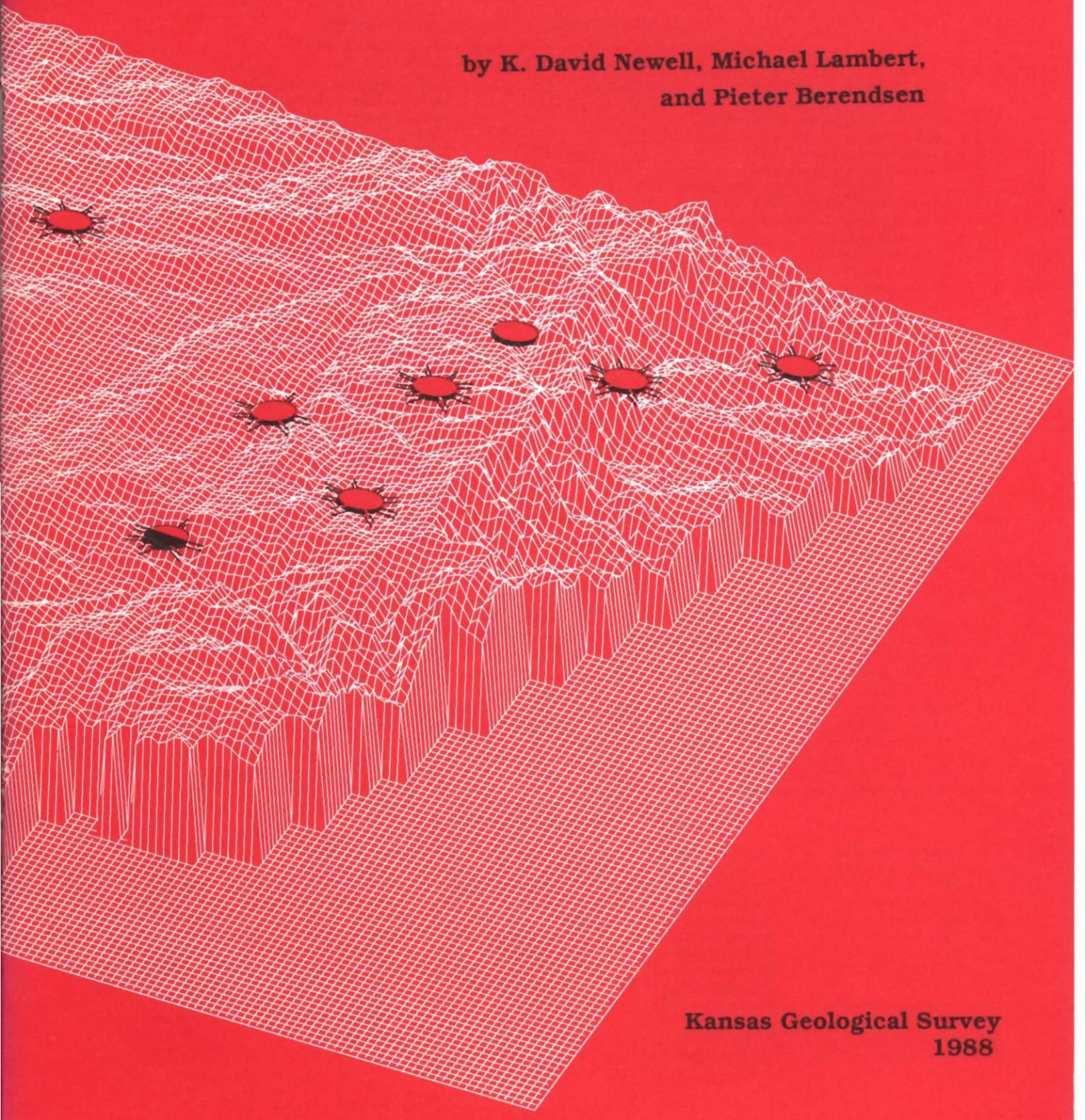
Subsurface Geology Series 10

Oil and gas shows in the Salina basin

by K. David Newell, Michael Lambert,
and Pieter Berendsen



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COVER—Transect or fishnet plot of Salina basin area topography using Surface II program.
Design by Jennifer Sims.

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Introduction

Petroleum exploration in the Salina basin in north-central Kansas (Lee, 1956) has met with limited success to date. Except for in its extreme southern end in McPherson and Saline counties and its eastern flank in Clay County, the basin has had no fields discovered in over 60 years of drilling. The failure to find significant reserves in the Salina basin no doubt discourages all but the boldest explorationist. Exploration test wells have been drilled infrequently, and consequently large areas encompassing almost entire counties remain untested. The Salina basin is therefore one of the least-known areas in Kansas with respect to its petroleum potential.

The Salina basin may never be a prolific petroleum province; nevertheless, it could contain oil and gas fields which could be economic and interesting to small oil companies and local communities. The Forest City basin in northeast Kansas is geologically similar in many ways to the Salina basin (Lee, 1956). Many small oil and gas fields are present in the Forest City basin and still more are being discovered. Similar types of fields are therefore possible in the Salina basin.

Wildcatters prospecting for petroleum in areas far from known oil fields must do everything possible to maximize their chances for success. At the same time, they must conserve their expenses in what could be a costly drilling program if no reserves are found. In areas such as the Salina basin, where widely spaced wells limit the amount of geologic control available, gleaning as much information as possible from each well is very important. Hydrocarbon shows that have been logged in previously drilled wells represent a potentially important source of information.

Oil and gas shows *per se* are not proof that commercial quantities of petroleum will be discovered, but they do indicate where geologic conditions favorable for petroleum formation were fulfilled, if only to a small degree. When used in conjunction with other geologic data, hydrocarbon shows (or the lack of them) can be useful in assessing the petroleum potential of individual prospects or entire basins. Thus, exploration dollars can be spent more wisely if hydrocarbon shows are taken into account.

This data search was initiated in December 1985, to ascertain if any petroleum shows are present in wells drilled in the Salina basin, and, if so, to determine where these shows are concentrated and which stratigraphic horizons generate them. The data sources used in this compilation are available in the Minerals Information Center at the Kansas Geological Survey in Lawrence, Kansas. Three types of source documents were queried for the 1,224 wells in the study area—scout cards, driller's logs, and lithologic-strip logs. Other sources of information such as geologic reports available in the library of the Kansas Geological Society in Wichita may yield additional data but were not included in this report.

The following information was gathered about each show: operator and well name, spot location, county, completion date, surface datum, depth interval, formation, and type of show. The type of show is described using the comments contained in the original source document. Abbreviated oil-field terms are the descriptors commonly used in characterizing these shows [e.g., SSO (slight show oil), OCM (oil-cut mud), GCM (gas-cut mud), etc.]. Wherever possible in this report, the show description is conveyed verbatim from the source document, with perhaps only minor changes in spelling. A glossary of the stratigraphic abbreviations and oil-field terms used in this report (appendix 1) precedes the compilation of hydrocarbon shows (appendix 2).

The shows are separated into three groups according to the nature of the source document (scout card, driller's log, lithologic log). Within each group, shows are separated into those present in the west ranges versus those in the east ranges. Within this hierarchy, wells are filed according to their location by township, range, and section. Shows reported in documents other than scout cards, driller's logs, and lithologic logs are reported at the end of the compilation for the west ranges. Areas close to existing oil fields were ignored by excluding any oil shows found within the quarter-township containing a known oil or gas field, or segment of a field.

The number and distribution of oil shows are, in part, a function of the number and location of wells drilled in the basin. The distribution of dry holes and oil fields within the Salina basin is shown on the map accompanying this report (figure 1; in back pocket). Other information, such as total depth and deepest formation penetrated by each well, are not included. Factors such as experience and alertness of the observer of course cannot be estimated.

Figure 2 is based on figure 1 and graphically summarizes oil shows and drilling density for several subdivisions of the Salina basin. In this figure, the interior of the basin is divided into several subdivisions. Each subdivision is approximately four by four townships (approximately 575 mi^2; 1,490 km^2), except where smaller subdivisions were used along the periphery of the study area. The relative number of wells and oil shows in different parts of the basin easilty can be compared by inspection of pie charts that summarize drilling in each subdivision.

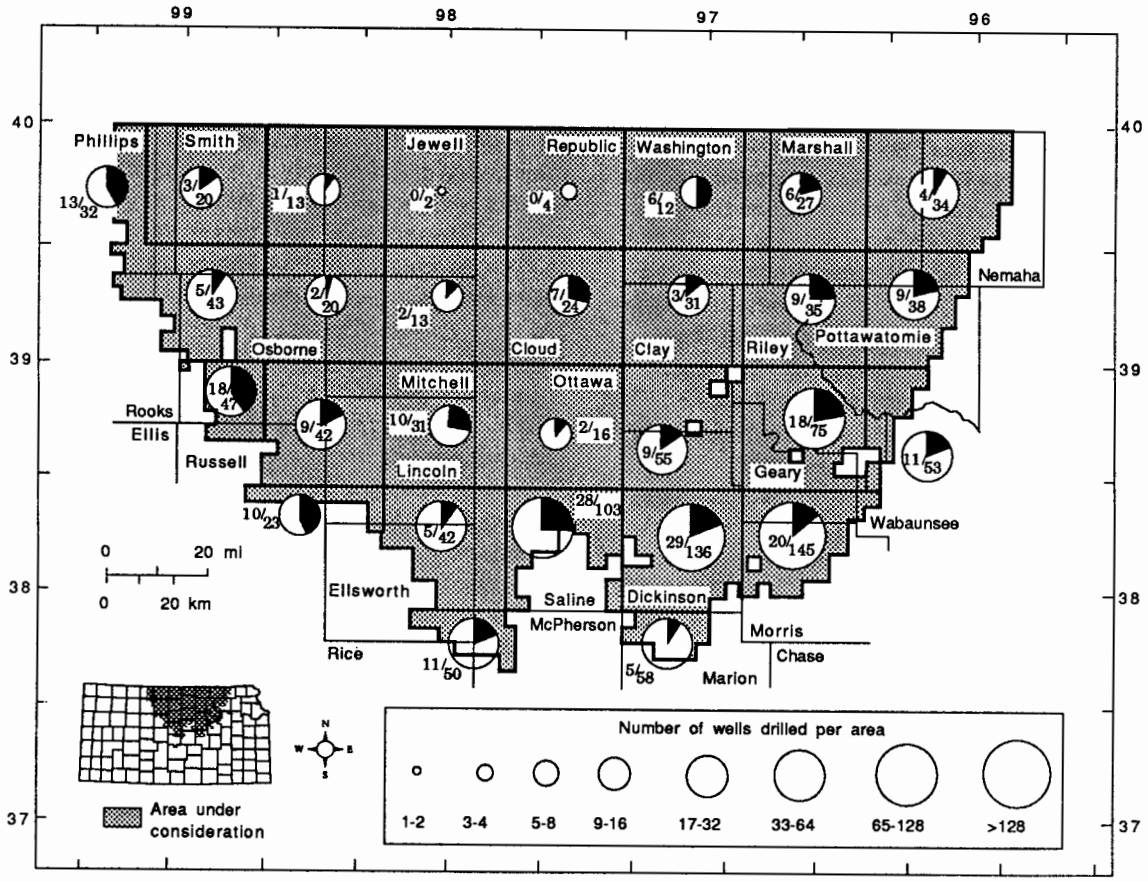

FIGURE 2—Summary of oil shows in Salina basin. Percentage of wells in given area reporting oil shows shown as dark wedge (also expressed as a ratio).

Discussion and conclusions

The number of petroleum shows within this relatively nonproductive basin is surprising. In the west ranges over the deepest part of the basin, most of the oil shows occur in lower Paleozoic units, namely the Simpson, Viola, and Maquoketa formations (Ordovician). These shows appear scattered, but a small group is concentrated just north of the Salina field in northeastern Saline County. The major pay zones in this field are the Maquoketa and Viola formations. Oil and gas shows in the Mississippian "chat," the major reservoir unit farther south in the northern Sedgwick basin, are conspicuously absent in the western part of the Salina basin. Similarly, shows also are rare in the Cambrian-Ordovician Arbuckle Group, a major pay horizon to the west on the Central Kansas uplift. Pennsylvanian Lansing-Kansas City oil shows are common on the extreme western fringe of the Salina basin and are probably related to possible prospective areas peripheral to Lansing-Kansas City production trends on the Central Kansas uplift. Gas shows indicate no discernible trends and are scattered over the Salina basin. Gas shows are most common in Permian units.

The distribution of oil and gas shows indicates that in order to maximize chances of success, a wildcat well in the western and central part of the Salina basin should at least penetrate the top of the Arbuckle Group. By drilling to this horizon, the lower Paleozoic units in which most shows occur will be tested.

Previous investigations by Landes and Jewett (1939) reported several seeps of kerosene-like oil in Smith County in the western side of the Salina basin. These authors attributed these seeps to natural origins, but the transitory occurrence of the seeps and the unusual lightness of the oil militate against their natural occurrence. No good correlation could be established between the well shows in this report and the surface seeps reported by Landes and Jewett (1939).

The best oil show in a well in the west ranges away from the Central Kansas uplift may have occurred in northwestern Lincoln County at the Red Bank Oil #1 Brown well in sec. 35, T. 10 S., R. 10 W. Although Survey records state this well was dry, local residents maintain that the well produced minor amounts of commercial oil that was transported by wagon to a nearby railroad-freight depot until 1926, when the well was shut down due to lack of saltwater-disposal facilities (Les Stephens, personal communication, 1985). This well (renamed the #1 Sulsar) was re-entered in 1985 by Stephens Resource Company, and a minor amount of oil was seen in drilling mud after the well was acidized. The well, however, could not be cleaned out and brought into production. In April 1986, the well was again re-entered and successfully deepened by Mid-American Hydrocarbons Company, but detailed examination of geophysical logs, sidewall cores, and drill cuttings did not reveal any significant shows.

Hydrocarbon shows in the east ranges of the Salina basin are more numerous and complicated than those in the west ranges. Mississippian shows are the most common and are largely concentrated in Dickinson, Clay, Geary, and northern Morris and Marion counties. These shows generally occur near the top of pre-Chesteran Mississippian limestones at the sub-Pennsylvanian unconformity. Several other oil shows are recorded from the Silurian-Devonian "Hunton" group, as well as other lower Paleozoic units. Some of these shows occur where these older units are directly subjacent to the sub-Pennsylvanian angular unconformity.

Several Lansing-Kansas City oil shows occur in the southeastern part of the Salina basin and seem to be spatially coincident with deeper Mississippian shows. These shows, like the Mississippian shows, may be related to concentrations of hydrocarbons along north-northeast–south-southwest-trending structures aligned subparallel to the Nemaha uplift and Humboldt fault zone. Several shows in the Mississippian section along the sub-Pennsylvanian unconformity and within the Pennsylvanian section in the southeast part of the basin are significant (e.g., free oil recovered in drill-stem tests, etc.). These strong shows give encouragement that this area may be prospective for undiscovered oil fields.

Oil shows in the lower Paleozoic section not associated with the sub-Pennsylvanian unconformity in the east ranges are not as common or as strong as the Mississippian and Pennsylvanian shows. Like oil shows in the west ranges though, oil shows in the east ranges are widely scattered and are largely concentrated in the Viola, Maquoketa, and Simpson formations. Gas shows, like those in the west ranges, are mostly concentrated in the Permian strata.

The most surprising oil shows in the east ranges occur in Precambrian clastic rocks possibly associated with the Central North American rift system (CNARS). Wells with Precambrian shows include the Veeder #1 Gravenstein well in sec. 21, T. 8 S., R. 6 E. (Riley County), the Marshall County Syndicate #1 C. Finn well in sec. 4, T. 4 S., R. 7 E. (Marshall County), the Welton Oil #1 Thierer well in sec. 20, T. 10 S., R. 7 E. (Riley County), the Seevers #1 Livingood well in sec. 13, T. 13 S., R. 2 E. (Dickinson County), and the Nemaha Oil and Gas #1 Seneca well in sec. 19, T. 3 S, R. 11 E. (Nemaha County). The #1 C. Finn well reported oil and gas shows in "bituminous shales" and sands over a 600-ft interval. The #1 Seneca well is not located over the trend of the CNARS, therefore the presence of shows in the Precambrian section is unexpected.

Very few wells have been drilled into the Central North American rift system; hence, its hydrocarbon potential is largely unknown. The shows present in these extremely old rocks, although minor, are nevertheless encouraging. Companies generating prospects targeted for potential Paleozoic reservoirs should therefore be cognizant of potentially prospective deeper strata if they are exploring in areas over or near the rift.

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Appendix 1

Abbreviations and terminology used

Stratigraphic abbreviations

ABCK	Arbuckle Group (Cambrian-Ordovician)
BRGS	Burgess sand (basal Pennsylvanian sandstone)
BRN LM	brown lime—an informal term used to describe a limestone in the Douglas Group (Pennsylvanian, Virgilian); or in southeast Kansas, a limestone in the Marmaton Group (Pennsylvanian, Desmoinesian)
CG	conglomerate, used with either PENN, MSSP, etc.
CGRV	Council Grove Group (Permian, Gearyan)
CHER	Cherokee Group (Pennsylvanian, Desmoinesian)
CHSE	Chase Group (Permian, Gearyan)
DAK	Dakota Formation (Cretaceous)
DGLS	Douglas Group (Pennsylvanian, Virgilian)
GRHVN	Grandhaven Limestone Member (Pennsylvanian, Virgilian)
HASK	Haskell Limestone Member (Pennsylvanian, Virgilian)
HEEB	Heebner Shale Member (Pennsylanian, Virgilian)
HERR	Herington Limestone Member (Permian, Gearyan)
HNTN	Hunton group (Silurian, Middle Devonian)
KC	Kansas City Group (Pennsylvanian, Missourian)
LANS	Lansing Group (Pennsylvanian, Missourian)
LECMP	Lecompton Limestone (Pennsylvanian, Virgilian)
LKC	Lansing-Kansas City groups (Pennsylvanian, Missourian)
MSNR	Misener sandstone member (Upper Devonian-Mississippian)
MQKT	Maquoketa formation (Upper Ordovician)
MSSP	Mississippian
NEVA	Neva Limestone Member (Permian, Gearyan)
OREAD	Oread Limestone (Pennsylvanian, Virgilian)
PENN	Pennsylvanian
PERM	Permian
PRE CAM	Precambrian
REAG	Reagan Sandstone (Cambrian)
SEV	Severy Shale (Pennsylvanian, Virgilian)
SHAW	Shawnee Group (Pennsylvanian, Virgilian)
SMPS	Simpson Group (Middle Ordovician)
TOP	Topeka Limestone (Pennsylvanian, Virgilian)
TOR	Toronto Limestone Member (Pennsylvanian, Virgilian)
VIOL	Viola Limestone (Middle Ordovician)
WAB	Wabaunsee Group (Pennsylvanian, Virgilian)

A stratigraphic column and detailed descriptions of these units can be found in Zeller (1968).

Oil-field terms

bbl, bbls	barrel, barrels
BOPD	barrels of oil per day
BTU	British thermal units
BW/hr	barrels of water flowing per hour
BWPD	barrels of water per day
cf	cubic feet
cfg	cubic feet of gas
chat	cherty and conglomeratic rock
dst	drill-stem test
fluor	fluorescence
fm	formation
FO	frothy oil
FU	filled up
GC	gas cut
GCM	gas-cut mud
GCO	gas-cut oil
GCSW	gas-cut saltwater
GMCO	gassy mud-cut oil
GOCM	gassy oil-cut mud
GSO	good show of oil
gty	gravity
HC	hydrocarbon
HG	highly gas-cut
HOCM	highly oil-cut mud
MCFGPD	thousand cubic feet of gas per day
MCW	mud-cut water
MSW	muddy saltwater
MW	muddy water
NA	not available
OC	oil-cut
OCM	oil-cut mud
OCSW	oil-cut saltwater
OIH	oil in hole
OS	oil show
OSM	oil-saturated mud
perfs	perforations, perforated
rec	recovered, recovery
SGCM	slightly gas-cut mud
SGCMW	slightly gas-cut muddy water
SGCSW	slightly gas-cut saltwater
SICP	shut-in casing pressure
SMCSW	slightly mud-cut saltwater
SO	show of oil
SOC	slightly oil-cut
SOCM	slightly oil-cut mud
SOCMW	slightly oil-cut muddy water
SOCSW	slightly oil-cut saltwater
SOSM	slightly oil-saturated mud
SOSMW	slightly oil-saturated muddy water
SSO	slight show of oil, small show of oil
SW	saltwater
swbd	swabbed
UV fluor	ultraviolet fluorescence
VSOCM	very slightly oil-cut mud
VSOCSW	very slightly oil-cut saltwater
VSSO	very slight show of oil
WCM	water-cut mud
w/	with

Appendix 2

Salina basin hydrocarbon-show compilation

Salina basin hydrocarbon-show compilation (west ranges)

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Scout cards							
Terra Resources #1 Wangerin	NENE 20-2S-15W	Smith	11/79	1994	2872-2933	SEV?	rec. 1,730' SGCSW on dst.
					2890-2894	SEV	30-40 unit gas kick; few sand clusters w/SO
					2910-2916	TOP	?-92 unit gas kick
					3115-3120	TOR	slight stain-no porosity
					3200-3210	LANS	slight stain-no porosity
Nat'l. Assoc. Petrol. Co. #1 Morgan "A"	NWNWNW 5-2S-17W	Phillips	10/56	2088	3390-3440	KC	rec. 1250' saltwatery oil on dst.
Anschutz Drlg. Co. #1 Cannon	SWSWSW 17-2S-17W	Phillips	3/52	2028	3470-3483	LANS	rec. 8' drilling mud, SSO on dst.
Amerada Petrol. #1 Hawk	SESENW 24-2S-18W	Phillips	8/58	2039	3320-3473	LANS	rec. 435' slight OCSW on dst.
Terra Resources #1 Pillmore	SWSESW 21-3S-17W	Phillips	12/79	1915	3226-3275	LANS	rec. 15' mud w/SO on dst.
					3320-3353	LANS	rec. 15' mud w/SO on dst.
Beacon Resources #1 Zillinger "A"	NESWSW 33-3S-18W	Phillips	12/68	1928	3076-3100	LANS	rec. 25' OSM on dst.
Sohio #1 Hansen	SWNWNE 33-3S-18W	Phillips	12/52	1895	3282-3302	LKC	rec. 15' HOCM, trace oil on dst.
Arrowhead Petrol. #1 Miller	NENWNW 34-3S-18W	Phillips	7/80	1929	3096-3160	OREAD	rec. 15' VSOCM on dst.
					3240-3285	LANS	rec. 7' mud w/SO on dst.
Harry Mann et al. #1 Beard	NESWSW 10-5S-10W	Jewell	10/52	1636	2546-2579	DGLS	rec. 60' GCM on dst.

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Petroleum Mgmt. #1 T.W. Jackson	NWSWSE 16-5S-17W	Phillips	11/65	1946	3185-3230 3246-3265 3292-3310	LANS LANS LANS	rec. 3' oil and 17' mud on dst. rec. 2' FO and 253' MSW on dst. rec. 10' OCM and 65' MSW on dst.
Petroleum Mgmt. #1 Keeten "B"	E/2NW 16-5S-17W	Phillips	3/66	1936	3209-3240 3238-3250	LANS LANS	rec. 80' SOCM on dst. rec. 30' VSOCSW, 20' SOCSW, and 65' MSW on dst.
Stanolind #1 Campbell	SWNWNW 26-6S-2W	Cloud	7/50	1396	3031-3040	MQKT	rec. 8' SOCM on dst.
Martins Expl. #1 McLaughlin	SESESW 6-6S-17W	Rooks	6/80	1923	3071-3140 3181-3210	LANS LANS	rec. 5' oil & 30' HOCM on dst. rec. 30' MCW w/scum oil on dst.
Lewis Drlg. #1 Kemmler	NWNWSE 7-6S-17W	Rooks	11/52	1952	3132-3148 3126-3143	LANS LANS	rec. 10' mud w/SO on dst. rec. 135' OCM on dst.
Pate-Dombaugh et al. #1 Coleman-Brune	NWSENW 7-6S-17W	Rooks	8/79	1956	3099-3156	TOR	rec. 40' OCM on dst.
Nat'l Assoc. Petrol. Co., #1 Schwartz "B"	SWSWNW 18-6S-17W	Rooks	5/66	2005	3264-3300	LANS	rec. 10' OCM and 60' SOCM on dst.
Shields Oil Prod. #2 Enoch	E/2E/2SE 31-7S-15W	Osborne	7/80	1762	2812-2854	TOP	rec. 60' SOCM on dst.
Shields Oil Prod. #1 Enoch	NWSWNW 32-7S-15W	Osborne	3/73	1762	2793-2812	TOP	rec. 20' OCM on dst.
Ottawa Oil & Devel. #1 Srna	NWSESW 21-9S-5W	Ottawa	5/20	1549	3190-3207	PENN-MSSP?	driller reports good show green oil
Don Ingling et al. #1 Abercrombie	SWSENE 19-9S-7W	Mitchell	2/58	1367	3436 3567	HNTN VIOL	oil stains oil stains
Billy Drlg. #1 B. Funk	NW 32-9S-8W	Mitchell	?/24	~1800	136	DAK	show of gas w/1.08% He (see Landes and Ockerman [1930], p. 54)
Northern Ord. #1 Vandament	NWNW 3-9S-13W	Osborne	5/43	1767	3035-3057 3920-3930	PENN VIOL	SO dead oil, spots

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Mai Operations #1 Ahrens	SENWNE 30-9S-14W	Osborne	8/81	1965	2925-2945 3143-3242	TOP TOR LANS	rec. 10' OSM w/SO on dst. rec. 20' OSM and 20' mud w/SO on tool on dst.
Empire #1 Crist	SESENE 30-9S-14W	Osborne	6/29	1983	3676-3680	MSSP?	OS
Rains-Williamson #1 McNeal	SWNWSE 32-9S-14W	Osborne	6/83	1989	3254-3287	LANS	rec. 65' WCM w/SO in dst.
Drolte & Christopher #1 Nichols	NWNWNW 15-10S-11W	Osborne	11/60	1730	4007-4020 3790-3802 4007-4020	VIOL VIOL VIOL	UV fluor. rec. 75' watery mud w/slight fluor. rec. 9' mud w/UV fluor.
Drolte & Christopher #1 Mosure	SESW 21-10S-11W	Osborne	1/60	1688	3486-3500	MSSP CG	trace flake oil
Terra Resources #1 Robinson	NENENE 14-10S-12W	Osborne	11/78	1702	2938-2980	LANS	rec. 305' SOCM on dst.
Eric F. Waddell #1 Meyers	NENWNE 15-10S-14W	Osborne	10/83	2000	?	LANS	oil well (interval NA)
Eric F. Waddell #2 Meyers	N2N2N2 15-10S-14W	Osborne	6/84	2043	3256-3310	LANS	rec. 45' OCM on dst.
Veail #1 Meyer	SWNE 15-10S-14W	Osborne	8/68	2005	3230-3260 3260-3280 3300-3330	LANS LANS LANS	rec. 30' OCM on dst. rec. 30' GC & OCM on dst. rec. 120' VSOCM on dst.
Dutton & Hicks #1 Steinle	SESESE 4-11S-12W	Russell	7/47	1698	2903-2908 2954-2966	LANS LANS	5' core, slightly stained SO
Ladd Petrol. #1 Day Trust	SESESE 3-11S-13W	Russell	5/83	1692	2985-3002	LANS	rec. 65' VSOCM (2% oil) on dst.
Thunderbird Drlg. #1 Anschutz "D"	SENESW 5-11S-14W	Russell	6/81	1795	3050-3071	LANS	rec. 30' mud w/SSO on dst.
Rains-Williamson #1 Harrell	NENENW 5-11S-14W	Russell	4/83	1787	2720-2740 3043-3053	TOP LANS	rec. 15' OSM on dst. rec. 125' VSOCM on dst.

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Rains-Williamson #1 Robbins	SENWNW 6-11S-14W	Russell	4/83	1784	3066-3106 3156-3200	LANS LANS	rec. 210' SOSMW & 180' SW on dst rec. 10' SOSM on dst.
Rains-Williamson #1 Alfred Thompson	SENWSE 7-11S-14W	Russell	9/82	1695	2938-2978	LANS	rec. 10' OSM on dst.
Rains-Williamson #1 Slater	SWNWNE 11-11S-14W	Russell	8/82	1806	3053-3083	LANS	rec. 75' SOSM on dst.
Carter Oil #1 Best	SWNE 26-12S-3W	Ottawa	8/19	1304	840	PERM?	gas sand
Glickman Oil #1 Mynatt	NWNESE 8-13S-1W	Saline	2/59	1183	3041-3051	VIOL	rec. 6' OCM on dst.
Walters Drlg. #1 Tobin Est.	SWNW 17-13S-1W	Saline	12/69	1181	3014-3052	MQKT- VIOL	SO in top 4' and bottom 1' of 28 1/2' core
Bay Petrol. #1 Rockhold	NWNWNW 20-13S-1W	Saline	1/43	1178	3058-3060	VIOL	SSO
F.W. Vishnefske #1 Geis	NWNWNW 27-13S-2W	Saline	8/55	1223	3185-3190	VIOL	rec. 120' SOCM on dst.
E. Adair #1 Walden	SWSW 27-13S-2W	Saline	10/45	1206	3315-3317	SMPS	SSO
Terra Resources #1 Geis	SW 33-13S-2W	Saline	8/78	1217	3320-3348	SMPS	rec. 420' MCW w/SSO on dst.
Twin Mounds Oil #1 Weis	WLNENW 20-13S-4W	Saline	4/29	1375	1948	TOP	gas show
D. Ingling #1 Meyer	NWNW 17-13S-10W	Lincoln	1/64	1737	3494-3509	VIOL	dead oil spots
P.G. Reynolds et al. #1 Fredrickson	SESWSE 6-13S-12W	Russell	6/36	1794	2640	LANS	SO
Austin Drlg. Co. #1 Rockefeller	SESE 6-13S-12W	Russell	11/31	1794	3042-3044	LANS	SO 600' oil-22 hrs., bailed 18 bbls in 3 hrs. (41° gravity)

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J.D. Mooneyham & R.P. Nixon #1 Cooper	SESE 13-13S-12W	Russell	2/67	1789	2954-2974	LANS	rec. 10' SOCM on dst.
Thunderbird Drlg. #1 Letsch	NWSWSW 15-13S-12W	Russell	7/83	1795	2957-2976 2996-3017	LANS LANS	rec. 150' MCW w/SO rec. 60' HG & OCM and 240' mud & GCO on dst. (well also flowed 3-10% oil through perfs. @ 3006'-3010')
Pickrell & Southwest Petroleum #1 Sidey Ranches "A"	SESENW 18-13S-12W	Russell	8/70	1825	3030-3045	LANS	rec. 760' SMCSW w/VSSO on dst.
Koch Expl. #1 Rogg	NWNENE 10-13S-13W	Russell	5/69	1692	2896-2932	LANS	rec. 114' watery mud w/few specks oil on dst.
B&R Drilling #1 Dauber	SESENW 12-13S-13W	Russell	7/47	1585	2813-2820	LANS	rec. 30' mud, slight odor, slight OC on dst.
Rains-Williamson #1 Dauber	SWSE 12-13S-13W	Russell	11/78	1615	2844-2860	LANS	rec. 35' mud w/SO on dst.
Thunderbird Drlg. #1 Holland	NENWNE 15-13S-13W	Russell	10/82	1799	3050-3088	LANS	rec. 250' MCW w/SSO on dst.
Rains & Williamson #1 Shier	NWSESW 35-14S-1W	Saline	5/83	1269	2577-2585	MSSP	rec. 600' GCSW on dst.
Don Ingling et al. #1 Price	SENESE 3-14S-2W	Saline	2/56	1200	3134-3147	MQKT	SSO
Assoc. Petrol. Consultants #1 Gilmore	NENE 18-15S-1W	Saline	10/82	1275	2668-2702 2669-2690	MSSP MSSP	rec. 850' SW & SSO on dst. rec. 75' OSM (5% oil) on dst.
Bay Petrol. #1 Royce	SESESE 13-15S-4W	Saline	7/51	1292	3134	HNTN	rec. 175' muddy SW & scum oil on dst.
S.K.D. Corp. #1 Kyler	S/2SESW 5-15S-7W	Ellsworth	2/73	1711	1093-1178 1957-2008	HERR GRHVN	rec. 10' GCM on dst. rec. 60' thin SGCM on dst.

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Stearns Drlg. #1 Dolezal	NENENW 17-15S-7W	Ellsworth	7/50	1664	2620-2630	DGLS	SO
					2810-2820	LANS	SO
					2900-2910	LANS	SO
					2900-3000	LANS	SO
Acme Brick #1 Woods	NENW 31-15S-7W	Ellsworth	12/77	1576	997-1072	CHSE	rec. 72' GCM on dst.
					2598-2650	LANS	rec. 165' GCM on dst.
Rains & Williamson #1 Walker	NESWNE 3-16S-1W	Saline	8/78	1241	2013-2038	LANS	rec. 50' mud w/SO on dst.
					2622-2635	MSSP	rec. 330' SGCSW on dst.
Wolf Creek Oil #1 Stein	NENWSW 10-16S-1W	Saline	1/44	1243	2623-2625	MSSP	OS
Rains & Williamson #1 Sorenson	NENWNE 35-16S-1W	Saline	6/83	1348	3409-3417	SMPS	rec. 30' MCW & 620' SOCSW on dst.
Mallonee-Mahoney, Inc. #1 Christopher	NWNESE 22-16S-4W	Saline	9/70	1402	3526-3530	MQKT	rec. 2' clean oil + 45' SOCMW on dst.
A. Scott Ritchie #1 Lagerstrom	NWSENE 33-16S-4W	Saline	8/82	1506	3629-3645	MQKT	rec. 15' mud w/SSO on dst.
					3750-3789	SMPS	rec. 15' mud w/SO on dst.
Cary Drlg. #1 Lagerstrom	SWSWNE 33-16S-4W	Saline	10/53	1502	3765-3779	SMPS	rec. 20' muddy oil, 111' OCM, 40' muddy water on dst.
					3776-3782	SMPS	rec. 2' muddy oil on dst.
A. Scott Ritchie #2 Lagerstrom	SWSENW 33-16S-4W	Saline	10/83	1497	3631-3650	MQKT	rec. 30' mud w/SSO on dst.
					3743-3790	VIOL-SMPS	rec. 110' WCM w/SSO on dst.
Texas Co. #1 Dahlston	SESWSE 21-17S-4W	McPherson	10/55	1380	3515-3520	MQKT	rec. 90' water w/SSO on dst.
Darrah & Garvin #1 Tyner	SESENW 6-17S-7W	Ellsworth	8/53	1679	2743-2753	LANS	rec. 30' watery mud & SSO on dst.

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Driller's logs							
Vickers #1 Wheaton	SWSE 9-5S-17W	Phillips	8/43	1925	3224-3227	LANS	lime porous, SO
Sidwell #1 Murdock	SESESE 6-6S-4W	Cloud	4/28	1538	1685-1720	?	7 bbl. water & gas in "red rock"
					2280-2294	?	SSO in sand
					2488-2498	LKC?	SSO in white lime
					2705-2708	LKC?	OS in gray limestone
Stearns & Streeter #1 Carlin	SWSWNE 19-8S-13W	Osborne	2/27	1879	2783-2810	WAB	5 BW/hr + "rainbow show"
Carey #1 Srna	NWNWSE 21-9S-5W	Ottawa	1/60	1593	2050-2068	?	hole full of water-showing gas in sand
					3022-3122	PENN-MSSP?	SO in black-blue shale
Marlin #1 Beiler	NENE 10-9S-8W	Mitchell	12/24	1515	3310-3336	MSSP	SO in sandy hard lime
ESP #1-18 Kreft	SESWNW 18-9S-14W	Osborne	12/82	1936	2938-2941	TOP	VSSO
					2973-2977	TOP	VSSO
					3842-3868	VIOL	slight odor of oil
ESP #1 Brown	SESESW 19-9S-14W	Osborne	9/82	1993	3257-3285	LANS	very slight show
						VIOL	good show "good golden fluorescence"
Empire #1 Crist	SESENE 30-9S-14W	Osborne	1/29	1983	3000-3050	TOP	lime-SO
					3185-3195	TOP	SSO in shaly lime
					3275-3335	LANS	SO
Oil Capitol Corp. #1 Shilling	SWSWNE 1-10S-6W	Lincoln	7/56	1533	3930-3941	SMPS	trace of heavy brown oil
Red Bank Oil #1 Brown	NENESE 35-10S-10W	Lincoln	12/26	1523	3350?	MSSP	well reportedly produced oil until shut down for lack of saltwater-disposal facilities (Les Stephens, personal communication, 1985)

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Amerada #1 Crawford	NESWSE 16-11S-7W	Lincoln	3/25	1631	1285-1385	PERM?	gas sand (10,000 ft^3) w/ SSO
Trees #1 Kohler	SESESW 36-11S-10W	Lincoln	9/24	1555	1385-1450 2900-2910 3030-3065	PERM? LKC LKC	gas show in lime gas show in lime gas show in lime
Krueger et al. #1 Pospishil	NESE 13-11S-13W	Russell	11/24	1613	1950	PERM?	show gas
Prairie O&G #1 Middlekrouff	SWSW 10-12S-9W	Lincoln	4/19	1400	219-220 1138-1160	? ?	very light show of gas in sand light OS in "red rock"
Konler Well #8	NENW 3-12S-10W	Lincoln	?	1535	2890-2910	?	gray lime w/show of gas (authors are uncertain this location is correct)
Rosenthal et al. #1 Lamber	SENWNW 31-12S-10W	Lincoln	12/24	1518	3210-3275	MSSP	SO in "red rock"
Rains & Williamson #1 Shier	NWSESW 35-14S-1W	Saline	5/83	1269	2577-2585	MSSP	dst. rec. gassy saltwater
Northwestern #1 Anderson	SENENE 24-14S-3W	Saline	10/52	1227	3209.5	VIOL	good OS
Bay Petrol. #1 Royce	SESESE 13-15S-4W	Saline	7/51	1292	3431-3434	MQKT	scum oil in dst.
Western States #1 Root Farm	NENWNW 13-15S-6W	Ellsworth	?/23	1420	1166-1277	?	doubtful oil & gas show in sandy lime
Smith #1 Blomberg	SESENW 22-16S-4W	Saline	12/54	1398	3531-3535 3701-3707	MQKT MQKT	dst. rec. slightly oil-stained water dst. rec. SOCM
Carey Drlg. #1 Lagerstrom	SWSWNE 33-16S-4W	Saline	10/53	1502	3620-3635 3765-3782	MQKT SMPS	rotary mud w/few spots oil oil, OCM and muddy oil rec. in dst.
A. Scott Ritchie #1 Lagerstrom	NWSENE 33-16S-4W	Saline	9/82	1506	3629-3645 3750-3789	MQKT SMPS	dst. rec. mud w/few spots oil on tool dst. rec. mud w/few spots oil on tool

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A. Scott Ritchie #2 Lagerstrom	SWSENW 33-16S-4W	Saline	10/83	1497	3631-3650 3743-3790	MQKT SMPS	dst. rec. mud w/few specks oil dst. rec. mud w/few specks oil
Skaer-Crum #1 Peterson	SWNE 5-16S-5W	Saline	9/20	1477	1090-1095 1140-1170 1330-1335	PERM? ? ?	small show of gas in brown lime small flow of gas in brown lime small flow of gas in blue shale
Phillips #1 Hockman	NENENE 17-16S-7W	Ellsworth	11/32	1569	1855-1860	?	gas show in lime
Excalibur #1 Johnson	SESE 10-17S-6W	Ellsworth	2/82	1502	3524-3537	SMPS	SO; faint odor

Lithologic logs

Mallard Petrol. #1 Broeckelman	N/2NENE 15-1S-10W	Jewell	6/84	1922	2750-2760 3040-3060 3630-3640 3660-3670 3770-3780 3940-3950 3940-3960	SHAW LKC MSSP MSSP MQKT VIOL? VIOL?	oil stain, acid-cut; fluor. slight HC fluor.; residual fluor. when cut w/acid uneven strong fluor. strong fluor. dead oil stain? trace dead oil stain? dead oil stain; very slight fluor.
Dreiling #1 Lyons	NWSESW 24-1S-14W	Smith	11/71	1943	3700-3740 4010-4055 4100-4110 4120-4130 4180-?	HNTN VIOL SMPS SMPS ABCK	spotty dead oil coloration in part spotty dead oil discoloration dead oil stain discoloration in part dead oil stain discoloration in part OS?
Rine #1 Frazer	NWNWSE 8-1S-17W	Phillips	1/52	2069	3410-3420	LANS	spotty oil stain
Westgate-Greenland #1 Schluntz	NESWSE 23-1S-17W	Phillips	3/51	2120	3483-3493 3593-3600	LANS LANS	trace light oil stain dark, oil saturated in part

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Dreiling	NESWSE	Smith	8/71	1931	4300-4310	SMPS	spots gilsonite
#1 Conaway	3-3S-13W				4340-4350	SMPS	spots gilsonite
J. S. & F.	NWNWSE	Phillips	12/54	1908	3260-3270	LKC	spotty faint stain
#1 Adee	16-3S-17W				3340-3350	LKC	spotty dark stain
Sohio	SWNWSE	Phillips	12/52	1895	3290-3300	LKC	oil staining
#1 Hansen	33-3S-18W				3320-3330	LKC	slight spotty oil stain
Atchison	SWSE	Cloud	11/59	1367	1510-1520	TOP	trace questionable gilsonite
#1 Resco	24-5S-1W						
Mann	S/2SW	Jewell	9/56	1636	3910-3920	SMPS	spots gilsonite
#1 Beard	10-5S-10W						
Rupp-Ferguson	SWSWNW	Cloud	4/57	1361	3142-3179	SMPS	spots gilsonite
#1 Delude	19-6S-1W				3200-3232	SMPS	spots gilsonite
Mattson & Thomp.	NWNE	Cloud	7/70	1579	3569	VIOL	trace brown oil stain at top of fm.
#1 Holbert	33-6S-4W						
KAI	SWSWSE	Mitchell	10/73	1516	3705-3725	VIOL	spotty oil stain, may be tool grease
#1 Theirolf	34-6S-6W				3844-3850	SMPS	spots black hydrocarbon
					3920-3926	SMPS	trace faint questionable oil stain
Harbar	SESE	Osborne	8/44	1809	4100-4115	SMPS	uneven oil stain
#1 Un. Center Life	15-6S-15W						
Lewis Drilling	NWNWSE	Rooks	4/52	1932	3124-3144	LANS	slight spotty oil stain
#1 Kemmler	7-6S-17W				3150-3152	LANS	spots dark oil stain
					3230-3265	LANS	spots dark oil stain
					3305-3323	LANS	spots dark oil stain
					3343-3353	LANS	slight spotty oil stain
					3383-3400	LANS	trace oil stain
H.W. Neiswanger	CNLNENE	Osborne	6/26	1633	2777	TOP	showing gas
#1 Turner	10-7S-12W						
Rupp-Furguson	NWNWNW	Cloud	3/57	1478	3704-3720	SMPS	trace gilsonite
#1 Larson	21-8S-2W						

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Thompson-Waterman #1 Yenni	NWNW 36-8S-5W	Cloud	9/67	1317	3612-3627	SMPS	traces of dark-brown earthy gilsonite
Northern Ordinance #1 Burr	SESW 35-8S-9W	Mitchell	4/43	1590	3940-3955	SMPS	showing fresh light-brown oil stain (looks good)
Siedhoff et al. #1 Grief	NWSWSE 16-8S-10W	Mitchell	11/37	1563	3524	MSSP?	small showing gas
Stearns & Streeter #1 Carlin	SWSWNE 19-8S-13W	Osborne	2/27	1877	2780	WAB	rainbow SO in water flow
D&D #1 Cornwell	SESW 27-8S-13W	Osborne	4/64	1691	3725	ABCK	traces very questionable faint oil stain at top
Veail #1 Sarver	SENE 29-8S-13W	Osborne	7/66	1763	3035-3050	LANS	slight spots dark stain
Cary #1 SRNA	NWNWSE 21-9S-5W	Ottawa	1/60	1964	2437-2460	TOP	spots disseminated earthy gilsonite
Alcorn #1 Beeler	NE 10-9S-8W	Mitchell	12/24	1523	~3330	MSSP	SO
Northern Ord. #1 Vandament	NWNW 3-9S-13W	Osborne	5/43	1767	3055-3057 3920-3930	LANS VIOL	SO from scout cards dead oil spots
Murfin #1 Madsen	NENESE 17-9S-14W	Ottawa	6/53	2036	3345-3363	LANS	faint oil stain
Phillips Petrol. #1 Cather	SWSW 15-11S-1W	Ottawa	8/44	1380	3530-3550	SMPS	oil stain
Auto-Ord. & Darby Petrol. #1 Gawith	SWNESW 27-11S-5W	Ottawa	8/43	1459	3920-3930	VIOL	streaked brown oil stain and asphalt
Dickey Oil Co. #1 Eckart	SWSW 24-11S-7W	Lincoln	4/44	1663	3980-3990 4015-4025	VIOL SMPS	streaked dull-brown oil stain brown oil stained
Inland #1 Rhudy	NWNWNW 30-11S-7W	Lincoln	6/54	1595	3938-3978	SMPS	spots dark oil stain

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Carter #8 Strat. Test	SWNE 21-11S-8W	Lincoln	?	1558	3440-3455	MSSP SMPS	minor streaks asphalt samples in part asphaltic
Time #1 Thompson	SESESE 7-11S-14W	Russell	12/51	1689	2955-2967	LANS	light oil stain
Stanolind #1 K.M. Duggan	NWNWSW 12-12S-1W	Ottawa	12/43	1318	3275	VIOL	interbedded red-brown argillaceous material (*may be* oil)
Valley Oil #1 Herrington	NENWSE 3-13S-1W	Saline	4/35	1193	1580-90 3105	LECMP SMPS	light SO SO
Glickman Oil #1 Mynatt	NWNESE 8-13S-1W	Saline	2/59	1183	3053 3152 3200	VIOL SMPS SMPS	trace questionable oil stain trace gilsonite trace gilsonite
Bay Petrol. #1 Rockhold	NWNWNW 20-13S-1W	Saline	1/43	1178	3160	VIOL	streaked dull-brown oil stain
Glickman #1 Royal	NWNWNW 24-13S-2W	Saline	1/59	1344	3358	SMPS	spots gilsonite
Auto-Ord. #1 Ruch	SENENW 25-13S-2W	Saline	11/42	1197	2660 3268	MSSP SMPS	streaked oil stain spots of asphalt
USGS-KGS #1 Geis	SWSWSW 32-13S-2W	Saline	4/80	1210	3250-3260	VIOL	light oil stain
Musgrove #1 Link	NWNWNW 9-13S-3W	Saline	7/52	1237	3634	SMPS	spots dark oil stain?
Twin Mounds Oil #1 Weis	WLNENW 20-13S-4W	Saline	8/32	1376	830 865 1945	PERM? PERM? TOP, LKC	gas shows gas shows gas shows big gas show exhausting itself
P.G. Reynolds et al. #1 Fredrickson	SESWSE 6-13S-12W	Russell	6/36	1794	3027	LANS	SO
Phil-Han #1 Bailey	SESESW 17-15S-1W	Saline	7/43	1263	2700-2710 2815	MSSP MSSP	streaked brown oil stain brown oil stained

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					3095	MSNR	streaked brown oil stain
					3400	SMPS	asphalt stringers
Templeman et al. #1 Laubengayer	SW 20-15S-5W	Saline	2/30	1506	2520-2530	HASK	showing gas
Western Star Petrol. Co. #1 Root	NENENW 13-15S-6W	Ellsworth	?	1442	1166	?	gas and oil showing (authors are uncertain this well location is correct)
Ingling #1 Hughs	SESENW 21-15S-6W	Ellsworth	2/54	1592	3677	SMPS	trace faint oil stain
Acola O&G & Keys Petrol. "Carnario Well"	SWSESW 21-15S-6W	Ellsworth	?	1636	3250	MSSP	SO (authors are uncertain this well location is correct)
Keys Pet. Co. #1 Sheridan	SWSESW 21-15S-6W	Ellsworth	6/23	1615	1350-1360	?	SSO
Appleman #1 McManus	SESENW 29-15S-6W	Ellsworth	4/42	1544	1090	?	oil stained, brown
Franco-Central #1 Malmgren "A"	NESENE 22-16S-4W	Saline	1/53	1400	2670-2687	LANS	spots dark oil stain
					3519	MQKT	dark oil stain
Smith #1 Malmgren	NWSENW 23-16S-4W	Saline	11/55	1380	3520	MQKT	spots dark oil stain
Franco-Central #1 Lagerstrom	SWSWNE 33-16S-4W	Saline	10/53	1502	3771	SMPS	spotty light oil stain
Branine & Goering #1 Linchield	NESE 34-16S-4W	Saline	2/43	1476	3805	VIOL	streaked brown oil stain
					3835	SMPS	oil stained in uppermost 5'
Skaer-Crum Oil #1 Peterson	SWSWNE 5-16S-5W	Saline	9/20	1477	1095	PERM?	gas show
					1145	?	gas
					1670	?	gas
Westgate-Greenland #1 Ingemanson	W/2SWSW 2-17S-5W	McPherson	2/43	1398	3665	SMPS	possible oil stain

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Leben #1 Hokr	NWNW 6-17S-7W	Ellsworth	4/70	1675	2745-2754 3070-3075	LANS CHER	spotted oil stain at top trace oil stain
Pack #1 Davis	NENENE 17-18S-4W	McPherson	9/52	1403	3664-3680	SMPS	spotty oil stain
Victor #1 Swenson	SESESE 21-18S-4W	McPherson	3/52	1460	3644	VIOL	spotty oil stain
Osage #1 Johnson	SWSWSW 4-18S-5W	McPherson	6/57	1566	3782-3795	SMPS	spots very dark oil stain
Trans-Era #1 Myers	SESESE 8-18S-5W	McPherson	6/54	1589	3759-3775	VIOL	spots dark oil stain
K&E #1 Smith	NENENW 8-18S-5W	McPherson	12/56	1641	3873	SMPS	spots dark oil stain
Frates Oil #1 Walker	SWNE 10-18S-6W	Rice	2/26	1698	3200	?	trace of oil
Other sources							
Red Bank Oil #1 Brown	NESW 35-10S-10W	Lincoln	11/26	1523	3500?	MSSP?	local residents maintain well produced a few bbls of oil that were hauled to nearby railroad depot (Les Stephens, pers. comm., 1985); well was re-entered 4/86 by Mid-American Hydrocarbon, Inc.; no shows were detected except one cuttings chip w/streaming cut
Delhi #1 Dorman	SWSW 20-10S-11W	Osborne	11/24	1688	2840	SHAW?	Landes and Ockerman (1930) report "good oil show" from 3 1/2-ft-thick sand

Salina basin hydrocarbon-show compilation (east ranges)

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Scout cards							
W.J. Nelson #1 Brown	S/2SESE 29-1S-10E	Marshall	11/63	1410	995-996	REAG	show of heavy asphalt oil in granite wash
Blazier et al. #1 Runkle	NESENW 13-2S-6E	Marshall	1/32	1219	?	?	well reported to have SO (doubtful)
Vermillion O&G #1 Beatty	NWSESE 29-2S-9E	Marshall	5/22	1252	1180-1210	?	oil and gas (source unknown)
Sincox #1 Pennwell	NENWSENE 16-3S-3E	Washington	1/32	1409	750-754	PERM	show of gas (source unknown)
Blazier et al. #1 Cooper	NENENW 10-3S-7E	Washington	8/29	1334	2045-2075	MSSP?	light OS (source unknown)
?	?	Marshall	?	?	750-755	LKC	SO (authors are uncertain this well location is correct)
#1 Shearer	15-4S-9E				790-793	LKC	gas (100,000 cfg.)
L.V. Wentworth #1 Moser	SESWSW 33-6S-9E	Pottawat.	5/51	?	1720-1728	VIOL	good SO
Arkansas Fuel #1 Martin	SENESW 24-8S-4E	Riley	1930	1328	2510-2515	VIOL	SSO
Veider Sup. & Dev. Co. #1 Gravenstine	NWNW 21-8S-6E	Riley	1/46	1258	2665 2676	SMPS PRE CAM	scattered spots heavy asphaltic oil weathered granite & quartzite-sandy at top, pieces show asphaltic oil
Pan American Petrol. #1 A.J. Lauer	SENWNW 26-8S-8E	Pottawat.	6/65	1233	904 1150 1180 1210	TOP KC KC KC	SO in sample SO in sample SO in sample SO in sample

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
K&E Drlg. #1 Edwards	SESESW 15-8S-10E	Pottawat.	3/61	1154	729-736	LANS	show of tarry dead oil
McCulloch & Venus Oil #1 Burgess	SWSESE 23-8S-10E	Pottawat.	3/71	1082	1283-1298	VIOL	rec. 1000' water w/few specks live oil on dst.
McCulloch & Venus Oil #1 Ballentine	NENW 26-8S-10E	Pottawat.	9/71	1193	1393-1408	VIOL	rec. 573' water w/speckles of oil on dst.
Aurora Gasoline #1 Shebert Hughes Comm.	NENENE 8-9S-4E	Clay	9/51	1175	1842-1887	MSSP	rec. 165' mud, few specks oil on dst.
Skow Bros-Ritchie et al. #1 Gates	SESESW 16-9S-4E	Clay	9/29	1825	1825	MSSP	SO
C.U. La Shelle Co. #1 Umschied	NWNW 16-9S-9E	Pottawat.	12/43	1083	1180-1183 1689-1692 1948-1950 1958-1960	CHER HNTN SMPS SMPS	SSO SSO SSO SSO
Schoenroch-Brewer #1 Loren Brewer	SWSWNE 33-9S-9E	Pottawat.	12/71	?	585-600	?	show gas w/sulfur odor in 3 separate sand zones
G.F. Johnson, Jr. #1 Olson	NENWNE 6-10S-10E	Pottawat.	5/60	1125	890-905	LANS	rec. 60' OCM on dst.
Energy Reserves Gp. #1 Lichtenhan	SESESW 35-11S-7E	Geary	5/77	1148	1606-1702	MSSP	rec. 30' oil-speckled mud on dst.
Jones-Gebert #2 Scott	NWSENE 35-11S-7E	Geary	1/60	1278	1792-1808 1797-1804	MSSP MSSP	rec. 40' HOCM on dst. perf. w/rec. of 250' OIH & 250' water pumped 25 BOPD w/decline 5 to 3 BOPD
Pure Oil #1 Scott	SWSENE 35-11S-7E	Geary	3/59	1280	1829-1850	MSSP	rec. 140' watery mud, trace oil on dst.
Geo. F. Johnson, Jr. #1 Weigel	NESENE 1-11S-8E	Riley	4/62	1070	1489-1502	VIOL	asphalt residual stain
McCulloch & Venus Oil, #1 Barry	W/2SWSW 14-11S-8E	Riley	2/70	1132	1480-1535	PENN CG	rec. 40' muddy water w/slight specks oil

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Cities Service #1 Poole	NWNENE 29-11S-8E	Geary	3/61	1463	1809-1835	CHER	rec. 1' GOCM + 2' GMCO on dst.
BMG #1-32 Poole	SWSWSW 32-11S-8E	Geary	12/77	1361	1888-1900	MSSP	perf., swbd. 1 1/2 BOPD + 65 BWPD
James F. Ralsin #1 Rudolph	NESWNW 7-11S-9E	Riley	12/66	1098	1190-1206 1198-1215 1198-1202	PENN CG PENN CG PENN CG	rec. 160' oil & 50' SOCM on dst. SO in samples perf. 550' & trace water, FU 85' water & some oil in 12/hrs.
Energy Reserves Gp. #1 Herpich	SWSWSW 24-12S-7E	Geary	5/77	1419	1913-1999	PENN CG	rec. 60' SO specked mud on dst.
Barbara Oil Co. #1 A.H. Meseke	NWNESE 29-12S-9E	Wabaunsee	12/67	1327	1804-1836	HNTN	rec. 75' MW w/SO on dst.
Carter Oil #1 A.H. Meseke	SESENE 29-12S-9E	Wabaunsee	12/49	1364	1881-1900 1900-1910	HNTN HNTN	rec. 15' mud, SSO on dst. rec. 10' mud, SSO on dst.
Thorpe et al. #1 Morse	NWSW 11-13S-1E	Dickinson	10/39	1270	3156-3166	VIOL-SMPS	OS
Desbrow #1 Garie	S/2S/2SW 21-13S-1E	Dickinson	4/52	1156	2346-2351	MSSP	perf. and rec. scum oil
Nordboe #1 L. Clemence	SESENE 28-13S-1E	Dickinson	7/59	1167	2317-2319	MSSP	SSO
CFA Oil #1 Wolf	SENE 27-13S-6E	Geary	10/81	1379	?	?	OS; fm. and interval NA
L.E. Dornes et al. #1 Fechner	SENE 27-13S-8E	Geary	9/34	1496	600	PERM	OS
St. Michael Expl. #1 Rogers	SESW 17-13S-9E	Wabaunsee	12/79	1251	3177-3183	VIOL	rec. 1263' SW w/SO on dst.
Saline Basin Petrol. #1 Entrikin	SESESW 35-14S-1E	Dickinson	1/65	1201	2381-2408	PENN CG	core cut, rec. 26' cherty cgl. w/slight scattered stain of heavy black oil

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Rex & Morris Drlg. #1 Mannel	NESWSW 6-14S-2E	Dickinson	4/79	1206	2285-2349	MSSP	rec. 150' mud w/oil specks on dst.
Nimrod Petrol. #1 Foster	NENENE 29-14-4E	Dickinson	12/50	1326	2214-2217	MSSP	show dead oil
Mull Drlg. #1 Blythe	NWNE 20-14S-6E	Morris	4/74	1398	2096-2125	MSSP	rec. 45' SOCM w/trace free oil on dst.
Crude Oil Prod. #1 Dodderidge "A"	NENENW 29-14S-6E	Morris	4/82	1356	2071-2080	MSSP	rec. 75' oil, 90' HOCM, 90' SOCM, 90' OCSW
BMG #1-34 Downes	NWSW 34-14S-7E	Morris	3/78	1463	335-349	NEVA	tested 14 MCFGPD, BTU 193, SICP 75, gas 89% nitrogen
Pendleton #1 Olson	N/2N/2NE 9-14S-8E	Morris	8/80	1512	1885-1907 1903-1916	VIOL VIOL	rec. 210' oil, 125' OCM (gty 16.7°) on dst. rec. 2' oil, no water on dst.
Cities Service #1 Albrecht	NWNENE 25-15S-4E	Dickinson	2/58	1336	2185-2205	MSSP	rec. 210' slight OCM on dst.
F.G. Holl #1 Whitehair	NWNWNW 17-15S-5E	Morris	2/51	1347	2161-2169 2162-2180	MSSP MSSP	rec. 30' SOCM on dst. rec. 52' SOCM on dst.
F.G. Holl #2 Whitehair	NWNWNW 17-15S-5E	Morris	5/59	1337	2162-2182	MSSP	rec. 75' watery mud-free specks oil on dst.
Cimarron Petrol. #1 Kickhoser	SWNW 22-15S-5E	Morris	10/79	1392	2826-2941	ABCK	rec. 750' OCSW on dst.
Crude Oil Prod. #1 Carson	NENENW 3-15S-6E	Morris	4/82	1455	2170-2176	MSSP	GSO
F.H. Adair Oil #1 Clark	SWSWNW 7-15S-6E	Morris	3/60	1423	2153-2173	MSSP	rec. 50' SOC watery mud on dst.
Anderson-Prichard #1 Lawrence	SWNESE 35-15S-7E	Morris	11/59	1414	1328-1355	LANS	rec. 450' SGCMW on dst.
G.J. Ablah #1 Ade	NESE 17-16S-1E	Dickinson	11/67	1388	2676-2687	MSSP	rec. 30' VSO specked mud & 170' MW on dst.

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
E.K. Carey #1 Lauxman	SENWNE 31-16S-1E	Dickinson	2/54	1365	2685	MSSP	SSO
Jones & Hill #1 Lauxman	SENENE 31-16S-1E	Dickinson	10/43	1339	2660-2663	MSSP	SO
Prout & Ryan(?) #1 Cosgrove	? ?-16S-2E	Dickinson	?	?	835	?	SO (authors are uncertain this well location is correct)
TGT Petrol. #1 Sandow	SWSENE 11-16S-2E	Dickinson	2/76	1288	2373-2379 2373-2407	MSSP MSSP	rec. 10' OSM on dst. rec. 1500' SW w/SO
Lance Hil #1 Rutz	SWSWNE 8-16S-4E	Dickinson	10/58	1351	2273	MSSP	SO
John C. Graves #1 Floyd	NWSESE 18-16S-5E	Morris	9/69	1429	2247-2295	MSSP	rec. trace free oil, 185' OC watery mud, 340' muddy water on dst.
W.E. Harding #1 Kind	SWSWNE 18-16S-5E	Morris	1/46	1414	2261	MSSP	OS
Chas. Carlock #1 Miller "B"	W/2SWSW 18-16S-6E	Morris	11/78	1502	2212-2240	MSSP	rec. 125' mud with SSO on dst.
H.E. Geis #1 L. Geis	SW 33-17S-1E	Marion	6/80	1437	2734	MSSP	show dead oil
D.J. Ingling #1 Heiser	SWSWNE 15-17S-3E	Marion	7/56	1466	2489-2502	MSSP	rec. 190' OCM, swbd. SO

Driller's logs

Sincox #1 Pennwell	NWSENE 16-3S-3E	Washington	1/32	1409	750-754	PERM	SO and gas
Elder and Ward #1 Stamm	SWSWSW 3-3S-4E	Washington	2/25	1431	755-760	PERM	coal with oil
McCole et al. #1 Schwartz-Foyer	NWNWNE 27-4S-3E	Washington	2/30	1462	1020-1105	PERM	SO

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Marshall Co. Syndicate #1 C. Finn	NWNENE 4-4S-7E	Marshall	5/29	1370	330-340	PERM	SO
					650-660	PERM	OS
					1800-1810	MQKT?	sand SO (total production at least 5 bbls)
					2433-2467	PRE CAM	showing
					2615-2707	PRE CAM	showing
					2767-2775	PRE CAM	showing ("showings" generally from "bituminous shale")
					2778-2815	PRE CAM	good showing
					2825-2290	PRE CAM	showing
					2903	PRE CAM	gas sand
					2907-2960	PRE CAM	showing
					2995-3010	PRE CAM	showing
					3015	PRE CAM	gas sand
Gypsy #1 Droll	SESWNW 2-7S-5E	Riley	1917	1127	540	?	OS
					1830	HNTN	light OS
(?) #1 Dixon	SWSWSE 32-7S-11E	Pottawat.	?	?	1995-2000	BRGS	oil (authors are uncertain this well location is correct)
Nebraska Oil Co. #1 Fevier	SWSWSW 19-8S-3E	Clay	12/31	1257	2198-2213	MSSP	SO
Olsson & McCole #1 Anderson	NWSWNW 1-8S-7E	Pottawat.	1/42	1208	745-750	PERM	small show gas
Pan American Petrol. #1 A.J. Lauer	SENWNW 26-8S-8E	Pottawat.	6/65	1233	904-924	TOP	SO
					1150-1180	LKC	SO
J.B. Petroleum #1 Cox	SWNWSW 16-9S-7E	Riley	12/68	1342	1717	HNTN	light oil
					2180	MQKT	oil fluor. in mud
					2200	VIOL	strong SO; vivid spotty color
					2282	SMPS	streak dead oil stain
Rizar #1 Myers	NENWNW 4-10S-4E	Clay	9/35	1137	~1245	LKC	oil & gas
Pawnee O&G #1 Marks	SWNENW 26-10S-6E	Riley	12/23	1213	1645	MSSP	oil scum

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Welton Oil #1 Thierer	NWNENW 20-10S-7E	Riley	5/29	1266	815 1350 1814 2207 2696	? ? ? SMPS PRE CAM	oil sand, gas gas sand SO oil some oil
Dieter #1 Bennett	SWSWNE 3-11S-1E	Dickinson	12/49	1425	460-472	PERM	gas show in cherty lime
Marshall & Hennesy #1 Danz	NESENW 34-11S-4E	Dickinson	10/24	1286	2550-2555	MSNR	OS in sand
Kerby & Wright #1 Kurtze	NLSWSE 18-11S-5E	Geary	6/27	1077	134 410 457 630 1066 1228 1500 1909 1924 2227 2548	? ? ? ? ? ? ? MSSP? MSSP? HNTN? VIOL?	oil & gas OS oil & gas showings oil & gas showings strong showing of shale oil strong gas & oil show gas show oil & gas show sandy lime—slight rainbow gas showing OS (rainbows in sandy lime)
George F. Johnson, Jr. #1 Weigel	NESENE 1-11S-8E	Riley	4/62	1070	1482-1502	VIOL	dense limestone some fluor. no odor, no free oil
Wilson #1 Rannels	W/2 4-11S-8E	Riley	6/29	1274	1720-1724	?	sand, OS & water
Cities Service #1 Haylett	SWSENE 14-11S-8E	Riley	8/59	1279	1678-1717	HNTN	"lime"; scattered flecks of oil in dst.
Brandt #1 Poole	NWNENE 29-11S-8E	Geary	6/84	1463	1821-1824	MSSP	8 BOPD production
BMG #1-32 Poole	SWSWSW 32-11S-8E	Geary	12/79	1361	1888-1900	PENN	SO
BMG #1 Kempthorne	SESENW 7-11S-9E	Riley	3/78	1111	759-789	DGLS	gas?

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Sinclair #1 Stone	SWSWNE 34-12S-2E	Dickinson	5/20	1266	1930-1945	MSSP	SO in sand
Junction City Oil & Mining #1 Munson	NENWNW 10-12S-5E	Geary	9/05	1152	~1930	?	light flow of oil followed by water (base of well) which could not be cased-off; well abandoned
Independent Prod. #1 Jahnke	SWSWNE 21-12S-6E	Geary	3/80	1294	1942-2010	MSSP	OS in chert
Pioneer #1 Chase Ranch	SESE 10-12S-7E	Geary	3/28	1403	1585 2253	KC HNTN	OS OS, odor of petroleum
Energy Reserves #1 Herpich	SWSWSW 24-12S-7E	Geary	5/77	1420	1979-1999	MSSP	OS
Franks #1 Huffman	NWSW 11-13S-1E	Dickinson	10/39	1270	2148-2155	CHER	gas show in lime
Seevers #1 Livingood	SENW 13-13S-2E	Dickinson	6/32	1139	1100-1110 4023-4026	? PRE CAM	OS in lime OS in sand
Skaer & Skaer # 1 Albrach	? 19-13S-5E	Geary	?	1150(±?)	2285-2290	MSSP	OS in sand (authors are not certain this well location is correct)
L.E. Dornes et al. #1 Fechner	SENWNE 27-13S-8E	Geary	9/34	1496	600-605 688-690 951-955	PERM PERM ?	OS in sandy shale gas show in shale oil sand
Nordboe #1 Miller	NWNWNE 14-14S-1E	Dickinson	12/58	1208	2402-2417	BRGS	SSO
Alta Vista #1 Taylor	NENESW 5-14S-8E	Morris	2/27	1543	300	PERM	gas show in lime
Pendleton #1 Olson	N/2N/2NE 9-14S-8E	Morris	8/80	1512	1880-1901	PENN CG-VIOL	dst. rec. oil
Rains & Williams #1 Boyce	NWNWSW 32-15S-1E	Dickinson	1/84	1371	2656-2662 2657-2667	MSSP	rec. mud w/oil specks on dst. rec. 5' oil on dst.

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Vishnefske #1 Faelber	W/2NWSW 36-15S-1E	Dickinson	12/56	1271	1785-1819 1822-1841	BRN LM	trace SSO (brown lime is between DGLS & LANS)
Cities Service #1 Albrecht	NWNENE 25-15S-4E	Dickinson	2/58	1338	2185-2205	MSSP	SOC in dst.
Hall #1 Dunlap	NESENE 31-15S-4E	Dickinson	10/27	1370	2327	MSSP	OS
F.G. Holl #2 Whitehair	NWNWNW 17-15S-5E	Morris	5/59	1337	2163-2183	MSSP	dst. w/specks of oil in watery mud
Slim Jim #1 Kickhafter	SWNESE 19-15S-5E	Morris	3/31	1372	2194-2200	MSSP	OS
Transcontinental #1 Sellin	NWNWNW 19-15S-5E	Morris	9/20	1372	2140-2205	PENN	SO
F.H. Adair Oil #1 Clark	SWSWNW 7-15S-6E	Morris	3/60	1423	2153-2173	MSSP	dst. w/OC watery mud
Trico	NENENE 6-16S-1E	Dickinson	6/17	?	2274-2286	?	SO in sand (authors are uncertain this well location is correct)
Trice #1 Eliason	NWSWNW 6-16S-1E	Dickinson	6/17	2650	1712-1719 2274-2286	LKC? LKC?	gas show in shale light SO in sand
Union #1 Gypsum Well	SESWNW 6-16S-1E	Dickinson	?	~1320	2309-2325	PENN?	trace of oil in sand
Hill #1 Woods	NWNWNE 16-16S-1E	Dickinson	4/54	1381	2670-2674	MSSP	GSO in lime
Jones & Hill #1 Lauxman	SENENE 31-16S-1E	Dickinson	10/43	1365	2660-2663	MSSP	SO in MSSP chat
TGT Petrol. #1 Sandow	SWSENE 11-16S-2E	Dickinson	2/76	1288	2376-2392	MSSP	dst. #1 had oil-specked drilling mud

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Prairie Oil #1 Rumolt	NWSWNE 12-16S-2E	Dickinson	12/29	1278	2410-2415	MSSP	oil & gas show in chat
Laudick & Johnson #1 Cosgrove	SWSE 21-16S-2E	Dickinson	2/21	1457	825-845	?	SO at 835'
ELMO	SWSE 21-16S-2E	Dickinson	1920	1454	835	?	SO at 835' in sandy lime
Derby #1 Balantyne	SESWSE 18-16S-5E	Morris	3/26	1430	2250-2263 2268-2285	MSSP	OS in chat OS in lime, white, hard

Lithologic logs

Davon #1 Schaffer	NWNWSW 20-1S-6E	Marshall	4/50	1257	1833	HNTN	spots faint oil showing
Texas Company #1 Murdock	SESESW 16-2S-13E	Nemaha	3/49	?	730	LKC	spots dead oil stain
Nemaha O&G #1 Seneca	NWNWNW 19-3S-11E	Nemaha	3/29	1818	2190 2142	PRE CAM PRE CAM	light OS asphalt
Keewanee #1 Carlson	NWNW 25-4S-1E	Washington	8/60	1392	1559	TOP	spots dark-brown to black earthy gilsonite
Phillips #1 Helms	SENE 20-4S-2E	Washington	10/43	1398	2710-2720 2730-2740 2930-2940 2997	VIOL VIOL SMPS ABCK	streaked dull-brown oil stain streaked dull-brown oil stain trace oil stain solid hydrocarbon
Keener #1 Hellor	NWNWNE 36-4S-6E	Marshall	10/60	1266	2983	LANS	spotted light brown oil stain?
Venus #1 Borgerding	SENENW 9-4S-7E	Marshall	11/70	1323	2017	SMPS	slight oil stain
Shawver-Armour #1 Weakley	NWNWNE 26-5S-7E	Marshall	12/59	1303	1053	OREAD	flaky limestone w/little brown hydrocarbon
Venus #1 Sedlacek	NWSESW 31-5S-9E	Marshall	10/70	1402	1828	SMPS	trace hydrocarbon

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Shawver-Armour #1 Flanigan	SESENE 33-5S-9E	Marshall	12/59	1493	1344 1577	VIOL SMPS	spotty brown hydrocarbons brown hydrocarbon stain?
Venus #1 Armstrong	NENE 2-6S-8E	Pottawat.	11/70	1370	1653 1820	VIOL VIOL	trace light-brown oil stain dark gray-black oily shale
Venus #1 Ryan	SWSENW 32-6S-9E	Pottawat.	11/70	1497	1825 1947	VIOL VIOL	some brown-black hydrocarbon spotted hydrocarbon
Barnett #1 Gerardy	SWSWSW 16-7S-3E	Clay	7/75	1500	1277	HEEB	gilsonite
Shawver-Armour #1 Shelter	SWSW 4-7S-8E	Pottawat.	12/59	1427	1427	SMPS	fine-grained gilsonite
Venus #1 McGuire	NWNWSE 12-7S-11E	Pottawat.	10/71	1148	1170	SMPS	spotted light-brown oil stain
Polhamus et al. #1 Hannan	NENWSW 29-8S-5E	Riley	10/45	1398	2440-2450 2555 2714	HNTN VIOL SMPS	looks oil stained asphaltic material flakes asphalt
Iseman #1 Gravenstine	NWNW 21-8S-6E	Riley	1/46	?	2705	SMPS	scattered pieces showing asphaltic oil (authors note scout cards report well drilled by Veider Sup. & Dev. Co.)
Adair #1 Stoffer	NENESW 1-8S-7E	Pottawat.	10/59	1296	2100 2185	VIOL SMPS	little brown HC stain? brown oil stain?
Jay-Bee #1 Phillips	SESENW 24-8S-7E	Pottawat.	11/68	1364	2308	SMPS	VSSO
Pan American Petrol. #1 A.J. Lauer	SENWNW 26-8S-8E	Pottawat.	6/65	1233	910-920 1260-1270 1380-1390	HEEB KC KC	traces of gilsonite trace gilsonite trace gilsonite
McCulloch & Venus Oil #1 Burgess	SWSESE 23-8S-10E	Pottawat.	3/71	1082	1380-1400	VIOL	spotty brown-black oil and tar stain?
McCulloch & Venus Oil #1 Ballentine	NENW 26-8S-10E	Pottawat.	9/71	1193	1450-1470 1520-1540 1550-1560	VIOL VIOL SMPS	spotted oil stain oil stain very spotty oil stain

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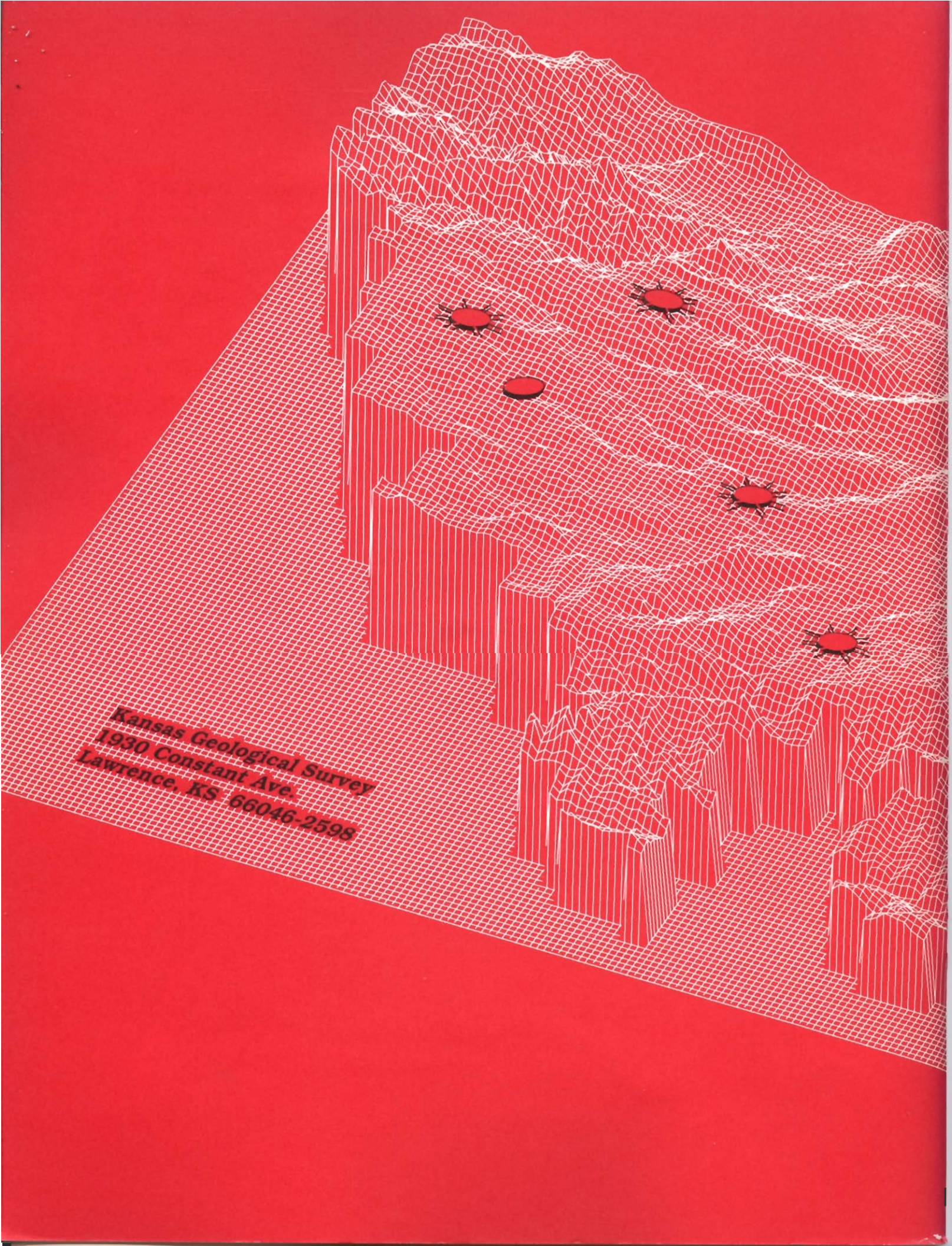
Venus Oil #1 Cox	SENE 30-8S-10E	Pottawat.	11/70	1254	1630-1640	VIOL	slight trace brown oil stain
Pure Oil #1 Scott	SWSENE 35-11S-7E	Geary	3/59	1280	1832-1840	BRGS	good dark-brown oil stain
Stanolind #1 Equitable Life	NENWSE 17-12S-1E	Dickinson	3/44	1329	3285-3300	SMPS	OS
Mouser #1 Langenecker	SWSWNW 34-12S-2E	Dickinson	10/50	1267	2300	MSSP	spotted dark oil stain
Carter Oil #1 A.H. Meseke	SESENE 29-12S-9E	Wabaunsee	12/49	1346	1881-1900 2171	HNTN VIOL	faint oil stain; dst. recovered mud w/ pin-points of oil traces of dark oil stain
Leeward Petrol. Co. #1 Knight	NENE 23-13S-3E	Dickinson	5/27	1198	2845-2890	VIOL	stringers of dark oil stain in limestone
Skaer & Skaer #1 Albrach	19-13S-5E	Geary	?	1150(±?)	2270-2300	MSSP	SO (authors are not certain this well location is correct)
Continental #1 German	SESENW 20-13S-8E	Geary	3/53	1472	2800	VIOL	sandy dolomitic limestone w/black oil stain
Continental #1 Falk	SWSWNW 23-13S-8E	Wabaunsee	1/53	1497	1643-1655	KC	spots dark oil stain
L.E. Dornes et al. #1 Fechner	SENWNE 27-13S-8E	Geary	9/34	1490	484-488 605-615 668-672 951-955	CGRV PERM PERM ?	gas sand oily shale gas sand oil sand
Ingling #1 Mark	SESENE 35-14S-1E	Dickinson	3/56	1219	2433-2440	MSSP	spots black solid hydrocarbon in residual chert
Augusta #1 Eshelman	SESWNE 21-14S-5E	Morris	8/55	1362	2130-2147	MSSP	spots light oil stain in residual chert
Woods #1 Zahnley	SESESW 16-14S-8E	Morris	9/51	1532	649-663 1850 1902-1911 2050	? SMPS SMPS ABCK	gas sand dark oil stain in limestone black oil stain in sandstone spots oil stain in dolomite

OPERATOR & NAME	LOCATION	COUNTY	COMP. DATE	DATUM (ft)	DEPTH INTER. (ft)	FM	REMARK
Ingling #1 Bogart	SESESW 33-15S-1E	Dickinson	12/54	1341	2628-2645	MSSP	dark oil stain in residual chert
Beardmore #1 Book	SWSWSW 24-15S-2E	Dickinson	7/53	1272	2375-2388	MSSP	dead oil stain in residual chert
Cities Service #1 Albrecht	NWNENE 25-15S-4E	Dickinson	2/58	1338	2187	MSSP	dead oil stain in residual chert
Franks #1 Nelson	SESW 6-15S-7E	Morris	7/44	1419	2700-2740	SMPS	sandstone in part brown oil stained, in part asphaltic
F.H. Adair Oil #1 Metcalfe	SESENE 34-15S-7E	Morris	8/59	1402	1390	LANS	trace oil stain in limestone
Anderson-Prichard #1 Lawrence	SWNESE 35-15S-7E	Morris	11/59	1414	1335-1350	LANS	spotty to good oil stain in limestone
Fincher & West #1 Jones	SWSWSE 10-16S-1E	Dickinson	9/54	1311	2590-2600	MSSP	spots dark oil stain in residual chert
Anderson-Prichard #1 Engle	SESESW 24-16S-3E	Dickinson	12/55	1371	2785 3000-3005	MQKT SMPS	dark oil stain in dolomite dead oil stain in sandstone
El Dorado #1 Keining	NWNWSE 5-16S-4E	Dickinson	6/53	1354	2276	MSSP	very slight oil stain in chert
Kramer #1 Scully	NWNWSE 30-17S-3E	Marion	11/56	1416	2488	MSSP	spots dark oil at top of residual chert
Anderson-Prichard #1 Scully "B"	NENESW 2-18S-2E	Marion	12/53	1478	2610	MSSP	spots dark oil stain in residual chert
Graves & Appleman #1 Frick	NENENE 16-18S-2E	Marion	5/60	1410	2569-2590	MSSP	free oil in chert



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