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Deep-well Data Base for Nebraska

Duane R. Mohlam University of Nebraska-Lincoln

Raymond R. Burchett University of Nebraska-Lincoln

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Nebraska Geological Survey



INFORMATION

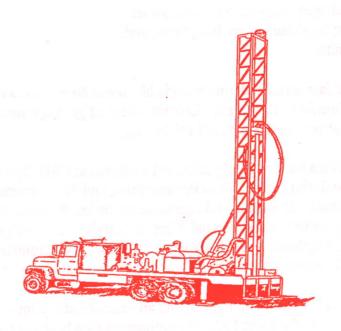
No. 14

Conservation & Survey Division 113 Nebraska Hall 901 North 17th Street Lincoln, Nebraska 68588-0517

Phone 402-472-3471 FAX 402-472-2410 EMail negeosry@unlinfo.unl.edu

Deep-well Data Base for Nebraska

Duane R. Mohlman Raymond R. Burchett



August 1995



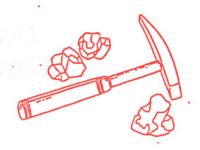


Deep-well Data Base for Nebraska

Duane R. Mohlman, Data Systems Coordinator Raymond R. Burchett, Research Geologist

Data from deep wells drilled in Nebraska is sent to the Conservation and Survey Division from many sources; some of these include: Oil and Gas Conservation Commission, oil and gas operators; mineral producers; water well drillers and consulting firms. This data is then organized and summarized into a deep-well data base. The data base for Nebraska consists of many data items such as: location (county and legal description), API well number, well name (operator and lease), elevation, casing information, spud date, completion data, total depth, well-completion status, testing data, coring information, completion production data, and stratigraphic or geological formation tops.

The deep-well data base is used frequently by geologists looking for oil and gas or other minerals and less frequently by water well drillers looking for potential deep sources of water. Conservation and Survey Division personel are constantly using this data base to answer service requests from many sources such as: federal, state, and local agencies; industries, landowners and/or private citizens; legislators; consulting firms; and various educational units.



Primary use of data is research on geologic history of Nebraska as recorded in rock layers present only in the subsurface of our state. Less than 25% of geologic time is recorded in the rock layers occurring at or near the surface in Nebraska.

The deep-well data base currently exists in two forms at CSD: 1) a top card file that includes items listed beginning on page 2 of this brochure, and 2) an automated data base that contains the same top card information and also those items listed beginning on page 3. The automated data base gives us the added capabilities of querying data, mapping the data (geographic information system), and calculating elevations. The automated data base is currently being updated and will become CSD's primary deep-well data base.

An example of a top card is on page 5, and an example of a print-out from the automated data base is on page 6. As of August 1995, the automated data base contains 17,786 deep-well records. Page 7 lists the number of deep-well records per county in Nebraska. A map showing the location of the deep wells in Nebraska is also included.

Descriptions of Items Included in the Deep-well Data Base

County: County location of the well. Producing Formation: (if more than one zone is producing, the system for the zone is listed): Legal Description: NBRR - Niobrara SEC: Section DKOT - Dakota T: Township (always 'N' for North in Nebraska) DKTD - D Sand R: Can be either 'E' for East or 'W' for West DKTJ-JSand ____: Any quarter-section(s) FRKR - Foraker PSLV - Pennsylvanian Farm: Name of landowner at time of drilling. If an VIRG - Virgil 'OWWO' appears, it means "Old Well Worked ORED - Oread Over," and the new name and number will appear DOUG - Douglas along with the original Farm information. LSNG - Lansing KSSC - Kansas City Well No .: Number of the well. LNKC - Lansing-Kansas City CHRK - Cherokee Operator: Operator of the well. BSAL - Basal Sand LPZC - Lower Paleozoic Status: DVNN - Devonian (Hunton) Initial status may be: VIOL - Viola (Galena) DRY-D&A SMPS - Simpson (St. Peter) GAS - Gas REGN - Reagan INJ - Injection PCMB - Precambrian J&A - Junked and abandoned OBS - Observation IP: Initial production. OIL - oil O&G - oil and gas SPUD: Drilling start date. OW - oil well SI - Shut in COMP: Drilling completion date (not necessarily same WC - Wildcat as plugging date). WI - Water injection WW - Water well Data on File: items which CSD has on file will be Later it may convert to: checked on the top card: DRY-OIL well WCR - Well completion report OIL-INJ - Oil to injection well PA - Plugging affidavit OIL-ABN - Oil to abandoned well S - Samples OWO - Old well worked over SL - Sample log DRY-OIL-INJ - Several different status SD - Sample description DL - Driller's log Field: Name of the producing field. DT - Drilling time ES - Electric log Elevation (above mean sea level): IES - Induction electric log KB - Kelly-bushing ML - Microlog DF - Derrick floor LL - Lateral log GL - Ground level I - Induction log R - Radioactivity log TD: Total depth of well.

PBTD: Plugged back total depth.

Other: Approximately 100 codes are used in this box. The most commonly used are listed here:

S - Sonic log

GR - Gamma ray log

MLL - Micro lateral log

SGR - Sonic gammaray log

CAL - Caliper log

ACS - Acoustic log

CDL - Compensated density log

Recorded By: Initials of CSD geologist calling the tops.

Basis For Formation Tops: one of the following may

be checked:

Electric log

Sample study

Operators report

Scout report

Key Number - The key number is written in green pencil on the top card and is automated in the database. The first two digits are the county number, and the last four are a unique identifier for that well. This number is used for internal CSD identification.

Drill Stem Tests - (bottom portion of reverse side of top card):

GCM - Gas cut mud

G&OCM - Gas and oil cut mud

GW - Granite wash

HFO - Hole full oil

HFW - Hole full water

HO&GCM - Heavily oil and gas cut mud

OC - Oil cut

OCM - Oil cut mud

O&G - Oil and gas

O&GCM - Oil and gas cut mud

SLYGCM - Slightly oil cut mud

SW - Salt water

VHOCM - Very heavily oil cut mud

VSOCM - Very slightly oil cut mud

WTR - Water

In addition to those items listed above, the automated deep-well data base also has the following items:

STATIN - Initial status.

STATCY - Current status.

STATYR - Status year.

MCFD - Thousands of cubic feet per day of gas.

BOD - Barrels of oil per day (1 barrel = 42 gallons).

TOPS - 0 if not marked, depth if marked.

CASING - Casing depth.

WILDCT - Checked if well is a wildcat.

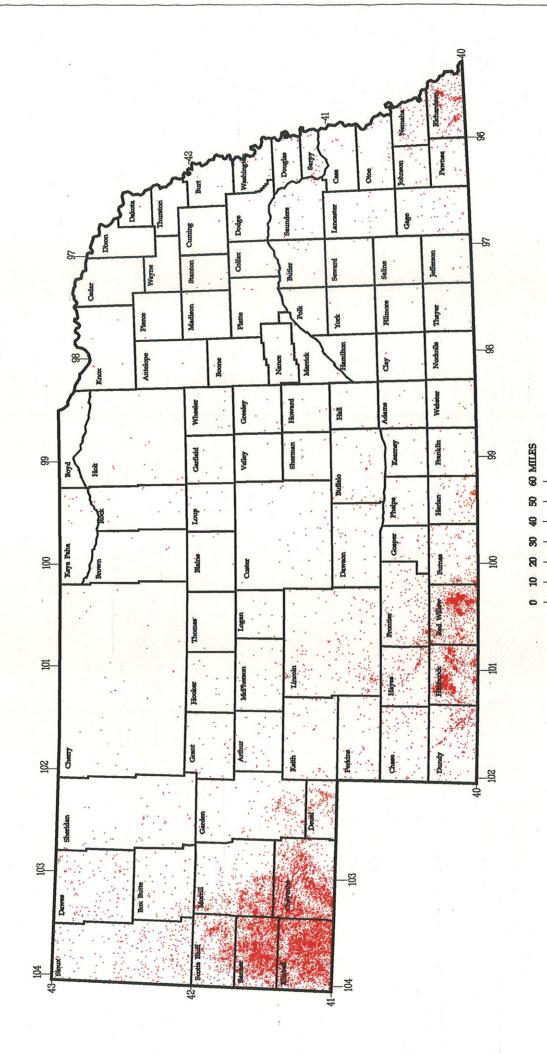
BOTTOM - Bottom log interval.

SURFAC - Surface mud temperature (°F).

BHTDWN - Bottom hole temperature (°F).



Deep Well Data Base





HRSCIR - Hours since circulation.

WEATHE - Top of weathered surface as marked.

FRESH - Top of fresh surface as marked.

PAGE4S - (N C D P B M O K) to further describe information available in source documents:

N = None

C = Core

D = Drill stem test

P = Perforation

B = Bottom hole temperature

M = Maximum recorded temperature

O = Other

K = Questionable data

COMMNT - Any miscellaneous comments about the well.

APIN - Last 5 digits of APIN number.

LOGDAT - Date log was begun.

WHO - Initials of data entry person.

TOPDAT - Date that tops were called.

For further information about CSD's deep-well data base, or a free publications catalog, contact:

Conservation and Survey Division
Institute of Agriculture and Natural Resources
113 Nebraska Hall
University of Nebraska-Lincoln
Lincoln, Nebraska 68588-0517

Division phone 402-472-3471
Map/Publications Sales 402-472-7523
FAX 402-472-2410
Email negeosry@unlinfo.unl.edu



The following CSD personnel are acknowledged for their assistance with this brochure: Marvin P. Carlson, research geologist, and Ray Bentall, hydrogeologist, emeritus.

Front of Top Card

COUNTY: Gage SECT TO RESE FARM: Spilker WELL NO OPERATOR: Magness Petr.Corp. Status: Magness Petr.Corp. Status: Mildcat FLEVATION: MILC XB. 1474 DF. 1474 GL 2672 DATA ON FILE: MCR. PA. S. St. SD. DL. OT ES I-ES ML. LI. IR OTHER RECORDED BY: TOP OF: CRETACEOUS PETH ELEV THICK, TOP OF: CRETACEOUS FILEY Morrison Noorare FILEY Morrison Noorare FILEY Morrison Noorare FILEY Morrison Morr										
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ELEVATION: PBTD: PRODUCING FORMATION P: SPUD: COMP: 1-3-91 1-9-81		WELL NO	OPERATOR				STATUS:			25
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DATA ON FILE: WCR PA S SL SD DL DT ES I-ES ML LI. I R OTHER RECORDED BY: HPC BASIS FOR FORMATION TOPS: TOP OF: CRETACEOUS Parre Mindres FL Nog - Timpes Codell Confile Confile	7766 XB, 19 X 4 DF, 19	10 GL 7672						1	-3-87 7	-9-81
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Hantamon Chose (Herington)	Gurley "D"									
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Shill Crash Council Greve			_							
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Back of Top Card

LOCATION: SEC: /		RIS.	E	_ C NE SE	ELEVAT		40
TOP OF:	DEPTH	ELEV.	THICK.	TOP OF:	DEPTH	1486 / ELEV.	THICK.
PENNSYLVANIAN	.736			MISSISSIPPIAN		ELEA.	THICK.
WABAUNSEE	736			St. Louis - Osoge	A		-
Torkie		100		Gilmore City (Chouleou)			-
Howard	1726	1-4	1. 150	Chattanooga			-
SHAWNEE (Topeko)	1050	440	531	DEVONIAN			
Deer Creek	1000				1662		13.185
Oreed				SILURIAN ?	1844		3.545
DOUGLAS	1250			ORDOVICIAN (Maguaketa)	2086		104
LANSING .				Galena (Viala)	0915		262
KANSAS CITY	1298			Decorah (Simpson)	2452		126
Wyendotte				St. Peter (Wilcox)	2578		34
Winterset				Upper Arbuckie	A		
Bose Konsos City				CAMBRIAN	A		
MARMATON	1556			Bonneterre (Lr. Arb.)			
				La Motte (Reagon)			1
CHEROKEE	1658			PRECAMBRIAN	2640		-
OIL SHOWS, DRILL STEM	TESTS, CORE	DATA, ETC	::	the state of the s		11-1	
700 C	मार्थ हर	LSTS		Weath	2612	1136	
					•		

Print-out of Automated Deep Well Record

```
COUNTY: GAGE SEC: 1 TWP: 5N RNG: 5E LOC: C /NE/SE/ /
KEY CODE: 340039 API: 0 STATUS: INIT-D&A CURR- YEAR-87
FARM: SPILKER WELL: 1 WILDCAT: X
OPERATOR: MAGNESS PETR. CORP.
                                       FIELD:
DWNHOLE DATA:

BOTTOM LOG INTERV=2672

SURFACE MUD TEMP = 78
BHT (DEGREES F) = 110
BHT ELEV.

HRS. SINCE CIRC. = 2

DT =

REPORTS:

LOGS:

BASIS FOR TOPS:

ELECTRIC LOG = X

SAMPLE STUDY =

OPERATOR REPORT=

SCOUT REPORT =

DL = R =

DT =

OTHER=DIN
DOWNHOLE DATA:
   TOP OF: DEPTH: ELEV.: TOP OF: DEPTH: ELEV.:
```

Deep-well Data Base Records by County

Co County No Name	Number Records	Co County	Number	Co County	Number
110 I tallie	Records	No Name	Records	No Name	Records
01 ADAMS	10	41 HAMILTON	0	01 011111111111111111111111111111111111	
02 ANTELOPE		42 HARLAN	121	81 SHERIDAN	51
03 ARTHUR	30	43 HAYES	156	82 SHERMAN	8
04 BANNER	2607	44 HITCHCOC		83 SIOUX	255
05 BLAINE	T8-8 7 TO 6	45 HOLT	12	84 STANTON 85 THAYER	4
06 BOONE	1	46 HOOKER	12	86 THOMAS	2
07 BOX BUTTI		47 HOWARD	5		2
08 BOYD	1	48 JEFFERSON		87 THURSTON 88 VALLEY	
09 BROWN	4	49 JOHNSON	20	89 WASHINGT	2
10 BUFFALO	33	50 KEARNEY	6	90 WAYNE	
11 BURT	3	51 KEITH	44	91 WEBSTER	0
12 BUTLER	10	52 KEYA PAHA		92 WHEELER	9
13 CASS	10	53 KIMBALL	4297	93 YORK	7
14 CEDAR	2	54 KNOX	6	93 TUKK	1
15 CHASE	84	55 LANCASTE		TOTAL	17.70
16 CHERRY	31	56 LINCOLN	196	IUIAL	17,786
17 CHEYENNE	3087	57 LOGAN	9		
18 CLAY	2	58 LOUP	7		
19 COLFAX	2	59 MADISON	1		
20 CUMING	3	60 MCPHERSO	-		
21 CUSTER	34	61 MERRICK	200		
22 DAKOTA	4	62 MORRILL	996		
23 DAWES	133	63 NANCE	3		
24 DAWSON	33	64 NEMAHA	49		
25 DEUEL	166	65 NUCKOLLS	1		
26 DIXON	2	66 OTOE	19		
27 DODGE	3	67 PAWNEE	24		
28 DOUGLAS	22	68 PERKINS	46		
29 DUNDY	307	69 PHELPS	14		
30 FILLMORE	2	70 PIERCE	1		
31 FRANKLIN	20	71 PLATTE	2		
32 FRONTIER	183	72 POLK	2		
33 FURNAS	169	73 RED WILLO			
34 GAGE	38	74 RICHARDSO	W 1407		
35 GARDEN	163	75 ROCK			
36 GARFIELD	5	76 SALINE	11		
37 GOSPER	21	77 SARPY	3		
38 GRANT	23	78 SAUNDERS	23		
39 GREELEY	7		25 TEE 615		
40 HALL	5	79 SCOTTS BLU			
	5	80 SEWARD	3		