## **REOPENED CASE NO. 11089**

March 20, 1997

EXBIBIT NO.

**Examiner Catanach** 

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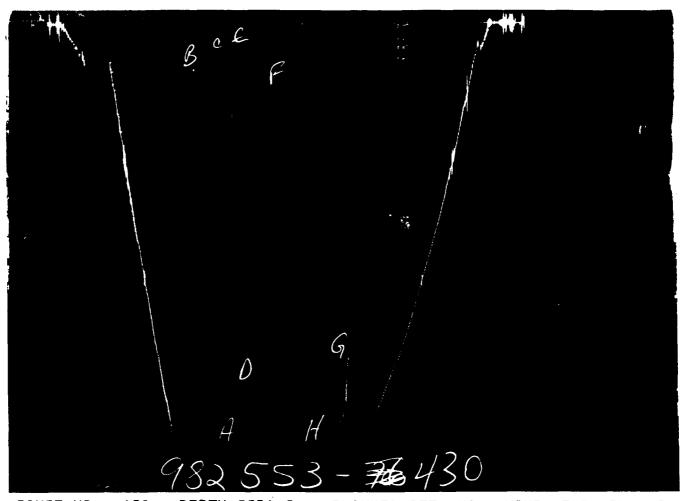
MERIDIAN DIL, INC.

LEASE : UTE MOUNTAIN

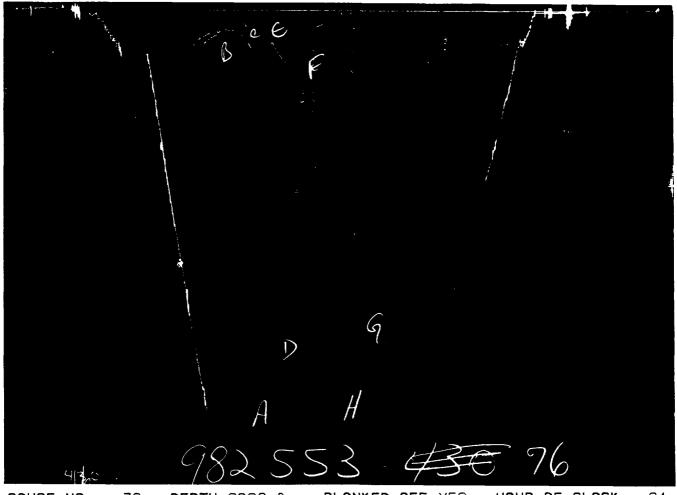
WELL NO.: UTE 41 TEST NO.: 1

# DRIUSTEMUESTREPORT





GAUGE ND: 430 DEPTH: 8851 BLANKED OFF: NO HOUR OF CLOCK: 24 PRESSURE TIME TYPE ID DESCRIPTION CALCULATED Α INITIAL HYDROSTATIC 4172.0 INITIAL FIRST FLOW В 464.7 15.2 15.0 F FINAL FIRST FLOW  $\mathbb{C}$ 328.4 INITIAL FIRST CLOSED - IN С 328.4 45.0 44.6 С D FINAL FIRST CLOSED-IN 3494.0 INITIAL SECOND FLOW Ε 431.4 60.0 F 59.8 FINAL SECOND FLOW F 587.7 F INITIAL SECOND CLOSED-IN 587.7 180.0 180.4 С FINAL SECOND CLOSED-IN G 3495.9 Н FINAL HYDROSTATIC 4146.5



GAUG	E NO:76 DEPTH:8983.0	BLANKED OFF : Y	S HOUR OF	CLOCK	: 24
ID	DESCRIPTION	PRESSURE REPORTED CALCULATED	TIME REPORTED CA	LCULATED	TYPE
А	INITIAL HYDROSTATIC	4239.0			
В	INITIAL FIRST FLOW	448.2	15.0	15.0	L
С	FINAL FIRST FLOW	381.9	15.0	15.2	F
С	INITIAL FIRST CLOSED-IN	381.9	45 .0	44 C	(
D	FINAL FIRST CLOSED-IN	3546.0	45.0	44.5	
Ε	INITIAL SECOND FLOW	490.4	60.0	<u> </u>	F
F	FINAL SECOND FLOW	631.1	60.0	3 <b>3</b> .0	Г 
F	INITIAL SECOND CLOSED-IN	631.1	180.0	100 4	С
G	FINAL SECOND CLOSED-IN	3539.0	180.0	180.4	
Н	FINAL HYDROSTATIC	4205.9			

	4
EQUIPMENT & HOLE DATA FORMATION TESTED: DESERT CREEK	TICKET NUMBER: 98255300
NET PAY (ft): 53.0	DATE: 07-20-96 TEST NO: 1
GROSS TESTED FOOTAGE: 112.0 PACKER TO T.D.	
ALL DEPTHS MEASURED FROM: K.B.	TYPE DST: OPEN HOLE
CASING PERFS. (ft):	ETELD COMP
HOLE OR CASING SIZE (in): 7.875	FIELD CAMP:VERNAL
ELEVATION (ft): 6902.0 AT GROUND LEVEL	
TOTAL DEPTH (ft): 8986.0	TESTER: RANDY RIPPLE
PACKER DEPTH(S) (ft): 8866, 8874	TESTER: MORRIS KIRKPATRICK
FINAL SURFACE CHOKE (in): 0.25000	
BOTTOM HOLE CHOKE (in): 0.750	WITNESS: KURT SHIPLEY
MUD WEIGHT (16/gal): 9.10	MITTINESS!
MUD VISCOSITY (sec): 46	
ESTIMATED HOLE TEMP. ( °F ):	DRILLING CONTRACTOR:
ACTUAL HOLE TEMP. (°F): 191 @ 8982.0 ft	4 CORNERS DRILLING RIG #4
FLUID PROPERTIES FOR RECOVERED MUD & WATER SOURCE RESISTIVITY CHLORIDES	cu.ft. DF GAS: 4.500 cc DF DIL: TRACE cc DF WATER: cc DF MUD: 500.0
HYDROCARBON PROPERTIES  DIL GRAVITY ( PPI): @ F  GAS/DIL RATIO (cu.ft. per bbl):  GAS GRAVITY:	CUSHION DATA TYPE AMOUNT WEIGHT WATER (FT.) 815.0 8.33
BECOVERED.	
RECOVERED:	MERSURED FROM

## REMARKS:

REPORTED SAMPLER PRESSURE IS QUESTIONABLE. IT APPEARS THE SAMPLER TRAPPED A PORTION OF THE CLOSED-IN PRESSURE AS THE SAMPLER PRESSURE SHOULD BE SOMEWHAT LESS THAN THE FINAL DOWNHOLE FLOWING PRESSURE.

REPORT NO. 142614

PAGE NO. 1 TEST DATE: 24-APR-1996

## STAR

Schlumberger

Schlumberger Transient Analysis Report Based on Model Verified Interpretation Of a Schlumberger Well Test

	COMPANY: MERIDIAN OIL, INC.	WELL: UTE COM #23
	TEST IDENTIFICATION  Test Type	WELL LOCATION  Field
***************************************	COMPLETION CONFIGURATION  Casing Size 0.D./I.D. (in) 5.5 / 4.892  Hole Size (in)	TEST STRING CONFIGURATION Tubing Length (ft)/I.D. (in) 8276 / 2.441 Packer Depth (ft) 8205 Gauge Depth (ft)/Type 8236 / 9531
		TEST CONDITIONS Prod. Time (since frac) (hrs). 1320 Buildup Duration (hrs) 159
	INTERPRETATION RESULTS  Model of Behavior	ROCK/FLUID/WELLBORE PROPERTIES Oil Density (deg. API) 50 Gas Gravity 0.65 Liquid/Gas Ratio (STB/MMSCF) . 0 Res.Saturations, Sg/So/Sw (%) . 72/0/28 Water Cut (%) 0 Viscosity (cp) 0.01961 Total Compressibility (1/psi) . 2.131E-04 Ponosity (%) 11.2 Reservoir Temperature (F) 208

### PRODUCTION RATE DURING TEST: 63.65 MSCF/D = Q-Last

#### COMMENTS:

A 7-DAY BOTTOMHOLE PRESSURE BUILDUP TEST WAS CONDUCTED FROM 24-APR-1996 TO 01-MAY-1996 AFTER 55-DAYS PRODUCTION SINCE HYDRAULICALLY FRACTURE- TREATING THE WELL. ANALYSIS OF THE DIAGNOSTIC LOG-LOG PLOT OF PRESSURE AND DERIVATIVE INDICATES THE PRESENCE OF A HOMOGENEOUS SYSTEM WITH SKIN AND VARIABLE WELLBORE STORAGE EFFECTS AT EARLY TIME AND TRANSITIONAL FLOW REGIME AT MID TO LATE TIMES; INFINITE ACTING RADIAL FLOW WAS NOT REACHED DURING THE BUILDUP. THE BUILDUP RESPONSE WAS CHARACTERISTIC OF EITHER A SHORT HIGHLY CONDUCTIVE FRACTURE OR SIMPLY A LOW VALUE OF SKIN AND WELLBORE STORAGE. i.e., LOW CD\*e(2s). SINCE THE ZONE HAD BEEN FRACTURE TREATED. THE BUILDUP DATA WAS MATCHED USING A HOMOGENEOUS. FINITE CONDUCTIVITY VERTICAL FRACTURE RESERVOIR MODEL (SEE ANALYSIS RESULTS AND PLOTS, PAGES 2-5).

THE TESTED INTERVAL HAS THE CHARACTERISTICS OF VERY LOW EFFECTIVE PERMEABILITY TO GAS AND A HIGHLY STIMULATED WELLBORE CONDITION. WITH AN EQUIVALENT SKIN FACTOR OF -3.9. HOWEVER. THE EFFECTIVE FRACTURE HALF-LENGTH AT THE TIME OF THE TEST WAS ONLY 33 FT, WHICH COULD INDICATE THAT THE FRACTURE IS STILL CLEANING UP. FOR QUESTIONS ABOUT THIS REPORT. PLEASE CONTACT DEBORA HALLFORD AT (303) 843-9090.

REPORT NO. 142614 PAGE NO. 2

## CALCULATIONS GAS WELL LOG-LOG ANALYSIS

Schlumberger

LOG EDELTA M(P) 3 VS. LOG (DELTA T) PLOT

HOMOGENEOUS, INFINITE SYSTEM
VARIABLE WELLBORE STORAGE
FINITE CONDUCTIVITY VERTICAL FRACTURE
PD VS. TO/CD

#### DATA IDENTIFICATION

FLOW PERIOD # 3, BUILDUP M(P) = 3.203E+07 PSI\*\*2/CP \* DELTA T=0 FLOW RATE CHANGE = 63.650 MSCF/D

#### TYPE-CURVE MATCH

CURVE MATCH, FCD = 370.919

CDF = 1.93151E-01

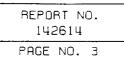
PRESSURE MATCH. PD/DELTA M(P) = 1.060E-08 1/(PSI\*\*2/CP)

TIME MATCH. (TDF)/DELTA T = 7.3224E-03 1/HR

#### CALCULATIONS

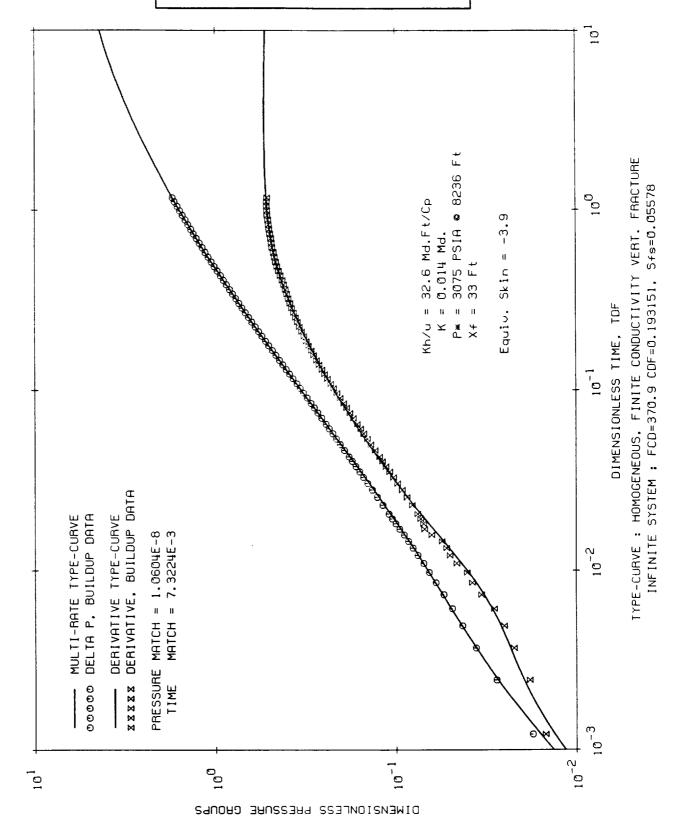
#### COMMENTS

USING HOMOGENEOUS. INFINITE SYSTEM RESERVOIR MODEL WITH VARIABLE WELLBORE STORAGE AND A FINITE CONDUCTIVITY VERTICAL FRACTURE : Ca/C=0.32(1)1.08(2) CoD=0.027(1)0.159(2)



DIMENSIONLESS MULTI-RATE PLOT: LOG-LOG MATCH WITH FINITE COND. VERT. FRACTURE

Schlumberger



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REPORT NO. 142613

PAGE NO. TEST DATE: 25-APR-1996

### STAR

Schlumberger Transient Analysis Report Based on Model Verified Interpretation Of a Schlumberger Well Test

Schlumberger

COMPANY: MERIDIAN OIL, INC.	WELL: UTE COM #27
TEST IDENTIFICATION Test Type	WELL LOCATION Field BARKER CREEK County SAN JUAN State COLORADO Sec/Twn/Rng 16/32N/14W
COMPLETION CONFIGURATION Casing Size 0.D./I.D. (in) 5.5 / 4.892 Hole Size (in)	TEST STRING CONFIGURATION Tubing Length (ft)/I.D. (in) 8064 / 2.441 Packer Depth (ft) 7999 Gauge Depth (ft)/Type 8031 / 9060

Shot Density (shots/ft) ..... 4
Net Pay (ft) ...... 46 TEST CONDITIONS Producing Time (hrs) ...... 1272 Buildup Duration (hrs) ..... 265.4

INTERPRETATION RESULTS Model of Behavior ..... HYD. FRACTURE Fluid Type Used for Analysis.. GAS Reservoir Pressure (psi) .... 2595 © 8031 Ft Transmissibility (md.ft/cp) .. 59.3 Effective Permeability (md) .. 0.023 (to Gas)

Fracture Half-Length (ft) .... 236 Fracture Capacity (md.ft) .... 741.4 Equivalent Skin Factor ..... -5.9

ROCK/FLUID/WELLBORE PROPERTIES Oil Density (deg. API) ..... 56 Liquid/Gas Ratio (STB/MMSCF) . 1.66 Water Cut (%) ..... 0
Viscosity (cp) ..... 0.01831 Total Compressibility (1/psi). 2.70E-04 Porosity (%) ..... 10.2 Reservoir Temperature (F) .... 208

#### PRODUCTION RATE DURING TEST: 659 MSCF/D = Q-Last

#### COMMENTS:

AN 11-DAY BOTTOMHOLE PRESSURE BUILDUP TEST WAS CONDUCTED FROM 25-APR-1996 TO 06-MAY-1996 FOLLOWING 53-DAYS PRODUCTION SINCE HYDRAULIC FRACTURE TREATMENT. ANALYSIS OF THE DIAGNOSTIC LOG-LOG PLOT OF PRESSURE AND DERIVATIVE INDICATES THE PRESENCE OF A HOMOGENEOUS SYSTEM WITH VARIABLE WELLBORE STORAGE EFFECTS AT EARLY TIMES. AT MID TIME, BILINEAR FLOW REGIME IS PRESENT (ONE/FOURTH SLOPE ON THE DERIVATIVE) WHEN THE BUILDUP RESPONSE IS LINEAR FROM THE MATRIX INTO THE FRACTURE AND LINEAR THROUGH THE FRACTURE. AT THE END OF THE TEST FORMATION LINEAR FLOW WAS PRESENT (ONE-HALF SLOPE ON THE DERIVATIVE). WHEN THE BUILDUP RESPONSE IS LINEAR FROM THE FORMATION INTO THE FRACTURE. UNTIL THIS FLOW REGIME ENDS (i.e., TRANSLENT EXTENDS BEYOND THE TIPS OF THE FRACTURE). ONLY THE PRODUCT OF KX4 IS UNIQUE. THE BUILDUP DATA WAS MATCHED USING A HOMOGENEOUS SYSTEM RESERVOIR MODEL WITH VARIABLE WELLBORE STORAGE AND A FINITE CONDUCTIVITY VERTICAL FRACTURE (SEE ANALYSIS RESULTS AND PLOTS, PAGES 2-5). ONLY THE PRODUCT OF THE FRACTURE HALF-LENGTH (236-ft) AND PERMEABILITY (0.024-mu) ARE UNIQUE, THUS, IF PERMEABILITY IS INCREASED. FRACTURE HALF-LENGTH MUST DECREASE. AND ACE VERSA.

THE TESTED INTERVAL HAS THE CHARACTERISTICS OF LOW PERMEABILITY EFFECTIVE TO GAS ..... A HIGHLY STIMULATED WELLBORE CONDITION AT THE TIME OF THE TEST. FOR QUESTIONS ABOUT THIS REPORT. PLEASE CONTACT DEBORA HALLFORD AT (303) 843-9090. REPORT NO. 142613 PAGE NO. 2

## CALCULATIONS GAS WELL LOG-LOG ANALYSIS

Schlumberger

LOG EDELTA M(P) 3 V3. LOG (DELTA T) PLOT

HOMOGENEOUS, INFINITE SYSTEM
VARIABLE WELLBORE STORAGE
FINITE CONDUCTIVITY VERTICAL FRACTURE
PD vs. TDF

#### DATA IDENTIFICATION

FLOW PERIOD # 7. BUILDUP
M(P) = 2.497E+07 PSI\*\*2/CP © DELTA T=0
FLOW RATE CHANGE = 659.00 MSCF/D

#### TYPE-CURVE MATCH

CURVE MATCH, FCD = 1.33308E+02

CDF = 7.02009E-02

PRESSURE MATCH, PD/DELTA M(P) = 1.735E-09 1/(PSI\*\*2/CP)

TIME MATCH, (TDF)/DELTA T = 2.22566E-04 1/HR

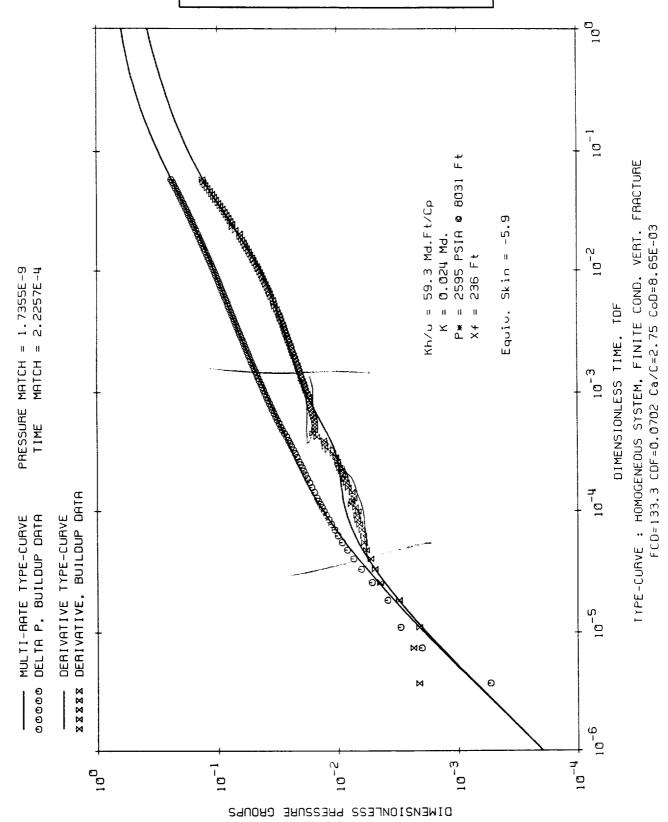
#### CALCULATIONS

### COMMENTS

USING HOMOGENEOUS. INFINITE SYSTEM RESERVOIR MODEL WITH VARIABLE WELLBORE STORAGE AND A FINITE CONDUCTIVITY VERTICAL FRACTURE: Ca/C=2.75(1)0.010(2)2.3(3)1.1(4)



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## REPORT NO. UTE24

PAGE NO.

## STAR

Schlumberger

TEST DATE: 19-JUN-1995 Schlumberger Transient Analysis Report Based on Model Verified Interpretation

COMPANY: MERIDIAN OIL, INC.	WELL: UTE 24
TEST IDENTIFICATION  Test Type	WELL LOCATION  County
COMPLETION CONFIGURATION Hole Size (in)	TEST STRING CONFIGURATION
	TEST CONDITIONS Producing Time (hrs) 6984 Shut-in Duration (hrs) 71.3
INTERPRETATION RESULTS  Model of Behavior	ROCK/FLUID/WELLBORE PROPERTIES  Gas Gravity

#### PRODUCTION RATE DURING TEST: 5200 MSCF/D = Q-Last

#### COMMENTS:

A 3-DAY BOTTOMHOLE PRESSURE BUILDUP TEST WAS CONDUCTED FROM 19-JUN-1995 TO 22-JUN-1995 FOLLOWING 291-DAYS PRODUCTION. THE BUILDUP WAS ANALYZED BY GEOQUEST SCHLUMBERGER IN JUNE 1996 TO PROVIDE AN ALTERNATIVE INTERPRETATION TO THAT ALREADY PERFORMED INHOUSE BY MERIDIAN OIL. INC.

ANALYSIS OF THE DIAGNOSTIC LOG-LOG PLOT OF PRESSURE AND DERIVATIVE INDICATES THE PRESENCE OF SKIN AND DECREASING WELLBORE STORAGE EFFECTS AT EARLY TIME AND TRANSITIONAL FLOW REGIME AT MID TO LATE TIMES. WITH AN INCREASING DERIVATIVE SLOPE AFTER 3.5 HRS SHUT-IN TIME. THIS IS NOT UNIQUE, AS SEVERAL RESERVOIR MODELS EXHIBIT A SIMILAR RESPONSE; CHARACTERISTIC TWO-POROSTLY, RADIALLY COMPOSITE, AND MULTIPLE BOUNDARIES. THE BUILDUP WAS MATCHED USING A HOMOGENEOUS SYSTEM MODEL WITH SKIN AND DECREASING WELLBORE STORAGE AND WEDGE-SHAPED GEOMETRY OUTER SEALING (NO-FLOW) BOUNDARIES. BASED ON THE MATCH WITH THIS MODEL, THE WELL IS SITUATED ABOUT 112 ft FROM ONE SEALING BARRIER AND 240 ft FROM THE SECOND SEALING BARRIER, WITH 260-ft TO THE INTERSECT IN A 96-Degree WEDGE-SHAPED GEOMETRY. THE SEALING BOUNDARIES REPRESENT A MARKED DECREASE IN THE OVERALL TRANSMISSIBILITY (Kh/u). AND COULD BE DRAINAGE PATTERN BOUNDARIES AS WELL AS PHYSICAL BOUNDARIES.

THE TESTED INTERVAL HAS THE CHARACTERISTICS OF GOOD PERMEABILITY EFFECTIVE TO GAS AND A STIMULATED WELLBORE CONDITION AT THE TIME OF THE TEST. OTHER SOURCES, SUCH AS LOGS, SEISMIC, CORES, ETC., SHOULD BE CONSULTED TO CONFIRM THE CORRECT RESERVOIR MODEL FOR THIS WELL. FOR QUESTIONS ABOUT THIS REPORT, PLEASE CONTACT DEBORA HALLFORD AT (303) 843-9090.

REPORT NO. UTE24

PAGE NO. 2

CALCULATIONS
GAS WELL
LOG-LOG ANALYSIS

Schlumberger

LOG EDELTA M(P) 3 V3. LOG (DELTA T) PLOT

HOMOGENEOUS. INFINITE SYSTEM
SKIN AND DECREASING WELLBORE STORAGE
WEDGE-SHAPED GEOMETRY OUTER SEALING BOUNDARIES
PD VS. TD/CD

#### DATA IDENTIFICATION

FLOW PERIOD # 11. BUILDUP
M(P) = 1.094E+08 PSI\*\*2/CP © DELTA T=0
FLOW RATE CHANGE = 5200.0 MSCF/D

#### TYPE-CURVE MATCH

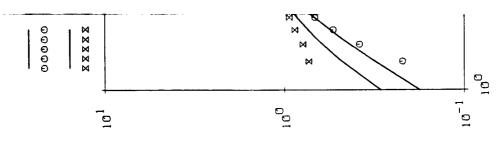
CURVE MATCH, CD\*E(2S) = 3.00353 WEDGE ANGLE = 95.9801 DEG WELL POSITION. THETA/WEDGE ANGLE = 0.270287 RD = 779.678 PRESSURE MATCH, PD/DELTA M(P) = 3.324E-08 1/(PSI\*\*2/CP) TIME MATCH. (TD/CD)/DELTA T = 43.338 1/HR

#### CALCULATIONS

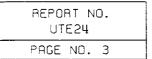
#### COMMENTS

USING HOMOGENEOUS, INFINITE SYSTEM RESERVOIR MODEL WITH SKIN AND DECREASING WELLBORE STORAGE AND WEDGE-SHAPED GEOMETRY OUTER SEALING (NO-FLOW) BOUNDARIES: Ca/C=196.063 CoD=1.73045

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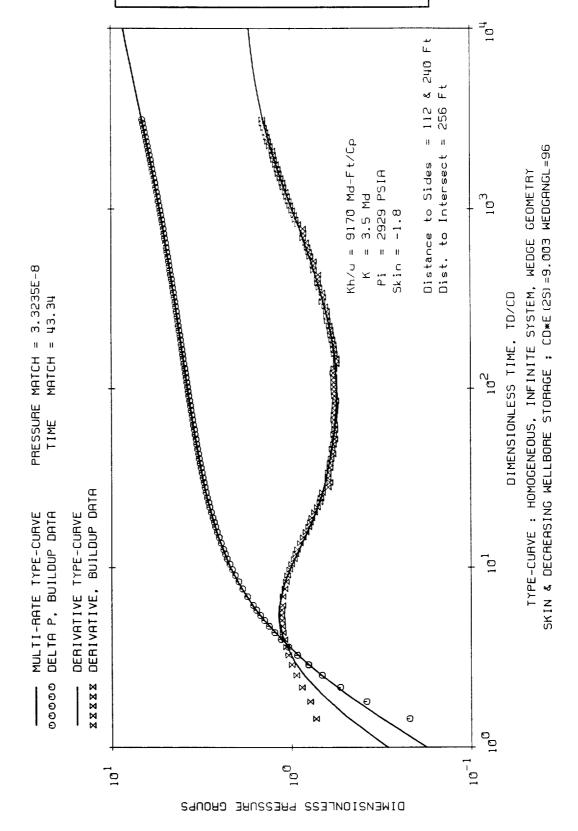


DIWENSIONLESS PRESSURE GROUPS



DIMENSIONLESS MULTI-RATE PLOT: LOG-LOG MATCH WITH WEDGE GEOMETRY MODEL

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