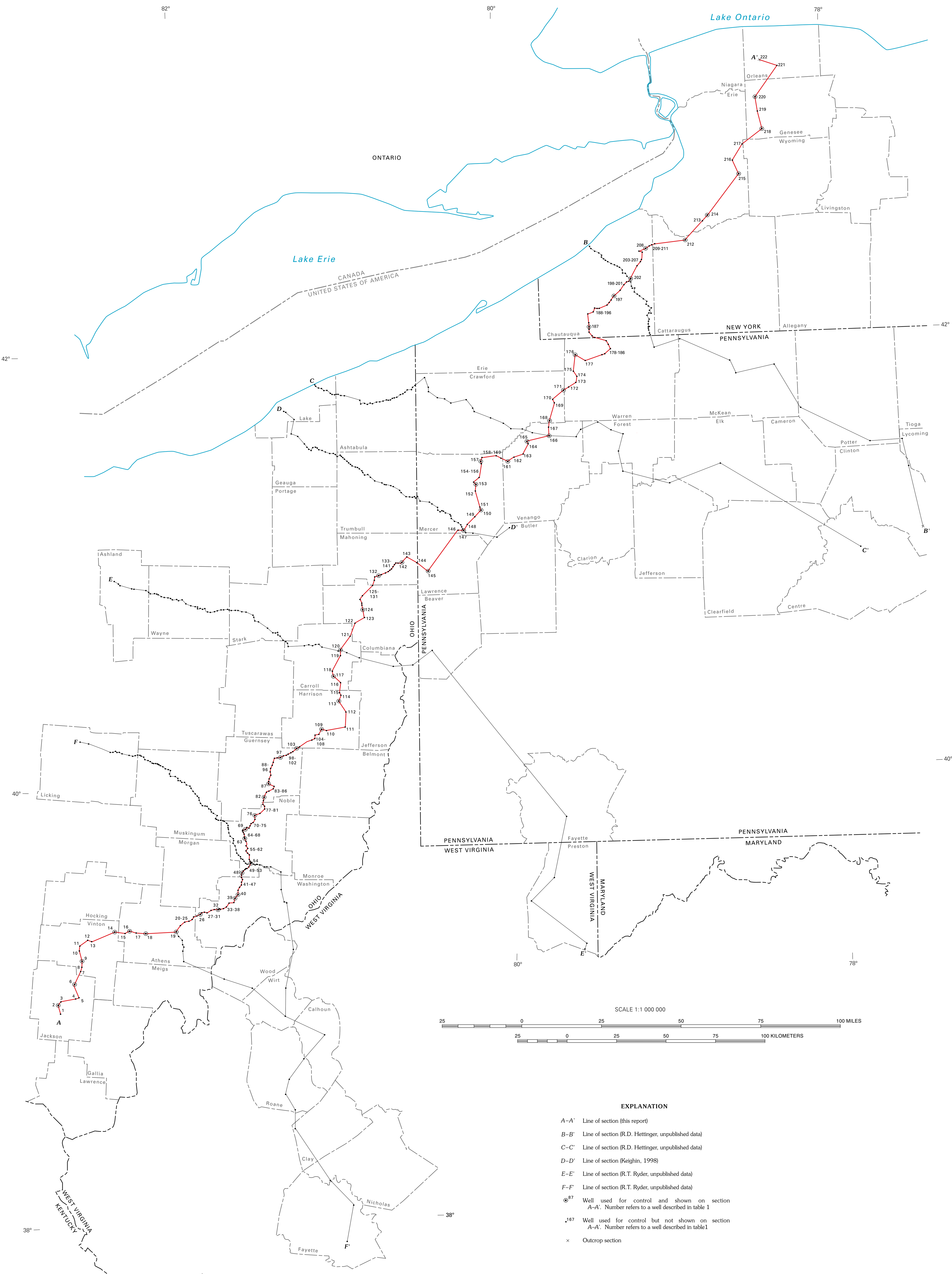


Figure 1B.—Map of parts of New York, Ohio, Pennsylvania, and West Virginia and adjoining States showing the location of section *A–A′* and constituent wells.

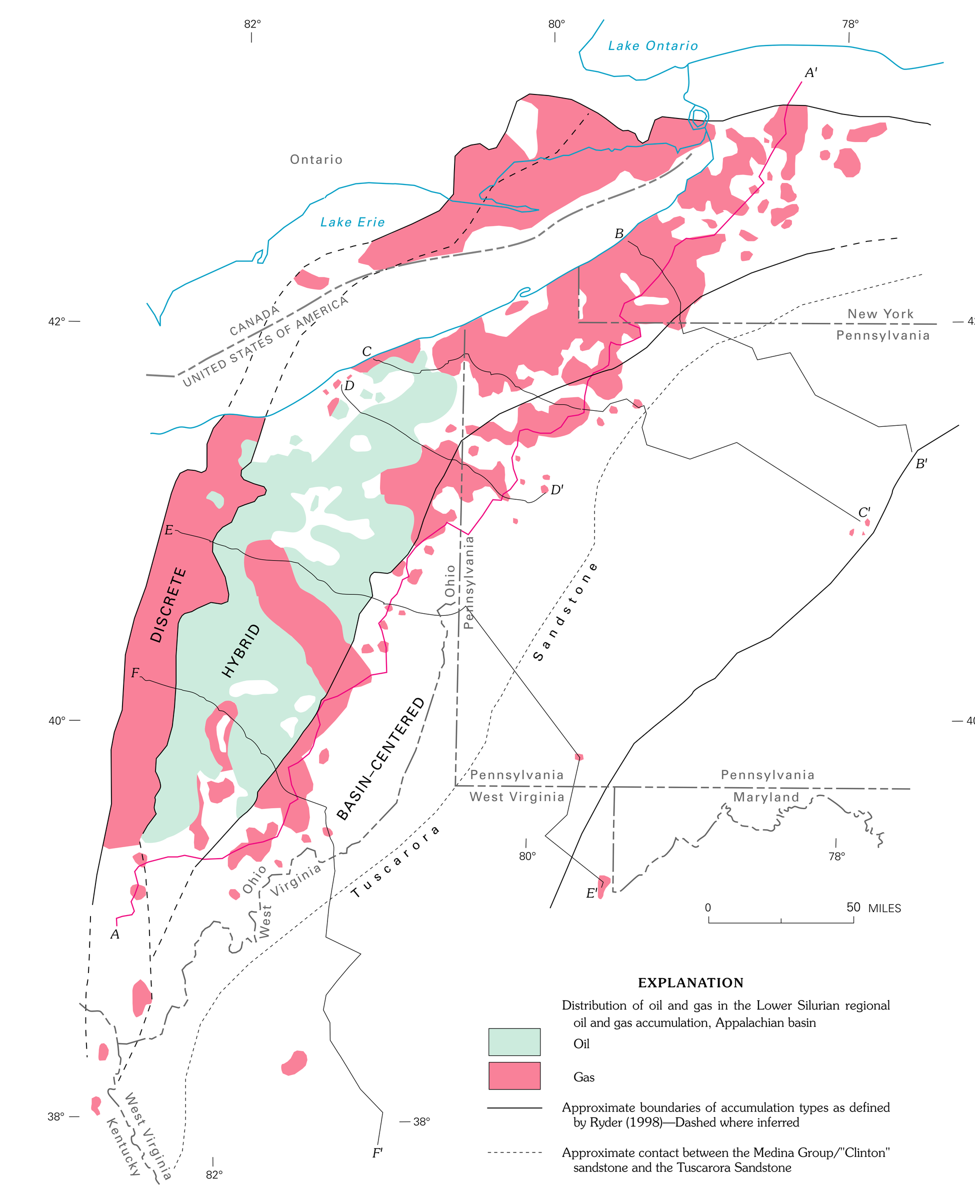


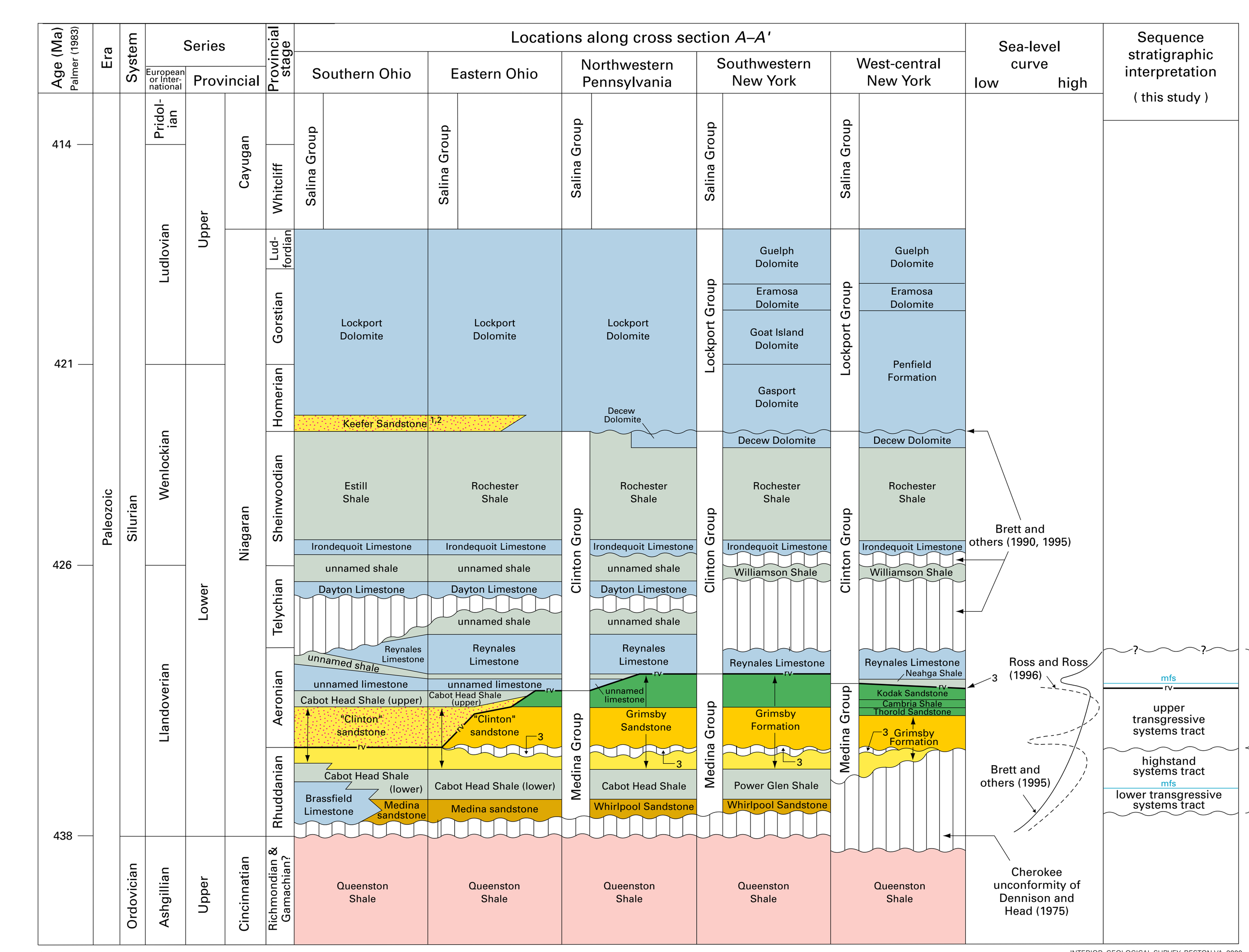
Figure 1A.—Map showing the approximate distribution of natural gas and oil in the Lower Silurian regional oil and gas accumulation of the central Appalachian basin. Also shown is the location of the Lower Silurian Tuscarora Sandstone.

Table 1.—Wells used to construct cross section *A–A′*. Refer to figure 1B for well locations. Also shown are perforated intervals, initial production flow per day, and reservoir names.
[Reservoirs: C, "Clinton" sandstone; CH, Cabot Head Shale; G, Grimsby Sandstone/Formation; M, Medina sandstone; PG, Power Glen Shale; Q, Queenston Shale; W, Whirlpool Sandstone. Oil and gas production terms: AA, after acidizing; AF, after hydrofracturing; BO, barrels of oil; BW, barrels of water; MCFG, thousand cubic feet of gas per day; N, natural (no stimulation of reservoirs); NR, no reported initial production; P&A, plugged and abandoned; TO, trace of oil. Wells that connect section *A–A′* with other regional cross sections are shown on figure 1B. *B–B′* (18), *C–C′* (50), *D–D′* (67), *E–E′* (62), and *F–F′* (81), number in parentheses refers to a specific well on the identified cross section. —, no data]

Map no.	American Petroleum Institute no.	Company	Lease	County/State	Township (7.5–min quadrangle)	Date of log run	Perforated or open hole interval (depth in ft)	Initial production flow of natural gas	Reservoirs
1	34–079–20086	Redman Oil Co.	No. 1 Dassel	Jackson/Ohio	Franklin	5–18–71	—	P&A, 9–27–71	—
2	34–079–20102	Nucorp Energy	No. 1 Trepainer	Jackson	Franklin	9–31–77	2,488–2,494	—	C
3	34–079–20108	Goodyear Tire	No. 1 Blanton	Jackson	Franklin	7–2–78	—	—	—
4	34–079–20124	Mutual Oil & Gas	No. 1 Johnson	Jackson	Bloomfield	8–10–80	—	P&A, 8–11–80	—
5	34–079–20122	Mutual Oil & Gas	No. 1 Stewart	Jackson	Bloomfield	8–1–80	—	P&A, 8–11–80	—
6	34–079–20118	Stocker & Sitler	No. 1 Adams	Jackson	Coal	3–27–80	2,618–2,624	10–15 MCFG, AF	C
7	34–163–20630	Stocker & Sitler	No. 5 Dixon	Vinton/Ohio	Clinton	8–1–81	2,650–2,668	1,385 MCFG, AF	C
8	34–163–20652	Stocker & Sitler	No. 1 Oberholzer	Vinton	Clinton	10–12–81	2,912–2,950	98 MCFG, AF	C
9	34–163–20594	Stocker & Sitler	No. 1 Harper	Vinton	Clinton	6–22–81	2,674–2,686	20 MCFG, AF	C
10	34–163–20254	Harris & Locke	No. 2 Perry	Vinton	Elk	12–15–60	2,732–2,777 open hole	91 MCFG, 10 BO, AF	C
11	34–163–20369	Quaker State	No. 1–0–1212 Waldron	Vinton	Elk	1–7–71	—	P&A, 1–15–71	—
12	34–163–20386	American Drilling	No. 1 King	Vinton	Elk	4–5–61	—	P&A, 5–8–61	—
13	34–163–20370	Quaker State	No. 1–0–1223 Engle	Vinton	Elk	2–26–71	—	—	—
14	34–163–20873	Quaker State	No. 2 Litter	Vinton	Brown	7–20–85	3,454–3,536 open hole	30 MCFG, 1 BO, AF	C
15	34–009–22043	Jerry Moore, Inc.	No. 1 Adams	Athens/Ohio	Waterloo	9–4–80	3,460–3,464	50 MCFG, AF	C
16	34–009–21431	El Paso	No. 1 Kisor pool unit	Athens	Waterloo	1–27–63	3,749–3,756	210 MCFG, N; 90 MCFG, AF	C
17	34–009–22049	Jerry Moore, Inc.	No. 1 Taulbee	Athens	Waterloo	8–15–80	3,687–3,718	100 MCFG, AF	C
18	34–009–23106	Enterprise/Envirogas	No. 2 Hope	Athens	Athens	9–29–84	—	P&A, 9–29–84	—
19	34–009–23157	Strata/Envirogas	No. 6 Poston	Athens	Canaan	12–14–84	4,653–4,655	150 MCFG, AF	M
20	34–009–22938	Strata Corp.	No. 4 Ram	Athens	Bern	1–28–84	4,802–4,827	100 MCFG, AF	C
21	34–009–21404	Atlas Exploration	No. 1 Christman	Athens	Bern	3–13–62	—	P&A, 3–14–62	—
22	34–009–21920	Inland Drilling	No. 1 Black Diamond	Athens	Bern	2–27–79	4,759–4,767	2,000 MCFG, AF	M
23	34–009–23351	Manitou Exploration	No. 1 Deeter	Athens	Bern	1–17–87	5,046–5,058	185 MCFG, AF	M
24	34–009–23356	Manitou Exploration	No. 1 Pinkerton	Athens	Bern	1–13–87	5,056–5,064,5,140–5,148	100 MCFG, AF	C, M
25	34–167–28459	Manitou Exploration	No. 3 Brill	Washington/Ohio	Wesley	1–20–87	5,084–5,088, 5,160–5,170	275 MCFG, AF	C, M
26	34–167–28490	Ullman Operations	No. 1 Richards	Washington	Wesley	7–11–87	5,053–5,076, 5,140–5,151	500 MCFG, TO, AF	C, M
27	34–167–28713	Cemco Operating	No. 1A Venham–Turner	Washington	Wesley	1–8–90	—	—	—
28	34–167–28579	Ullman Operations	No. 4 Gage	Washington	Wesley	2–28–88	5,070–5,094, 5,164–5,166	200 MCFG, 10 BO, AF	C, M
29	34–167–28761	Conzoil, Inc.	No. 1 Wilcoxen	Washington	Wesley	6–10–90	5,196–5,297	200 MCFG, AF	C, M
30	34–167–28758	Cemco Operating	No. 1 Adams	Washington	Palmer	6–3–90	5,244–5,280	200 MCFG, AF	C
31	34–167–29096	Viking Resources	No. 1 Adkins	Washington	Palmer	4–5–95	5,341–5,392, 5,474–5,480	50 MCFG, 5 BW, AF	C, M
32	34–167–29127	Viking Resources	No. 2 Ullem	Washington	Palmer	4–5–95	5,368–5,426, 5,504–5,512	80 MCFG, 1 BO, 5 BW, AF	C, M
33	34–167–28489	Ullman Operations	No. 1 Lawrence	Washington	Palmer	7–19–87	4,972–4,988, 5,062–5,070	300 MCFG, AF	C, M
34	34–167–27681	Berea Oil & Gas	No. 1 Mattocks	Washington	Palmer	2–23–84	5,528–5,540	145 MCFG, AF	M
35	34–167–27647	Berea Oil & Gas	No. 1 Ford	Washington	Palmer	2–12–84	5,498–5,524, 5,586–5,598	1,300 MCFG, AF	C, M
36	34–167–27890	Greenland Petroleum	No. 1 Woodruff	Washington	Watertown	11–2–84	5,636–5,648	50 MCFG, AF	M
37	34–167–28062	RSC Energy Corporation	No. 4 Gearhart	Washington	Watertown	4–25–85	5,628–5,634	95 MCFG, TO, 1 BW, AF	M
38	34–167–23603	East Ohio Gas Company	No. 3493 Ball	Washington	Watertown	11–26–76	5,705–5,711, 5,807–5,812	365 MCFG, AF	C, M
39	34–167–23265	Liberty Petroleum	No. 1 Curry	Washington	Watertown	5–22–70	5,696–5,745, 5,805–5,814	1,970 MCFG, AF	C, M
40	34–167–28647	League Development	No. 1 Hendershot	Washington	Watertown	6–21–89	5,791–5,851, 5,921–5,931	200 MCFG, AF	C, M
41	34–167–28547	Clinton Oil Company	No. 1–1318 Bazler	Washington	Waterford	1–22–88	5,876–5,886	80 MCFG, 1 BO, AF	M
42	34–167–28475	Tiger Oil, Inc.	No. 1 Garen	Washington	Waterford	5–14–87	5,676–5,726, 5,790–5,804	100 MCFG, AF	C, M
43	34–167–28556	Clinton Oil Company	No. 1–1317 Hunter	Washington	Adams	1–19–88	5,662–5,708, 5,778–5,786	105 MCFG, 0.5 BO, AF	C, M
44	34–167–28137	Derby Oil & Gas	No. 1 Devol	Washington	Adams	10–16–85	5,458–5,514, 5,570–5,578	—	C, M
45	34–167–28350	Derby Oil & Gas	No. 1 Ray–Smith	Washington	Adams	3–12–86	5,696–5,728, 5,808–5,815	130 MCFG, AF	C, M
46	34–167–27628	Mid Atlantic Oil	No. 3 Canary	Washington	Adams	3–28–85	5,764–5,818, 5,878–5,886	200 MCFG, AF	C, M
47	34–121–23254	Derby Oil & Gas	No. 1 Kearns	Noble/Ohio	Jackson	5–11–85	5,756–5,800, 5,862–5,872	900 MCFG, 1 BO, AF	C, M
48	34–121–23438	Ventures in Petroleum	No. 3 Corner	Noble	Jackson	3–31–85	5,726–5,784, 5,858–5,868	1,000 MCFG, 1 BO, AF	C, M
49	34–121–23571	Clinton Oil Company	No. 7–1213 Jenkins	Noble	Jackson	3–4–87	5,717–5,731, 5,824–5,834	50 MCFG, 1 BO, AF	C, M
50	34–121–23112	Benatty Corporation	No. 4–100 Simonds	Noble	Jackson	7–13–84	5,641–5,663, 5,760–5,766	1,450 MCFG, AF	C, M
51	34–121–23198	Benatty Corporation	No. 21 Hesson	Noble	Jackson	10–16–84	5,676–5,721	200 MCFG, AF	C
52	34–121–23007	Benatty Corporation	No. 1 Raney	Noble	Jackson	11–29–83	5,728–5,736, 5,843–5,848	150 MCFG, AF	C, M
53	34–121–23485	Benatty Corporation	No. 1 Ohio Power/Smith	Noble	Jackson	11–27–85	5,895–5,922, 5,978–5,985	100 MCFG, AF	C, M
54, *F–F′*(81)	34–121–21420	East Ohio Gas Company	No. 1–2504 Brown Commun.	Noble	Jackson	6–4–70	5,814–5,833	535 MCFG, AF	C
55	34–121–23214	Benatty Corporation	No. 24–52 Ohio Power	Noble	Jackson	11–19–85	5,884–5,908, 5,993–6,004	200 MCFG, AF	C, M
56	34–121–21888	O'Neal Productions	No. 1 Wells	Noble	Olive	8–9–76	5,757–5,765	2,370 MCFG, AF	C
57	34–121–22909	New Frontier Exploration	No. 1 Braden	Noble	Olive	11–11–82	5,846–5,915	30 MCFG, 1 BO, AF	C
58	34–121–21550	Arens Petroleum	No. 1 King Estate	Noble	Olive	7–24–72	5,743–5,809	1,034 MCFG, AF	C
59	34–121–21493	An–Car Oil Company	No. 1 Davis	Noble	Olive	11–15–71	5,652–5,783	1,800 MCFG, AF	C, M
60	34–121–21428	East Ohio Gas Company	No. 1–2503 Ball	Noble	Olive	8–1–70	5,841–5,849, 5,953–5,963	1,365 MCFG, 1 BO, AF	C, M
61	34–121–21730	Carter–Jones Lumber	No. 1 Archibald	Noble	Olive	3–3–75	—	—	—
62	34–121–21742	Carter–Jones Lumber	No. 2 Parrish	Noble	Olive	6–4–74	5,686–5,717	500 MCFG, AF	C
63	34–121–23231	Hanna Petroleum	No. 11–32 Beckett	Noble	Noble	10–5–84	5,636–5,687, 5,748–5,763	134 MCFG, AF	C, M
64	34–121–23159	Jim Stevens Oil & Gas	No. 2 Smith	Noble	Noble	5–13–84	5,500–5,530, 5,610–5,626	100 MCFG, AF	C, M
65	34–121–21646	Guernsey Petroleum	No. 1–G(582) Teters–Hurst	Noble	Noble	9–5–73	5,455–5,493	1,250 MCFG, 5 BO, AF	C
66	34–121–22741	Energy Production	No. 1 Harris (Roach)	Noble	Noble	6–14–82	5,296–5,336	300 MCFG, AF	C
67	34–121–21353	Keillor and Maskeny	No. 1 Zehala	Noble	Noble	10–8–69	5,262–5,276, 5,298–5,306	4,760 MCFG, AF	C
68	34–121–21309	Liberty Petroleum	No. 1 DeVolid	Noble	Noble	—	5,364–5,414	4,850 MCFG, AF	C
69	34–121–23083	New Frontier Exploration	No. 1 Chapman	Noble	Noble	12–18–83	5,399–5,431	250 MCFG, AF	C
70	34–121–23063	New Frontier Exploration	No. 1 Urwin	Noble	Noble	12–9–83	5,405–5,476	400 MCFG, AF	C
71	34–121–23095	Tiger Oil, Inc.	No. 2 Shafer	Noble	Noble	1–7–84	5,503–5,538	80 MCFG, AF	C
72	34–121–21633	Gas Corp. America	No. 1 Bania	Noble	Noble	1–27–7	—	—	—
73	34–121–23012	Yankee Exploration	No. 1 Wheeler	Noble	Noble	4–23–84	5,632–5,666	250 MCFG, AF	C
74	34–121–23226	Consolidated Resources of America	No. 1 Hershberger	Noble	Noble	10–30–84	5,462–5,484	150 MCFG, TO, 5 BW, AF	C
75	34–121–21429	East Ohio Gas Company	No. 1–2508 Snode	Noble	Buffalo	10–2–70	5,599–5,615	1,300 MCFG, AF	C
76	34–121–23703	Belden & Blake Company	No. 1 O'Connell	Noble	Buffalo	11–27–89	5,438–5,474	50 MCFG,1 BO, 1 BW, AF	C
77	34–121–22194	Leader Equities	No. 1 Wiley	Noble	Buffalo	12–6–79	5,644–5,728	100 MCFG, AF	C
78	34–121–21760	East Ohio Gas Company	No. 3258 Booher	Noble	Wayne	10–10–75	5,620–5,677	365 MCFG, AF	C
79	34–121–22037	Gaspro, Inc.	No. 4 Burns	Noble	Wayne	9–21–80	5,556–5,597	10 MCFG, AF	C
80	34–121–22388	Gaspro, Inc.	No. 1 Richey	Noble	Wayne	10–2–80	5,542–5,571	55 MCFG, AF	C
81	34–059–22557	Consolidated Resources of America	No. 1 Presley–Olshawsky	Guernsey/Ohio	Richland	2–15–79	5,542–5,560	240 MCFG, 1 BO, AF	C
82	34–059–20979	Southern Triangle Oil	No. 1 Smith	Guernsey	Richland	7–21–69	—	P&A, 7–22–69	—
83	34–059–21136	Westrans Petroleum	No. 2 Bezek	Guernsey	Richland	12–31–69	5,695–5,763	1,600 MCFG, AF	C
84	34–059–21095	Southern Triangle Oil	No. D–1 Craig	Guernsey	Richland	11–20–69	5,652–5,691	2,100 MCFG, 2 BO, AF	C
85	34–059–23265	Bartlo Oil & Gas	No. 2 Leatherwood	Guernsey	Wills	2–13–82	5,726–5,747	110 MCFG, AF	C
86	34–059–20984	Westrans Petroleum	No. 1 Henderson–Knowlton	Guernsey	Wills	7–8–69	5,700–5,767	2,400 MCFG, AF	C
87	34–059–22615	Consolidated Resources of America	No. 3 Armstrong	Guernsey	Wills	9–20–79	5,747–5,799	30 MCFG, AF	C
88	34–059–22552	Enterprises Gas & Oil	No. 2 Shugert	Guernsey	Wills	3–4–80	5,638–5,648	70 MCFG, AF	C
89	34–059–22332	Guernsey Petroleum	No. 1–ME Wolfe	Guernsey	Wills	5–17–78	5,624–5,644	169 MCFG, AF	C
90	34–059–22105	Gaspro, Inc.	No. 1 Slasor	Guernsey	Wills	9–7–77	5,570–5,643	70 MCFG, 17 BW, AF	C
91	34–059–22236	Gaspro, Inc.	No. 1 Laughman	Guernsey	Wills	10–30–77	5,552–5,604	50 MCFG, 11 BW, AF	C
92	34–059–22946	Gaspro, Inc.	No. 1 Paden	Guernsey	Madison	5–29–81	5,591–5,602	55 MCFG, AF	C
93	34–059–22285	Gaspro, Inc.	No. 1 Bichard–Schulle	Guernsey	Madison	8–23–78	5,609–5,684	150 MCFG, 4 BO, 18 BW, AF	C
94	34–059–22362	Gaspro, Inc.	No. 1 Feisley	Guernsey	Madison	5–27–78	5,556–5,635	125 MCFG, 3 BO, 8 BW, AF	C
95	34–059–20917	Westlands Minerals Company	No. 1 Bennett	Guernsey	Madison	4–15–69	5,630–5,740	860 MCFG, AF	C
96	34–059–23004	Gaspro, Inc.	No. 1 St. Clair	Guernsey	Madison	7–27–81	5,562–5,578	40 MCFG, AF	C
97	34–059–23513	Red Hill Development	No. 9 Miller	Guernsey	Madison	11–30–83	5,735–5,807, 5,852	10 MCFG, TO, AF	C, M
98	34–059–22154	Pominex, Inc.	No. 1 Casten	Guernsey	Londonderry	9–14–77	5,760–5,873	200 MCFG, 5 BO, AF	C
99	34–059–23578	Red Hill Development	No. 1 Halterman	Guernsey	Londonderry	6–21–84	5,949–6,028, 6,066	8 MCFG, TO, AF	C, M
100	34–059–23582	Red Hill Development	No. 2 Henry	Guernsey	Londonderry	8–14–84	6,018–6,081, 6,133	12 MCFG, TO, AF	C, M
101	34–059–23588	Red Hill Development	No. 3 Davidson	Guernsey	Londonderry	8–28–84	5,924–5,994, 6,045	4 MCFG, TO, AF	C, M
102	34–059–23691	Red Hill Development	No. 1 Bond/Davidson	Guernsey	Londonderry	7–28–86	6,020–6,061, 6,110	38 MCFG, TO, AF	C, M
103	34–059–23355	Gaspro, Inc.	No. 1 Lawrence	Guernsey	Londonderry	12–30–82	6,050–6,072	50 MCFG, AF	C
104	34–067–20664	Red Hill Development	No. 1 Rosenberger	Harrison/Ohio	Freeport	8–9–84	6,185–6,242	4 MCFG, TO, AF	C
105	34–067–20644	Red Hill Development	No. 1 Bintz	Harrison	Moorefield	11–18–83	6,242–6,318	6 MCFG, TO, AF	C

Table 1.—Wells used to construct cross section *A–A′*—Continued

Map no.	American Petroleum Institute no.	Company	Lease	County/State	Township (7.5–min quadrangle)	Date of log run	Perforated or open hole interval (depth in ft)	Initial production flow of natural gas	Reservoirs
106	34–067–20632	Red Hill Development	No. 1 Iles	Harrison	Moorefield	11–18–83	6,478–6,544	22 MCFG, TO, AF	C
107	34–067–20660	Red Hill Development	No. 1 Sproull	Harrison	Moorefield	8–1–84	6,545–6,627	6 MCFG, TO, AF	C
108	34–067–20678	Red Hill Development	No. 1 Rowland	Harrison	Nottingham	9–21–84	6,311–6,387	5 MCFG, TO, AF	C
109	34–067–20742	Red Hill Development	No. 1 Lee	Harrison	Cadiz	10–26–85	6,291–6,358	18 MCFG, TO, AF	C
110	34–067–20766	Red Hill Development	No. 1 Kanoski	Harrison	Cadiz	7–12–86	6,594–6,657	28 MCFG, TO, AF	C
111	34–067–20103	Sanford E. McCormick	No. 1 Birney	Harrison	Green	10–23–68	—	—	—
112	34–067–20355	Stocker & Sitler	No. 1 Schaney	Harrison	Green	5–21–79	—	—	—
113	34–067–20427	Mitchell Energy	No. 1 Arbaugh	Harrison	Rumley	5–9–81	6,429–6,539	151 MCFG, AF	C
114	34–067–20373	Mitchell Energy	No. 1–26 Myers–Birney	Harrison	Rumley	1–17–80	6,505–6,613	237 MCFG, 46 BW, AF	C
115	34–067–20382	Mitchell Energy	No. 1–41 Birney Farms	Harrison	Rumley	6–20–80	6,453–6,537	274 MCFG, AF	C
116	34–019–21188	Mitchell Energy	No. 1–3 Vanalick	Carroll/Ohio	Loudon	6–17–78	6,405–6,512	95 MCFG, AF	C
117	34–019–21487	M.B. Operating	No. 1 McConnell	Carroll	Loudon	10–2–81	6,336–6,421	40 MCFG, 2 BO, AF	C
118	34–019–20901	East Ohio Gas Company	No. 3265 Goddard	Carroll	Lee	9–9–75	6,236–6,276	288 MCFG, AF	C
119	34–019–21597	M.B. Operating	No. 1 Rinehart	Carroll	Washington	7–12–83	6,094–6,164	40 MCFG, AF	C
120, *E–E′*(62)	34–019–20553	Management Control	No. 1 McAllister	Carroll	Washington	2–19–71	—	P&A, 2–20–71	—
121	34–019–20515	Mansfield Drilling	No. 1 Felton	Carroll	East	1–23–70	—	P&A, 2–1–70	—
122	34–029–20559	East Ohio Gas Company	No. 1–2419 Burrows	Columbiana/Ohio	Hanover	8–18–66	—	—	—
123	34–029–20618	Belco Petroleum	No. 1 Darcy	Columbiana	Center	8–2–69	—	—	—
124	34–029–20607	Tri–State Producing	No. 1 Sell	Columbiana	Center	10–15–68	6,001–6,030	10 MCFG, 5 BW, AA	C
125	34–029–20631	Statewide Oil & Gas	No. 1 Mrugula	Columbiana	Center	11–4–69	—	—	—
126	34–029–20656	Statewide Oil & Gas	No. 1 Hawkins	Columbiana	Salem	12–6–70	5,802–5,852	979 MCFG, AF	C
127	34–029–21503	Everflow Eastern, Inc.	No. 1 Herron	Columbiana	Butler	12–12–85	5,847–5,919	150 MCFG, AF	C
128	34–029–21584	North Coast Energy	No. 1 Phillis	Columbiana	Salem	10–17–95	5,908–5,953	75 MCFG, 1 BW, AF	C
129	34–029–21491	Bill Blair, Inc.	No. 1 Mangus	Columbiana	Salem	7–8–90	5,625–5,720	P&A, 8–2–90	C
130	34–099–22063	Belden & Blake Company	No. 1 Slagle Community	Mahoning/Ohio	Green	7–6–87	5,710–5,784	50 MCFG, 1 BO, 1 BW, AF	C
131	34–099–22372	Belden & Blake Company	No. 3 Dustman	Mahoning	Green	5–31–90	5,625–5,691	50 MCFG, 1 BO, 1 BW, AF	C
132	34–099–20638	Pominex, Inc.	No. 1 Detwiler	Mahoning	Green	4–29–76	5,670–5,744	850 MCFG, AF	C
133	34–099–20736	Pominex, Inc.	No. 1 Lindquist	Mahoning	Beaver	9–14–76	5,698–5,735	750 MCFG, AF	C
134	34–099–21761	RSC Energy Corporation	No. 1 Van Belt	Mahoning	Beaver	8–5–84	5,660–5,783	80 MCFG, 5 BO, 1 BW, AF	C
135	34–099–22382	Carless Resources/Kelt Oil	No. 3 Yencik	Mahoning	Beaver	1–15–90	5,652–5,685	25 MCFG, AF	C
136	34–099–21637	Pominex, Inc.	No. 1 Mahoning Duck Club	Mahoning	Beaver	9–21–83	5,511–5,576	100 MCFG, AF	C
137	34–099–21603	Pominex, Inc.	No. 1 Grossen	Mahoning	Beaver	7–5–83	5,523–5,647	182 MCFG, AF	C
138	34–099–22222	Everflow Eastern, Inc.	No. 1 Western Reserve	Mahoning	Beaver	4–4–88	5,586–5,652	500 MCFG, AF	C
139	34–099–22072	Everflow Eastern, Inc.	No. 1 Chengelis	Mahoning	Boardman	10–29–86	5,592–5,656	55 MCFG, 2 BO, AF	C
140	34–099–22093	Everflow Eastern, Inc.	No. 1 Kessler	Mahoning	Boardman	12–31–86	5,632–5,708	100 MCFG, AF	C
141	34–099–22115	Everflow Eastern, Inc.	No. 1 Gordon	Mahoning	Boardman	8–1–87	5,653–5,720, 5,806–5,816	300 MCFG, AF	C, M
142	34–099–22283	Everflow Eastern, Inc.	No. 1 Butler	Mahoning	Boardman	12–20–88	5,564–5,626	350 MCFG, AF	C
143	34–099–20310	Youngstown Sheet	No. 2 Youngstown Sheet	Mahoning	Poland	5–17–73	5,585–5,698	500 MCFG, AF	C
144	34–099–20519	Youngstown Sheet	No. 1 Carbon	Mahoning	Poland	4–13–75	—	50 MCFG, AF	C
145	37–073–20036	Viking Resources	No. 1 McCurley	Lawrence/Pennsylvania	(Bessemer)	10–17–85	—	—	—
146	37–085–20392	Dorso Energy	No. 1 Hillmar	Mercer/Pennsylvania	(Greenfield)	2–21–82	5,960–6,035	650 MCFG, AF	G
147, *D–D′*(67)	37–085–21545	Capital Oil and Gas	No. 1 Atkinson	Mercer	(Mercer)	3–4–93	—	120 MCFG, AF	—
148	37–085–21658	Capital Oil and Gas	No. 3 Burdick	Mercer	(Mercer)	1–21–93	—	160 MCFG, AF	—
149	37–085–20258	Peoples Natural Gas	No. 1 Lengel	Mercer	(Mercer)	7–25–84	5,994–6,041, 6,113–6,128	162 MCFG, AF	G, W
150	37–085–20374	Dorso Energy	No. 1 Campbell	Mercer	(Mercer)	1–6–82	5,944–5,958	12 MCFG, N; 134 MCFG, AF	G
151	37–085–20375	Dorso Energy	No. 81–1–7 Rodgers	Mercer	(Mercer)	2–3–82	5,912–5,937	615 MCFG, AF	G
152	37–085–20494	Mitchell Energy	No. 1 McKean	Mercer	(Jackson Center)	3–1–83	5,622–5,699, 5,769–5,778	613 MCFG, AF	G, W
153	37–085–20529	Mitchell Energy	No. 1 Trevitt	Mercer	(Jackson Center)	6–14–83	5,632–5,747, 5,811–5,818	635 MCFG, AF	G, W
154	37–085–20036	Peoples Natural Gas	No. 1–4440 Temple	Mercer	(Jackson Center)	5–7–65	—	—	—
155	37–085–20454	Mitchell Energy	No. 1 Slater	Mercer	(Hadley)	7–29–82	5,360–5,452, 5,524–5,532	537 MCFG, AF	G, W
156	37–085–20536	PNB Petroleum	No. 2 Smith	Mercer	(Hadley)	11–30–83	5,252–5,296	962 MCFG, AF	G
157	37–085–20497	PNB Petroleum	No. 1 Smith	Mercer	(Hadley)	3–6–83	5,258–5,295	200 MCFG, AF	G
158	37–085–20312	Cabot Oil and Gas	No. 2 Miller	Mercer	(New Lebanon)	10–4–81	5,267–5,336	1,200 MCFG, AF	G
159	37–085–20338	Cabot Oil and Gas	No. 1 Moore	Mercer	(New Lebanon)	10–22–81	5,333–5,421	2,500 MCFG, AF	G
160	37–085–20405	Cabot Oil and Gas	No. 2 Boy Scouts	Mercer	(New Lebanon)	5–22–82	5,054–5,144	690 MCFG, AF	G
161	37–121–33887	Cabot Oil and Gas	No. 1 Allum	Venango/Pennsylvania	(Utica)	1–15–83	5,154–5,230	305 MCFG, AF	G
162	37–121–33389	Cabot Oil and Gas	No. 2 Whitman	Venango	(Utica)	10–25–82	5,252–5,328	1,100 MCFG, AF	G
163	37–121–36991	Mark Resources	No. 1 Levi	Venango	(Utica)	3–18–84	5,196–5,284	3,156 MCFG, AF	G
164	37–121–39320	Mark Resources	No. 1 Wallace	Venango	(Dempseytown)	11–9–84	5,431–5,507	650 MCFG, AF	G
165	37–121–40499	Mark Resources	No. 2 McElhaney	Venango	(Dempseytown)	2–8–85	5,306–5,390	800 MCFG, AF	G
166, *C–C′*(50)	37–121–42719	Mark Resources	No. 1 Schaffer	Venango	(Titusville South)	10–12–89	5,602–5,686, 5,724–5,732	250 MCFG, AF	G, W
167	37–121–42435	Cabot Oil and Gas	No. 1 Trelfall	Venango	(Titusville South)	5–11–88	5,422–5,469	600 MCFG, AF	G
168	37–039–22570	Mark Resources	No. 1 Aledman–Hasbrouck	Crawford/Pennsylvania	(Titusville North)	10–6–85	5,280–5,367	850 MCFG, AF	G
169	37–039–20469	Columbia Gas Transmission	No. 20161 Matteson	Crawford	(Titusville North)	10–19–74	—	P&A	—
170	37–039–20652	Wainoco Oil & Gas	No. 1 Paul and Post	Crawford	(Titusville North)	11–28–79	5,006–5,143	1,260 MCFG, AF	G, CH, W
171	37–039–21369	POI Energy	No. 1 Sandor	Crawford	(Spartanburg)	9–23–81	5,126–5,202, 5,242–5,250	225 MCFG, AF	G, W
172	37–123–28495	Berea Oil & Gas	No. 1 Wijtowicz	Warren/Pennsylvania	(Spring Creek)	2–13–81	5,129–5,216, 5,256–5,262	516 MCFG, AF	G, W
173	37–123–32106	Berea Oil & Gas	No. 1 Bunting	Warren	(Spring Creek)	11–25–82	5,048–5,120	1,250 MCFG, AF	G
174	37–123–34492	Universal Resources	No. 4 Mitchell	Warren	(Spring Creek)	6–10–84	4,945–5,026, 5,063–5,068	955 MCFG, AF	G, W
175	37–123–38726	Universal Resources	No. 5 Alsdorf	Warren	(Spring Creek)	8–3–84	4,638–4,717, 4,758–4,763	930 MCFG, AF	G, W
176	37–123–24704	Columbia Gas Transmission	No. 1 Christensen (20164–T)	Warren	(Columbus)	9–8–74	4,494–4,519	150 MCFG, AF	G
177	37–123–31034	Universal Resources	No. 3 Sekerak	Warren	(Lottsville)	3–5–82	4,685–4,803, 4,813–4,843	1,813 MCFG, AF	G, CH, W
178	37–123–29396	Arrowhead Gas	No. 1 Rutsky	Warren	(Lottsville)	6–26–82	5,057–5,173	900 MCFG, AF	G, CH, W
179	37–123–29159	Arrowhead Gas	No. 1 Saunders	Warren	(Sugar Grove)	5–2–81	4,882–4,940	2,500 MCFG, AF	G, CH, W
180	37–123–29598	Sagebrush Resources	No. 1 Mirkut	Warren	(Sugar Grove)	7–21–81	4,765–4,867, 4,880	315 MCFG, AF	G, W
181	37–123–29663	Cumberland Oil Corporation	No. 3 Rupczyk	Warren	(Sugar Grove)	7–28–81	4,716–4,807, 4,824–4,841	3,786 MCFG, AF	G, CH, W
182	37–123–27425	Red Leaf Oil, Ltd.	No. 1 Bartsch	Warren	(Sugar Grove)	9–27–79	4,370–4,378, 4,497–4,510	1,100 MCFG, AF	G, W
183	31–013–17901	Bounty Oil & Gas	No. 1 Wilsie	Chautauqua/New York	Harmony	11–5–82	4,451–4,568	300 MCFG, AF	G, PG, W
184	31–013–17902	Bounty Oil & Gas	No. 1 Hlosta	Chautauqua	Harmony	10–30–82	4,295–4,357	500 MCFG, AF	G
185	31–013–12590	Seis–Ex Geophysical	No. 5 Chautauqua 13	Chautauqua	Harmony	7–10–77	4,359–4,472	NR	G, PG, W
186	31–013–12582	Seis–Ex Geophysical	No. 6 Chautauqua 4	Chautauqua	Harmony	6–3–77	4,264–4,337, 4,370–4,374	5,800 MCFG, AF	G, PG, W
187	31–013–10872	Columbia Gas Transmission	No. 1 Button (20109–T)	Chautauqua	Harmony	6–27–74	4,102–4,106, 4,146–4,158	6,670 MCFG, AF	G
188	31–013–13694	Columbia Gas Transmission	No. 20597 Opalecky	Chautauqua	Harmony	11–15–78	4,066–4,117	2,900 MCFG, AF	G, PG, W
189	31–013–11493	Resource Exploration	No. 1 Andersen	Chautauqua	North Harmony	7–12–75	4,018–4,080, 4,134–4139	375 MCFG, AF	G, W
190	31–013–17661	Resource Exploration	No. 1 Cornell–Wise	Chautauqua	North Harmony	7–15–82	4,006–4,056	17 MCFG, AF	G
191	31–013–19058	Resource Exploration	No. 1–B McGrath	Chautauqua	North Harmony	6–2–84	3,839–3,892	835 MCFG, AF	G
192	31–013–19108	DEST Corporation	No. 1 Cheney	Chautauqua	North Harmony	9–3–84	3,745–3,812	NR	G
193	31–013–19107	DEST Corporation	No. 2 Cheney	Chautauqua	North Harmony	8–30–84	3,709–3,768	NR	G
194	31–013–00005	Wolf Head Oil	No. 1 Harrington	Chautauqua	Ellery	11–2–63	—	—	—
195	31–013–20940	S.P.I. of Ohio	No. 3 Parker	Chautauqua	Ellery	10–29–87	4,052–4,082, 4,126–4138	325 MCFG, AF	G, W
196	31–013–19846	Lenape Resources	No. 1 Hanson–Parker	Chautauqua	Ellery	1–24–85	4,115–4,122	5,961 MCFG, AF	W
197	31–013–17981	U.S. Energy Development	No. 2 Lawson	Chautauqua	Ellery	1–1–83	3,974–4,056, 4,080–4,089	988 MCFG, AF	G, W
198	31–013–20408	DEST Corporation	No. 1 Wissman	Chautauqua	Gerry	2–3–87	3,463–3,584	500 MCFG, AF	G,PG,W
199	31–013–16064	Berea Oil & Gas	No. 1 Broadway	Chautauqua	Gerry	6–20–81	3,830–3,892, 3,928–3,936	1,200 MCFG, AF	G, W
200	31–013–18107	U.S. Energy Development	No. 1 Kibbe	Chautauqua	Gerry	1–15–83	3,911–3,976, 3,997–4,002	1,596 MCFG, AF	G, W
201	31–013–16297	Berea Oil & Gas	No. 9 Reforestation No. 10	Chautauqua	Gerry	7–26–81	4,072–4,172, 4,209–4,224	1,500 MCFG, AF	G, W
202, *B–B′*(18)	31–013–18226	Templeton Energy	No. 1 Edson (754)	Chautauqua	Charlotte	6–6–83	3,961–4,001, 4,035–4,041	360 MCFG, AF	G, W
203	31–013–18220	Berea Oil & Gas	No. 4 Hill	Chautauqua	Cherry Creek	6–2–83	3712–3769, 3,799–3,805	1,100 MCFG, AF	G, W
204	31–013–15908	Seis–Ex Geophysical	No. 1 Reitig	Chautauqua	Cherry Creek	6–1–81	3,716–3,726, 3,744–3,754	808 MCFG, AF	G
205	31–013–04154	Humble Oil & Refining	No. 1 Shadle	Chautauqua	Cherry Creek	12–21–61	—	—	—
206	31–013–18948	Empire Exploration	No. 2 Butcher (6318)	Chautauqua	Villenova	4–21–84	3,112–3,142, 3,203–3,208	2,589 MCFG, AF	G, W
207	31–013–05447	C.H. Trattler & Associates	No. 1 Bignell	Chautauqua	Villenova	2–17–68	—	—	—
208	31–013–18738	Empire Exploration	No. 1 Stelmach (6292)	Chautauqua	Villenova	4–20–84	3,480–3,490	1,830 MCFG, AF	W
209	31–013–18887	Empire Exploration	No. 1 Wooley (6294)	Chautauqua	Villenova	2–13–84	3,046–3,080, 3,106–3,124	3,035 MCFG, AF	G, W
210	31–013–18946	Empire Exploration	No. 2 Phillips (6334)	Chautauqua	Villenova	5–7–84	3,409–3,443, 3,473–3,477	17 MCFG, AF	G, W
211	31–009–18938	Empire Exploration	No. 2 Mosher (6303)	Cattaraugus/New York	Dayton	4–17–84	3,156–3,200, 3,223–3,226	109 MCFG, AF	G, W
212	31–009–05313	Iroquois Gas	No. 1 Pratt (2375)	Cattaraugus	Otto	9–20–67	3,355–3,412	157 MCFG, AF	G, W
213	31–029–13625	N.Y.S. Natural Gas	No. 1 Weller	Erie/New York	Concord	9–10–78	—	—	—
214	31–029–12984	Flint Oil & Gas	No. 1 Boston Hill Rifle	Erie	Concord	11–24–77	2,864–2,930	802 MCFG, AF	G
215	31–029–11730	Flint Oil & Gas	No. 1 Foss (1241)	Erie	Wales	12–16–75	2,426–2,445, 2,454–2,468	4,100 MCFG, AF	G
216	31–029–16956	P & S Drilling	No. 1 Becher–Poutnier	Erie	Wales	1–26–82	1,688–1,770	2,030 MCFG, AF	G
217	31–029–12564	Flint Oil & Gas	No. 1–1438 Sowinski	Erie	Marilla	4–26–77	1,573–1,652	680 MCFG, AF	G
218	31–037–17335	Gypsum Energy	No. 1 Sierk (219)	Genesee/New York	Darien	10–13–82	1,416–1,469 open hole	65 MCFG, AF	G
219	31–037–16175	Midwest Exploration	No. 1 Mendola	Genesee	Pembroke	2–9–82	1,044–1,111	555 MCFG, AF	G, Q
220	31–037–05117	W. Duchscherer	No. 1 Klotzback	Genesee	Alabama	6–16–67	876–900	125 MCFG, AF	G
221	31–073–04611	Humble Oil & Refining	No. 1 Kelly	Orleans/New York	Barre	1–2–65	—	—	—
222	—	Medina outcrop section	—	Orleans	Ridgeway	Duke and others (1991)	—	—	—



[1] Horvath and others (1970).
[2] Smosna and Patchen (1980).
[3] Based on R.D. Hettinger (*in* Ryder and others, 1996).

Figure 2.—Correlation chart of Niagaran provincial series rocks (Lower and lower Upper Silurian) and adjoining Upper Ordovician and Upper Silurian rocks along section *A–A′*. The European and North American chronostratigraphic units are after Brett and others (1995). rv = ravinement surface. mfs = maximum flooding surface.

STRATIGRAPHIC FRAMEWORK AND DEPOSITIONAL SEQUENCES IN THE LOWER SILURIAN REGIONAL OIL AND GAS ACCUMULATION, APPALACHIAN BASIN: FROM JACKSON COUNTY, OHIO, THROUGH NORTHWESTERN PENNSYLVANIA, TO ORLEANS COUNTY, NEW YORK

By
Robert T. Ryder
2000

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For sale by U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225
Printed on recycled paper