

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application of R.T. Enterprises)	
of Kansas, Inc. for Multiple Well Location)	Docket No.14-CONS-550- CWLE
Exceptions for Wells Upon the Pearson and)	License No. 33715
Finnerty Leases Located in Section 11, Township 15)	Conservation Division
South, Range 20 East in Douglas County Kansas)	
)	

**TESTIMONY OF DWAYNE McCUNE IN SUPPORT OF MOTION FOR
PRELIMINARY ORDER AUTHORIZING APPLICANT TO CONTINUE TO
OPERATE EXISTING WELLS DURING THE PENDENCY OF THE APPLICATION**

1 **Q. STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

2 A. My name is Dwayne McCune. My business address is Cedar Technical Services, P.O. Box
3 656, Baldwin City, Kansas 66006.

4 **Q. WHAT IS YOUR PROFESSION?**

5 A. I am a Kansas licensed petroleum engineer.

6 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KANSAS CORPORATION**
7 **COMMISSION ("COMMISSION") AS AN EXPERT WITNESS IN THE FIELD OF**
8 **PETROLEUM RESERVOIR ENGINEERING?**

9 A. Yes.

10 **Q. HAVE YOU BEEN RETAINED IN THIS MATTER BY R.T. ENTERPRISES OF**
11 **KANSAS, INC. ("R.T.")?**

12 A. Yes.

13 **Q. SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.**

14 A. I received a BS in petroleum engineering from the University of Kansas. For the past 37 years,
15 I have operated McCune Engineering and/or Cedar Technical Services, performing various

1 consulting activities, primarily in Kansas. The tasks have included; reservoir studies, reserve
2 estimates and evaluations, enhanced oil recovery processes and applications, expert witness
3 testimony and operational functions.

4 Prior to consulting, I was employed by Petroleum, Inc. of Wichita in their engineering
5 office in Great Bend, Kansas performing various engineering duties in the mid-continent and
6 Rocky Mountain areas.

7 **Q. SUMMARIZE YOUR EXPERIENCE IN EASTERN KANSAS OIL FIELDS AND**
8 **SPECIFICALLY IN DOUGLAS COUNTY, KANSAS?**

9 A. I have been actively involved in the eastern Kansas oil and gas industry for nearly four decades
10 and I have been involved in the initial and redevelopment of many oil and gas fields in Eastern
11 Kansas during that time.

12 I am an independent petroleum engineer and therefore have worked on behalf of many
13 different operators acquiring, developing and operating oil and gas properties in Douglas
14 County, Kansas.

15 **Q. WHAT IS THE PURPOSE THIS TESTIMONY?**

16 A. The purpose of this testimony is to support R.T.'s request for a preliminary order allowing R.T.
17 to operate the Finnerty and Pearson oil and gas leases (the "Leases") and to produce from the
18 existing wells located thereon while R.T.'s Application is pending before the Commission.

19 **Q: IN ITS APPLICATION R.T. PROPOSES TO LOCATE SEVERAL OIL WELLS**
20 **APPROXIMATELY 330 FEET APART AND TO ASSIGN AN ACREAGE**
21 **ATTRIBUTION UNIT OF 2.5 ACRES TO EACH WELL; IS IT COMMON TO**
22 **LOCATE OIL WELLS THIS CLOSELY TOGETHER IN EASTERN KANSAS?**

1 A: Absolutely. Virtually all oil leases in eastern Kansas which have been developed to any
2 significant degree have been developed on 2.5 acre well spacing. Historically, eastern Kansas
3 reservoirs have been developed with close well spacing. A review of Bureau of Mines
4 publications printed in the 1940s and 1950s indicates oil wells were drilled on very close
5 spacing. As an example in 1942, on the average, one oil well was located every 2.06 acres.
6 If injection wells are included the spacing was one well (producer or injector) per 1.29 acre.
7 These publications include an abundance of charts and maps giving clear evidence of the
8 historical importance of close well spacing in Eastern Kansas oil reservoirs for many years.

9 **Q: WHY ARE EASTERN KANSAS RESERVOIRS DEVELOPED WITH CLOSE WELL**
10 **SPACING?**

11 A: The character of these reservoirs demands close spacing. These shallow sandstone reservoirs
12 are very heterogeneous, typically low permeability, compartmentalized reservoirs, exhibiting
13 very low initial pressure. In addition, the crude present in the reservoirs is quite viscous. Due
14 to the relatively low solution gas present in the crude the pressure depletes rapidly with
15 production, consequently the majority of the recoverable reserves must be recovered by
16 application of enhanced recovery processes - primarily water flooding. In short, a single well
17 is not capable of efficiently and effectively draining a large area in these reservoirs, and
18 therefore close spacing is necessary in order to recover an acceptable amount of the oil in
19 place, thereby preventing waste.

20 **Q: IF R.T. IS FORCED TO SHUT DOWN THE WATERFLOOD UPON THE LEASES**
21 **WHILE ITS APPLICATION IS PENDING, WOULD IT RESULT IN WASTE?**

22 A: Yes. In order for waterflooding to be efficient the water injection must be at a rate sufficient

1 to recover the oil within a specified time. The injection rates in these reservoirs are usually
2 small due to low permeability, viscous oil, and low injection pressures. As the oil bank is
3 formed and moved toward the producers, the injection rate tends to decline (at constant
4 pressure) due to increased water bank radius, and if not maintained the oil bank can dissipate
5 due to viscous effects and gravity, resulting in a considerable loss of previously recoverable
6 oil. Since the rate of injection is a function of water bank radius, in order to recover this
7 reserve of oil, it is necessary for the injection wells to be within a reasonable distance of the
8 producers and in approximately the same quantity as the producers. Cessation or reduction in
9 injection rates will have a detrimental effect on ultimate recovery, mainly due to gravity
10 effects.

11 **Q: IS THERE ANY WAY THAT THE COMMISSION CAN PREVENT WASTE IN THIS**
12 **CASE?**

13 A: Yes. If the Commission issues a preliminary order allowing R.T. to continue to operate the
14 Leases while its Application is pending, R.T. would be able to maintain consistent injection
15 pressures and thereby prevent the oil bank from dissipating. If the Commission ordered R.T.
16 to shut the Leases in while its Application is pending, the Commission would be causing waste
17 rather than preventing it; because such an order would in all likelihood result in permanent
18 underground waste of a portion of the previously recoverable oil in place beneath the Leases.

19 **Q: IN YOUR OPINION IS R.T. REQUESTING "SPECIAL TREATMENT" ALLOWING**
20 **THEM TO DEVELOP THE LEASES DIFFERENTLY THAN OTHER OPERATORS**
21 **IN THE AREA HAVE DEVELOPED THEIR RESPECTIVE LEASES?**

22 A: Not at all. Virtually all oil leases in eastern Kansas have been developed on the spacing R.T.

1 is proposing, and R.T. is merely asking to be treated in the same manner as all other operators
2 in eastern Kansas are being treated. For as long as I can remember the Commission,
3 Commission staff, and industry participants have all treated eastern Kansas as having 2.5 acre
4 well spacing for oil wells drilled to a total depth of less than 2,000 feet. As I recall, the
5 conversation in the industry in the early 1980s concerning the purpose of KAR 82-3-108(b),
6 was because of the standard 2.5 acre spacing common in eastern Kansas operations. The 165
7 foot setback representing the perpendicular distance from a well with 2.5 acre spacing, to its
8 spacing boundaries. In essence R.T.'s Application merely seeks authority to do what R.T. and
9 the rest of the operators in eastern Kansas have been doing for decades, which is to produce
10 these oil and gas reserves in a manner which prevents waste.

11 **Q: HAVE YOU RELIED UPON ANY AUTHORITY IN REACHING THE ABOVE**
12 **CONCLUSIONS?**

13 A: Yes, I have relied upon the following authority:

14 Grandone, Peter: *History of Water-flooding of Oil Sands in Kansas*, Report of Investigation
15 3761, Bureau of Mines (1944)

16 Powell, J. P. & Eakin, J. L.: *Water Flooding in the Oil Fields of Anderson, Franklin, Linn, and*
17 *Miami Counties, Kansas*, Report of Investigation 4991, Bureau of Mines (1953)

18 Powell, J. P.: *Survey of Water Flooding Projects in of Allen, Bourbon, Crawford, Labette, and*
19 *Neosho Counties, Kansas*, Report of Investigation 5317, Bureau of Mines (1957)

20 Willhite, G. P.: *Waterflooding*, Society of Petroleum Engineers Textbook Series Vol. 1,
21 Richardson, TX (1986) 145

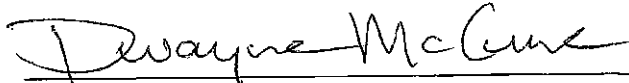
22 **Q. DOES THIS CONCLUDE YOUR TESTIMONY FOR THE PURPOSES OF R.T.**
23 **MOTION FOR A PRELIMINARY ORDER?**

24 A. Yes.

VERIFICATION

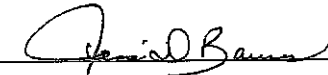
STATE OF KANSAS)
) ss:
COUNTY OF DOUGLAS)

I, Dwayne McCune, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing testimony, that I have read the testimony and am familiar with its contents, and that the facts set forth therein are true and correct.



Dwayne McCune

SUBSCRIBED AND SWORN to before me this 5th day of March, 2014.



Notary Public

Appointment/Commission Expires:

