Rochester Shale	0.57	cuttings	0.42	0.67	1.09
03-2031-061830	37-019-90063	Rochester Shale	0.16	cuttings	0.02	0.00	0.05
03-2031-061840	37-031-20168	Rochester Shale	0.50	cuttings	0.05	0.08	0.27
03-2031-061848	37-039-20007	Rochester Shale	0.25	cuttings	0.11	0.15	0.44
03-2049-062532	37-123-20609	Rochester Shale	0.64	cuttings	0.86	0.61	0.37
03-2049-062535	37-123-90000	Rochester Shale	0.50	cuttings	0.12	0.09	0.42
03-2049-062527	37-121-23657	Rochester Shale	0.33	cuttings	0.23	0.45	0.36
03-2031-061850	37-039-20018	Rochester Shale	0.23	cuttings	0.06	0.09	0.07
03-2031-061851	37-039-20131	Rochester Shale	0.23	cuttings	0.08	0.15	0.16
03-2031-061853	37-039-20188	Rochester Shale	0.29	cuttings	0.11	0.13	0.21
03-2071-064504	34-089-22300	Rochester Shale	0.28	cuttings	0.18	0.16	0.08
03-2031-061856	37-039-20468	Rochester Shale	0.44	cuttings	0.09	0.14	0.33
03-2071-064478	34-079-20061	Rochester Shale	0.14	cuttings	0.06	0.04	0.06
03-2071-064480	34-029-20702	Rochester Shale	0.25	cuttings	0.23	0.24	0.45
03-2071-064489	34-067-20567	Rochester Shale	0.21	cuttings	0.10	0.20	0.02
03-2071-064495	34-009-21404	Rochester Shale	0.17	cuttings	0.05	0.08	0.20
03-2031-061859	37-049-20030	Rochester Shale	0.30	cuttings	0.09	0.10	0.18
03-2049-062528	37-121-23657	Rochester Sh/Lower Silurian carbs. & shale	0.23	cuttings	0.31	0.32	0.31
03-2049-062497	37-083-27520	Rochester Sh/Lower Silurian carbs. & shale	0.48	cuttings	0.25	0.33	0.41
03-2093-067008	34-119-23556	Lower Silurian carbs. & shale	0.24	cuttings	0.21	0.25	0.24
03-2049-062521	37-111-20045	Castanea Mbr of Tuscarora Fm	0.37	cuttings	0.08	0.16	0.28
03-2071-064479	34-079-20061	Cabot Head Shale	0.14	cuttings	0.07	0.03	0.09
03-2071-064496	34-009-21404	Cabot Head Shale	0.16	cuttings	0.07	0.07	0.19
03-2071-064497	34-009-21404	Cabot Head Shale	0.16	cuttings	0.07	0.10	0.00
03-2071-064492	34-067-20567	Cabot Head Shale	0.19	cuttings	0.14	0.13	0.07
03-2071-064494	34-067-20339	Cabot Head Shale	0.24	cuttings	0.46	0.48	0.57
03-2071-064490	34-067-20567	Cabot Head Shale	0.64	cuttings	0.19	0.10	0.06
03-2071-064481	34-029-20702	Cabot Head Shale	0.21	cuttings	0.35	0.21	0.21
03-2122-068746	34-055-20038	Cabot Head Shale	0.25	cuttings	0.29	0.35	0.05
03-2071-064476	34-079-20079	Cabot Head Shale	0.15	cuttings	0.09	0.10	0.08
03-2071-064487	34-085-20210	Cabot Head Shale	0.23	cuttings	0.07	0.10	0.02
03-2071-064488	34-085-20210	Cabot Head Shale	0.18	cuttings	0.08	0.10	0.11
03-2093-067006	34-099-20304	Cabot Head Shale	0.22	cuttings	0.52	0.37	0.16
03-2093-067009	34-119-23556	Cabot Head Shale	0.20	cuttings	0.21	0.22	0.29
03-2093-067012	34-121-21429	Cabot Head Shale	0.15	cuttings	0.07	0.04	0.14
03-2093-067015	34-167-23310	Cabot Head Shale	0.13	cuttings	0.04	0.04	0.13
03-2093-067018	34-055-20092	Cabot Head Shale	0.33	cuttings	0.35	0.33	0.10
03-2093-067020	34-119-22465	Cabot Head Shale	0.19	cuttings	0.15	0.21	0.30
03-2093-067021	34-119-22465	Cabot Head Shale	0.14	cuttings	0.07	0.10	0.22

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2031-061821	37-005-21201	416	*	104	440	200	0.66		n
03-2031-061844	37-031-20672	404		150	352	87	0.37		n
03-2049-062495	37-083-22529	424	*	111	153	104	0.48		n
03-2071-064477	34-079-20079	423	*	45	55	35	0.44		n
03-2031-061825	37-007-20054	402	*	25	165	17	0.40		n
03-2049-062506	37-085-20036	408		117	191	74	0.39		n/a
03-2031-061830	37-019-90063	-1	*	0	32	13	1.00		f
03-2031-061840	37-031-20168	397	*	16	54	10	0.38		n
03-2031-061848	37-039-20007	417	*	60	177	44	0.42		n
03-2049-062532	37-123-20609	391		95	58	134	0.59		n
03-2049-062535	37-123-90000	401	*	18	84	24	0.57	lc	n
03-2049-062527	37-121-23657	393	*	135	108	69	0.34		n
03-2031-061850	37-039-20018	411	*	39	31	26	0.40	lc	n
03-2031-061851	37-039-20131	397	*	65	70	35	0.35		n
03-2031-061853	37-039-20188	400	*	44	71	37	0.46		n
03-2071-064504	34-089-22300	387	*	57	29	64	0.53		n
03-2031-061856	37-039-20468	372	*	32	75	20	0.39		n
03-2071-064478	34-079-20061	344	*	29	43	43	0.60		n
03-2071-064480	34-029-20702	350	*	96	180	92	0.49	c	n
03-2071-064489	34-067-20567	399	*	95	10	48	0.33		n
03-2071-064495	34-009-21404	469	*	47	118	29	0.38	c	n
03-2031-061859	37-049-20030	405	*	34	61	30	0.47		n
03-2049-062528	37-121-23657	374	*	140	136	136	0.49		n
03-2049-062497	37-083-27520	364	*	69	86	53	0.43		n
03-2093-067008	34-119-23556	421	*	104	100	87	0.46		n
03-2049-062521	37-111-20045	395	*	44	77	22	0.33		n
03-2071-064479	34-079-20061	-1	*	21	64	50	0.70		n
03-2071-064496	34-009-21404	463	*	44	119	44	0.50		n
03-2071-064497	34-009-21404	453	*	63	0	44	0.41		n
03-2071-064492	34-067-20567	353	*	68	37	74	0.52		n
03-2071-064494	34-067-20339	394	*	200	237	192	0.49		n
03-2071-064490	34-067-20567	389	*	16	9	30	0.66		n
03-2071-064481	34-029-20702	372	*	100	100	167	0.63		n
03-2122-068746	34-055-20038	382	*	140	20	116	0.45		n
03-2071-064476	34-079-20079	418	*	67	53	60	0.47		n
03-2071-064487	34-085-20210	396	*	43	9	30	0.41		n
03-2071-064488	34-085-20210	418	*	56	61	44	0.44		n
03-2093-067006	34-099-20304	384	*	168	73	236	0.58	c	n
03-2093-067009	34-119-23556	378	*	110	145	105	0.49		n
03-2093-067012	34-121-21429	340	*	27	93	47	0.64		n
03-2093-067015	34-167-23310	363	*	31	100	31	0.50		n
03-2093-067018	34-055-20092	369	*	100	30	106	0.51	c	n
03-2093-067020	34-119-22465	383	*	111	158	79	0.42		n
03-2093-067021	34-119-22465	420	*	71	157	50	0.41		n

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

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Humble Geochemical Services (HGS) No.	American Petroleum Institute (API) No.	State	County	Township or Quadrangle (7 1/2')	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Well Name	Top Depth (ft.)	Bottom Depth (ft.)
03-2093-067023	34-121-23454	OH	Noble	Brookfield	39.80845	-81.60247	#41-14 Wheeler-Oliver	5330	5360
03-2093-067025	34-169-20900	OH	Wayne	Baughman	40.86811	-81.67465	#1 Shisler	3894	3913
03-2093-067027	34-121-21741	OH	Noble	Brookfield	39.79919	-81.63445	#3-E Ohio Power Co.	5425	5440
03-2093-067030	34-151-21193	OH	Stark	Osnaburg	40.81186	-81.29715	#1 Evergreen Park	4845	4890
03-2093-067031	34-169-24953	OH	Wayne	Plain	40.72676	-82.01691	#7 Sidle	3090	3140
03-2093-067032	34-169-24929	OH	Wayne	Sugar Creek	40.76331	-81.67721	#2-58 Rollason	3920	4000
03-2093-067034	34-169-21307	OH	Wayne	Wayne	40.90046	-81.88577	#1 Hartzler	3525	3550
03-2093-067037	34-157-21012	OH	Tuscarawas	Warwick	40.42033	-81.42679	#1 Carlisle	5150	5200
03-2093-067039	34-157-21386	OH	Tuscarawas	Washington	40.25078	-81.45583	#1 Hursey	5160	5185
03-2093-067042	34-155-20038	OH	Trumbull	Lordstown	41.13570	-80.87484	#1 Salva	4830	4870
03-2093-067043	34-155-20035	OH	Trumbull	Braceville	41.25851	-80.98079	#11165 Crays	4369	4384
03-2093-067044	34-059-21444	OH	Guernsey	Liberty	40.10713	-81.60541	#1 Nelson	5110	5150
03-2093-067045	34-059-21874	OH	Guernsey	Jackson	39.94888	-81.54495	#1-M Watson-Rogers-Ball	5210	5250
03-2093-067048	34-089-22735	OH	Licking	Jersey	40.06194	-82.68467	#1 Helphrey	2067	2089
03-2093-067049	34-059-21867	OH	Guernsey	Jackson	39.94587	-81.54564	#1-M Ball	5200	5220
03-2093-067051	34-059-21897	OH	Guernsey	Center	40.06305	-81.50666	#1 Brill	5310	5370
03-2093-067054	34-169-21314	OH	Wayne	Wayne	40.89009	-81.90411	#1 Yates	3520	3540
03-2093-067056	34-169-21839	OH	Wayne	Wooster	40.79799	-81.99408	#1 Grossniklaus	3247	3275
03-2093-067057	34-055-20050	OH	Geauga	Newbury	41.43589	-81.23160	#1-0 Pizzina	4060	4075
03-2122-068747	34-157-24887	OH	Tuscarawas	Washington	40.29121	-81.50731	#3 Poland-Nugen-Bond	4870	4940
03-2071-064462	34-079-20102	OH	Jackson	Franklin	39.00872	-82.63855	#1 Trepanier	2500	2540
03-2071-064468	34-019-21188	OH	Carroll	Loudon	40.46119	-80.98684	#1-3 Vahalik, Jr.	6340	6380
03-2071-064469	34-019-21188	OH	Carroll	Loudon	40.46119	-80.98684	#1-3 Vahalik, Jr.	6560	6610
03-2071-064474	34-059-20979	OH	Guernsey	Richland	39.94835	-81.44593	#1 Smith	5670	5690
03-2071-064475	34-059-21752	OH	Guernsey	Londonderry	40.16572	-81.30917	#3 Bajorek & Hennell	5810	5840
03-2071-064485	34-085-20156	OH	Lake	Madison	41.79033	-81.07755	#1 Hejduk	2930	2960
03-2071-064486	34-085-20257	OH	Lake	Mentor	41.64546	-81.31872	#1 Beall	3320	3360
03-2071-064493	34-067-20339	OH	Harrison	Rumley	40.40551	-80.97759	#1-4 Ager-Birney	6310	6380
03-2071-064499	34-167-28713	OH	Washington	Wesley	39.42582	-81.81246	#1-A Venham/Turner	5090	5120
03-2071-064500	34-163-20369	OH	Vinton	Elk	39.27081	-82.51988	#1-0-1212 Waldron	2710	2744
03-2071-064502	34-163-20872	OH	Vinton	Brown	39.34362	-82.30976	#1 Litter	3440	3460
03-2071-064501	34-163-20872	OH	Vinton	Brown	39.34362	-82.30976	#1 Litter	3560	3590
03-2071-064505	34-089-22300	OH	Licking	Burlington	40.18882	-82.47552	#1 Shipley	2560	2640
03-2071-064508	34-099-20527	OH	Mahoning	Green	40.91819	-80.78975	#1 Wisler	5670	5700
03-2071-064507	34-099-20527	OH	Mahoning	Green	40.91819	-80.78975	#1 Wisler	5880	5910
03-2122-068744	34-055-20037	OH	Geauga	Newbury	41.43107	-81.25366	#1-0 Button	3980	4030
03-2031-061842	37-031-20592	PA	Clarion	Knox	41.21130	-79.59133	Howard	7300	7355
03-2031-061854	37-039-20188	PA	Crawford	Edinboro South	41.82400	-80.18721	#1 Flanick & Buckoski	4080	4130
03-2049-062503	37-085-20004	PA	Mercer	Sharpsville	41.31989	-80.46161	#1 McKnight	4760	4860

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Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Group / Formation Name	Total Organic Carbon (TOC) in weight percent	Sample Type	S1	S2	S3
03-2093-067023	34-121-23454	Cabot Head Shale	0.13	cuttings	0.06	0.08	0.03
03-2093-067025	34-169-20900	Cabot Head Shale	0.15	cuttings	0.16	0.13	0.02
03-2093-067027	34-121-21741	Cabot Head Shale	0.68	cuttings	0.36	1.22	0.10
03-2093-067030	34-151-21193	Cabot Head Shale	0.18	cuttings	0.43	0.35	0.15
03-2093-067031	34-169-24953	Cabot Head Shale	0.12	cuttings	0.18	0.07	0.09
03-2093-067032	34-169-24929	Cabot Head Shale	0.12	cuttings	0.05	0.12	0.15
03-2093-067034	34-169-21307	Cabot Head Shale	0.21	cuttings	0.12	0.26	0.27
03-2093-067037	34-157-21012	Cabot Head Shale	0.14	cuttings	0.08	0.12	0.03
03-2093-067039	34-157-21386	Cabot Head Shale	0.17	cuttings	0.05	0.04	0.07
03-2093-067042	34-155-20038	Cabot Head Shale	0.11	cuttings	0.12	0.07	0.04
03-2093-067043	34-155-20035	Cabot Head Shale	0.12	cuttings	0.16	0.13	0.10
03-2093-067044	34-059-21444	Cabot Head Shale	0.13	cuttings	0.23	0.18	0.11
03-2093-067045	34-059-21874	Cabot Head Shale	0.15	cuttings	0.20	0.18	0.38
03-2093-067048	34-089-22735	Cabot Head Shale	0.11	cuttings	0.07	0.05	0.06
03-2093-067049	34-059-21867	Cabot Head Shale	0.12	cuttings	0.13	0.14	0.16
03-2093-067051	34-059-21897	Cabot Head Shale	0.16	cuttings	0.46	0.29	0.16
03-2093-067054	34-169-21314	Cabot Head Shale	0.13	cuttings	0.20	0.15	0.04
03-2093-067056	34-169-21839	Cabot Head Shale	0.14	cuttings	0.23	0.22	0.16
03-2093-067057	34-055-20050	Cabot Head Shale	0.14	cuttings	0.26	0.18	0.12
03-2122-068747	34-157-24887	Cabot Head Shale	0.11	cuttings	0.08	0.17	0.03
03-2071-064462	34-079-20102	Cabot Head Shale	0.18	cuttings	0.12	0.22	0.38
03-2071-064468	34-019-21188	Cabot Head Shale	0.12	cuttings	0.04	0.04	0.07
03-2071-064469	34-019-21188	Cabot Head Shale	0.14	cuttings	0.04	0.05	0.08
03-2071-064474	34-059-20979	Cabot Head Shale	0.21	cuttings	0.13	0.26	0.27
03-2071-064475	34-059-21752	Cabot Head Shale	0.18	cuttings	0.09	0.08	0.08
03-2071-064485	34-085-20156	Cabot Head Shale	0.16	cuttings	0.11	0.13	0.09
03-2071-064486	34-085-20257	Cabot Head Shale	0.16	cuttings	0.02	0.05	0.08
03-2071-064493	34-067-20339	Cabot Head Shale	0.16	cuttings	0.06	0.05	0.06
03-2071-064499	34-167-28713	Cabot Head Shale	0.20	cuttings	0.30	0.24	0.13
03-2071-064500	34-163-20369	Cabot Head Shale	0.21	cuttings	0.21	0.14	0.19
03-2071-064502	34-163-20872	Cabot Head Shale	0.16	cuttings	0.09	0.10	0.09
03-2071-064501	34-163-20872	Cabot Head Shale	0.16	cuttings	0.09	0.06	0.16
03-2071-064505	34-089-22300	Cabot Head Shale	0.17	cuttings	0.11	0.14	0.11
03-2071-064508	34-099-20527	Cabot Head Shale	0.22	cuttings	0.17	0.16	0.16
03-2071-064507	34-099-20527	Cabot Head Shale	0.16	cuttings	0.11	0.09	0.05
03-2122-068744	34-055-20037	Cabot Head Shale	0.21	cuttings	0.11	0.07	0.22
03-2031-061842	37-031-20592	Cabot Head Shale	0.26	cuttings	0.32	0.26	0.23
03-2031-061854	37-039-20188	Cabot Head Shale	0.16	cuttings	0.07	0.07	0.04
03-2049-062503	37-085-20004	Cabot Head Shale	0.21	cuttings	0.43	0.33	0.31

Table 2. Total organic carbon in weight percent (TOC) and RockEval data from Silurian samples collected from the subsurface of New York, Ohio, Pennsylvania, and West Virginia (data listed in approximate stratigraphic order)

(Blue line separates the L.Sil. Cabot Head Sh/Rochester Sh/Rose Hill Fm from the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr.; Red Line separates the L.&U.Sil. McKenzie Ls/Lockport Dol/Eramosa Dol Mbr from the U.Sil. Salina Gp/Wills Crk Fm/Tonoloway Ls/Bass Islands Dol.; -1, Tmax not measured or meaningless; *, Tmax unreliable; S1, first hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S2, second hydrocarbon peak generated by Rock Eval pyrolysis of sample (mgHC/g sample); S3, third peak generated by Rock Eval pyrolysis of sample (mgCO2/g sample); HI, Hydrogen index (S2 x 100 / TOC); OI, Oxygen index (S3 x 100 / TOC); PI, production index (S1 / (S1 + S2)); c, analysis checked and confirmed by Humble Geochemical Services (HGS); lc, Leco TOC analysis checked and confirmed by HGS; n, normal; ltS2sh, low temperature S2 shoulder; ltS2p, low temperature S2 peak; htS2p, high temperature S2 peak; f, flat S2 peak)

Humble Geochemical Service (HGS) No.	American Petroleum Institute (API) No.	Tmax (degrees Celsius)	Tmax unreliable	Hydrogen Index (HI)	Oxygen Index (OI)	S1/TOC	Production Index (PI)	Notes	
								Checks	Pyrogram
03-2093-067023	34-121-23454	364	*	62	23	46	0.43		n
03-2093-067025	34-169-20900	400	*	87	13	107	0.55		n
03-2093-067027	34-121-21741	446		179	15	53	0.23		n
03-2093-067030	34-151-21193	358	*	194	83	239	0.55		n
03-2093-067031	34-169-24953	380	*	58	75	150	0.72		n
03-2093-067032	34-169-24929	363	*	100	125	42	0.29		n
03-2093-067034	34-169-21307	444	*	124	129	57	0.32		n
03-2093-067037	34-157-21012	388	*	86	21	57	0.40		n
03-2093-067039	34-157-21386	363	*	24	41	29	0.56	c	n
03-2093-067042	34-155-20038	372	*	64	36	109	0.63		n
03-2093-067043	34-155-20035	384	*	108	83	133	0.55		n
03-2093-067044	34-059-21444	387	*	138	85	177	0.56		n
03-2093-067045	34-059-21874	374	*	120	253	133	0.53	c	n
03-2093-067048	34-089-22735	440	*	45	55	64	0.58		n
03-2093-067049	34-059-21867	422	*	117	133	108	0.48		n
03-2093-067051	34-059-21897	369	*	181	100	288	0.61		n
03-2093-067054	34-169-21314	414	*	115	31	154	0.57		n
03-2093-067056	34-169-21839	399	*	157	114	164	0.51		n
03-2093-067057	34-055-20050	388	*	129	86	186	0.59	c	n
03-2122-068747	34-157-24887	367	*	155	27	73	0.32		n
03-2071-064462	34-079-20102	433	*	122	211	67	0.35	c	n
03-2071-064468	34-019-21188	390	*	33	58	33	0.50		n
03-2071-064469	34-019-21188	372	*	36	57	29	0.44		n
03-2071-064474	34-059-20979	439	*	124	129	62	0.33		n
03-2071-064475	34-059-21752	348	*	44	44	50	0.53		n
03-2071-064485	34-085-20156	367	*	81	56	69	0.46		n
03-2071-064486	34-085-20257	415	*	31	50	12	0.29		n
03-2071-064493	34-067-20339	-1	*	31	37	37	0.55		n
03-2071-064499	34-167-28713	358	*	120	65	150	0.56	c	n
03-2071-064500	34-163-20369	401	*	67	90	100	0.60	c	n
03-2071-064502	34-163-20872	386	*	63	56	56	0.47		n
03-2071-064501	34-163-20872	366	*	37	100	56	0.60	c	n
03-2071-064505	34-089-22300	431	*	82	65	65	0.44		n
03-2071-064508	34-099-20527	434	*	73	73	77	0.52	c	n
03-2071-064507	34-099-20527	405	*	56	31	69	0.55	c	n
03-2122-068744	34-055-20037	369	*	33	105	52	0.61		n
03-2031-061842	37-031-20592	387	*	101	89	124	0.55		n
03-2031-061854	37-039-20188	356	*	44	25	44	0.50		n
03-2049-062503	37-085-20004	377	*	157	147	204	0.57		n/a