

BEFORE THE OIL CONVERSION
DIVISION

Santa Fe, New Mexico

Exhibit No. 12

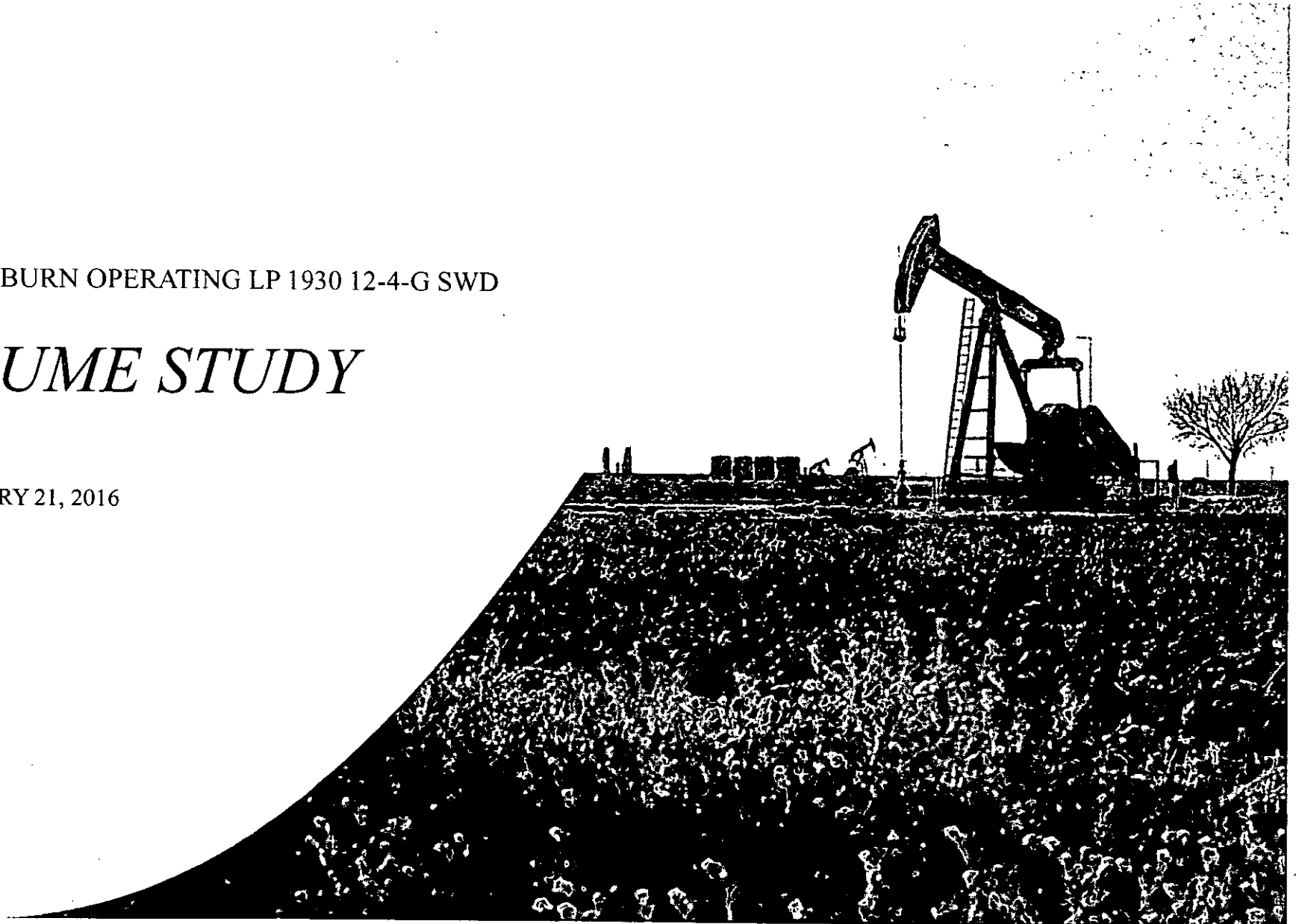
Submitted by: BREITBURN

Hearing Date: January 21, 2016

BREITBURN OPERATING LP 1930 12-4-G SWD

PLUME STUDY

JANUARY 21, 2016



EXECUTIVE SUMMARY

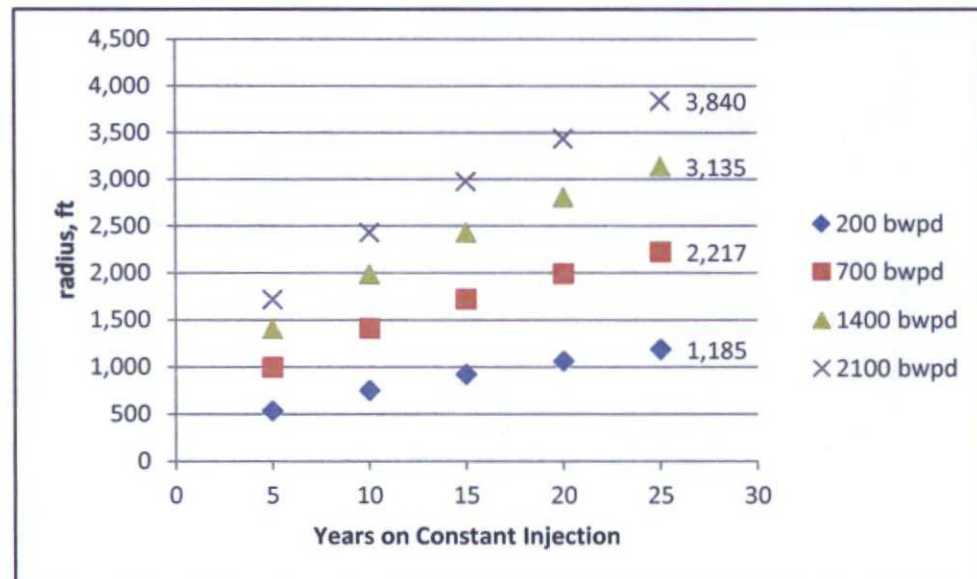


- Measured reservoir properties were collected and a range of outcomes were determined, varying on injection rates and duration of injection

$$r = \sqrt{\frac{Q_{inj}}{2\pi h\phi(1 - S_w)B_w}}$$

- Radius is a dependent variable upon total inj.

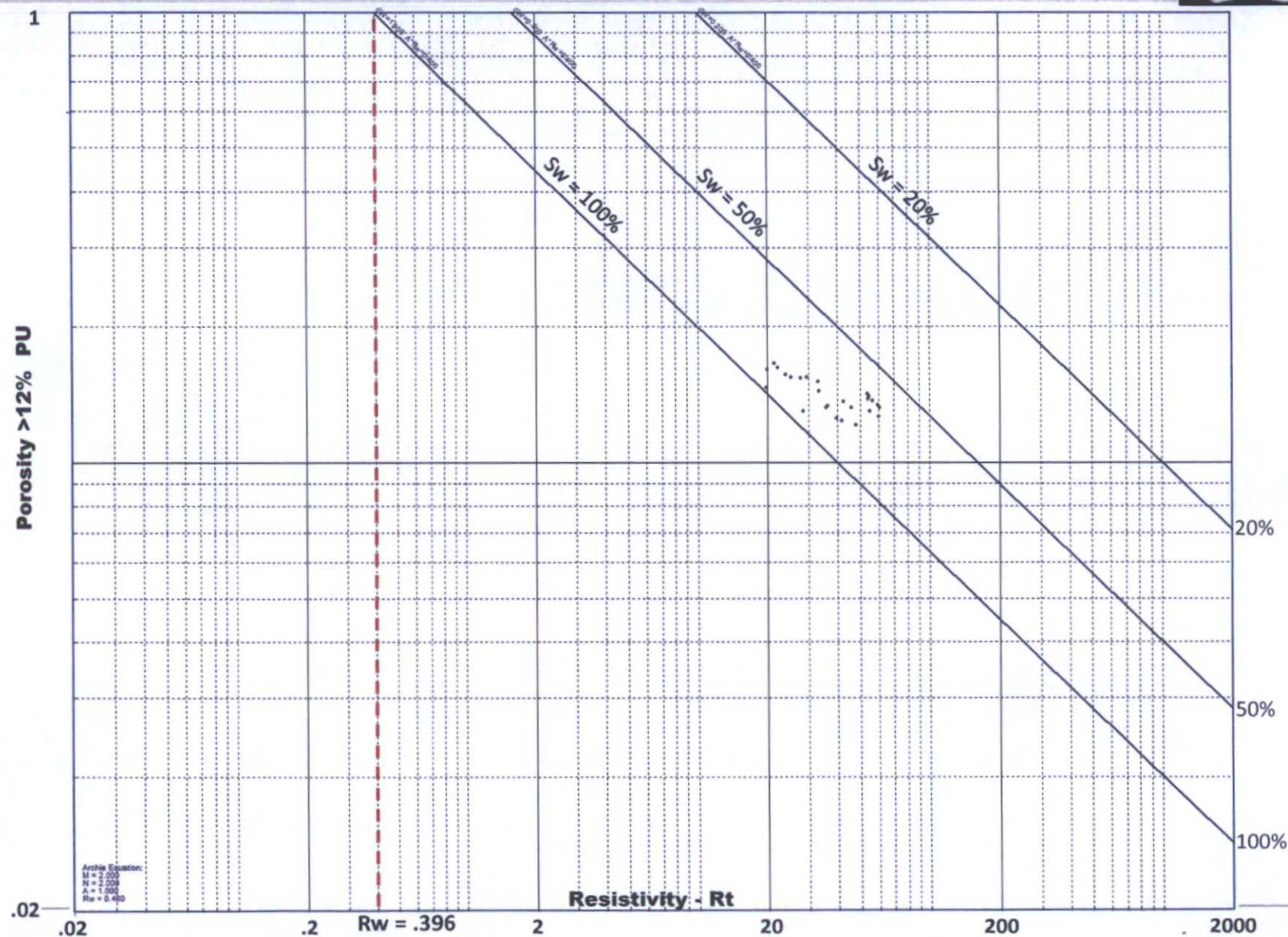
- ¼ Mile Radius; r = 1,320 ft
- ½ Mile Radius; r = 2,640 ft
- ¾ Mile Radius; r = 3,960 ft
- 1 Mile Radius; r = 5,280 ft



R_w DETERMINATION – PICKETT PLOT

SAN ANDRES FORMATION

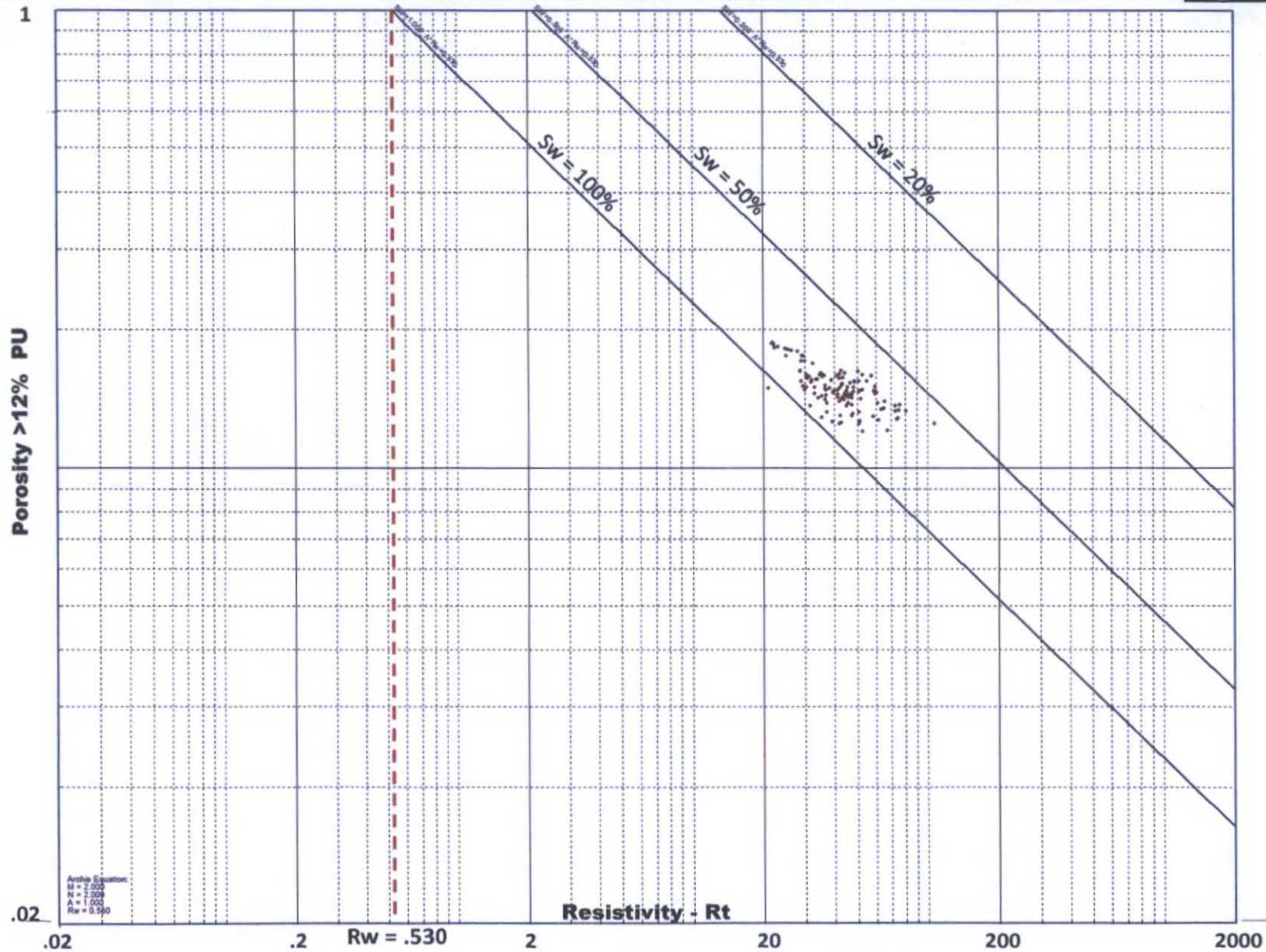
B



R_w DETERMINATION – PICKETT PLOT

GLORIETA FORMATION

B



RESERVOIR PROPERTIES ESTIMATE



- Thickness, from open hole logs and perforation reports (perforated porous intervals)

Thickness, h	Top	Bottom	Interval	Subtotal
San Andres	1480	1500	20	40
	1510	1530	20	
Glorieta	1560	1570	10	62
	1574	1615	41	
	1620	1631	11	
TOTAL				102

- Average Porosity, measured from open hole logs, with a weighted average applied

Avg porosity, ϕ	ϕ , interval	h	Φ , weighted
San Andres	0.141	40	0.055
Glorieta	0.149	62	0.091
TOTAL			0.146

- Water Saturation calculation from open hole logs, used Archie's Equation (R_t from lowest measured value, Φ used weighted average over porous interval, R_w estimated from R_{wa} calculation and cross checked with Pickett plots).

$$S_w = \sqrt{\frac{R_w}{\phi^2 R_t}}$$

Assumes $a=1$, $n=2$, $m=2$

S_w	Depth	$R_w \Omega m$	Φ at depth %	$R_t \Omega m$	S_w %	h	S_w weighted
San Andres	1495'	0.396	0.16	19.9	0.88	40	0.35
Glorieta	1612'	0.53	0.19	21.87	0.82	62	0.50
TOTAL							0.85

- B_w assumed to be incompressible, so $B_w = 1$

RADIUS OF PLUME – MAP VIEW

B

