Schlumberger

SIMULTANEOUS

COMPENSATED NEUTRON-FORMATION DENSITY

COUNTY SANDOVAL, N.M.
FIELD REDONDO CREEK
LOCATION
WELL BACA 20 - REDRILL-1
COMPANY UNION GEO. CO OF NM

COMPANY UNION GEOTHERMAL COMPANY OF NEW MEXICO
WELL BACA 20 - REDRILL-1
FIELD REDONDO CREEK
COUNTY SANDOVAL STATE NEW MEXICO

R.O. ENGEBRETSEN
NOV 16 1981

LOCATION 1495' FNL & 1280' FWL,

API SERIAL NO.	SEC.	TWP.	RANGE
	12	19-N	3-E

Other Services:
FIL
BHC
DLL

Permanent Datum: G.L. ; Elev.: 9065
Log Measured From K.B. 24 Ft. Above Perm. Datum
Drilling Measured From K.B.

Elev.: K.B. 9089
D.F. 9088
G.L. 9065

Date	10-7-81			
Run No.	FOUR			
Depth—Driller	5120			
Depth—Logger	5138			
Btm. Log Interval	5129			
Top Log Interval	4882			
Casing—Driller	7" @4880	@	@	@
Casing—Logger	4882			
Bit Size	6 1/4			
Type Fluid in Hole	HOT WATER			
Dens. | Visc.				
pH | Fluid Loss	ml	ml	ml	ml
Source of Sample				
Rm @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Source: Rmf | Rmc				
Rm @ BHT	@ °F	@ °F	@ °F	@ °F
TIME Circulation Stopped	1500			
TIME Logger on Bottom	1850			
Max. Rec. Temp.	360 °F	°F	°F	°F
Equip. | Location	8206 | FARM			
Recorded By	JOHNSON			
Witnessed By	DENTON			

FOLD HERE The well name, location and borehole reference data were furnished by the customer.

RUN NO.	FOUR			
Service Order No.	227846			
Fluid Level	FULL			
Salinity, PPM Cl.				
Speed - F.P.M.	22			
EQUIPMENT DATA				
Dens. Panel	AA 42			
Dens. Cart.	50			
Dens. Skid.				
Dens. Sonde				
Dens. Source	5650			
Dens. Calibrator	139-62			
Neut. Panel	AA 42			
Neut. Cart.	DA 43			
Neut. Source	3057			
Neut. Calibrator				
GR Cart.	CA 57			
Memorizer Panel	1189			
Tape Recorder (TTR)	2785			
Depth Encoder (DRE)	IDW			
Pressure Wheel (CPW)				
Centralizers: Enter Spring, Standoffs, In-line, or None — Type				
Centralizers: Enter Spring, Standoffs, In-line, or None — No.				
Centralizers: Enter Spring, Standoffs, In-line, or None — S. O. — Inches				
CALIBRATION DATA				
GR — BKG. CPS	SEE CAL			
GR — Source CPS	FILM			
GR — Sens. - Cal				
GR — T. C. - Cal				
CNL — Short Spacing - Before Log				
CNL — Long Spacing - Before Log				
CNL — Short Spacing - After Log				
CNL — Long Spacing - After Log				
FDC — P¹ — Before Log				
FDC — P² — Before Log				
FDC — P¹ — After Log				
FDC — P² — After Log				

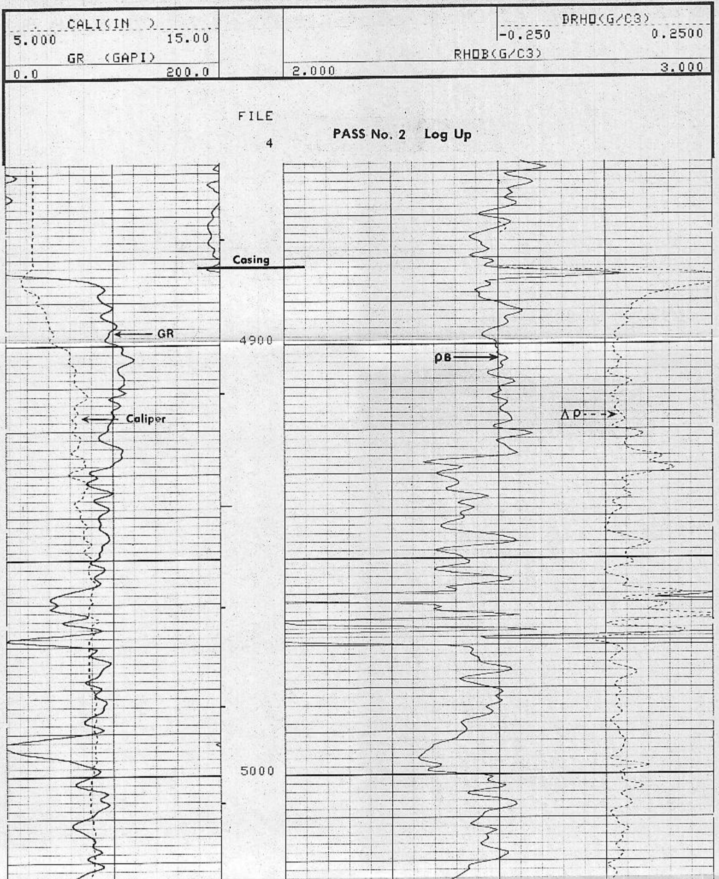
Type Log	Depth		

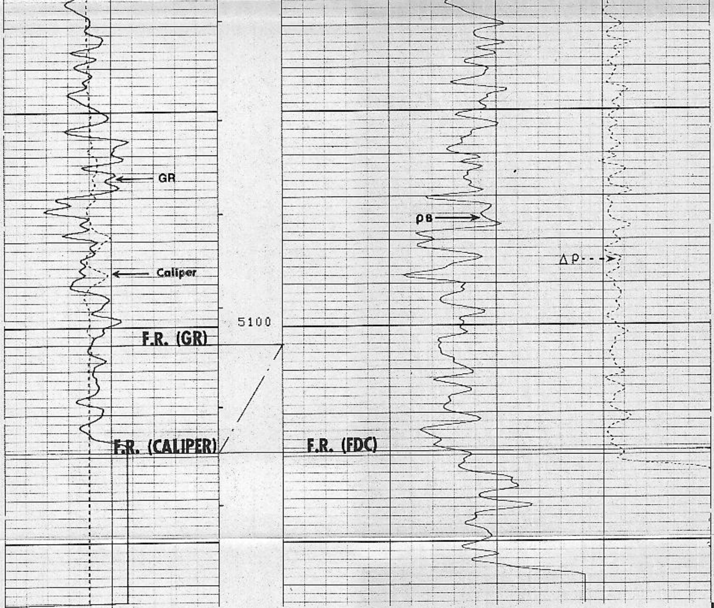
REMARKS:

LOGGING DATA

DEPTH		CNP			FDC				GR			
Top	Bottom	Porosity Scale	Matrix	Auto Corr. or Hole Size Setting	Porosity Scale	Grain Density	Liquid Density	Hole Fluid	Sens. Logged	T. C.	Zero. Div. Left	Scale Per 100 Div.
CSG	TD	30 -10	LIME	AUTO	30 -10	2.71	1.00	LIQ	165		0	200

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule.





FILE

4

CALI(IN)
5.000 15.00
GR (GAPI)
0.0 200.0

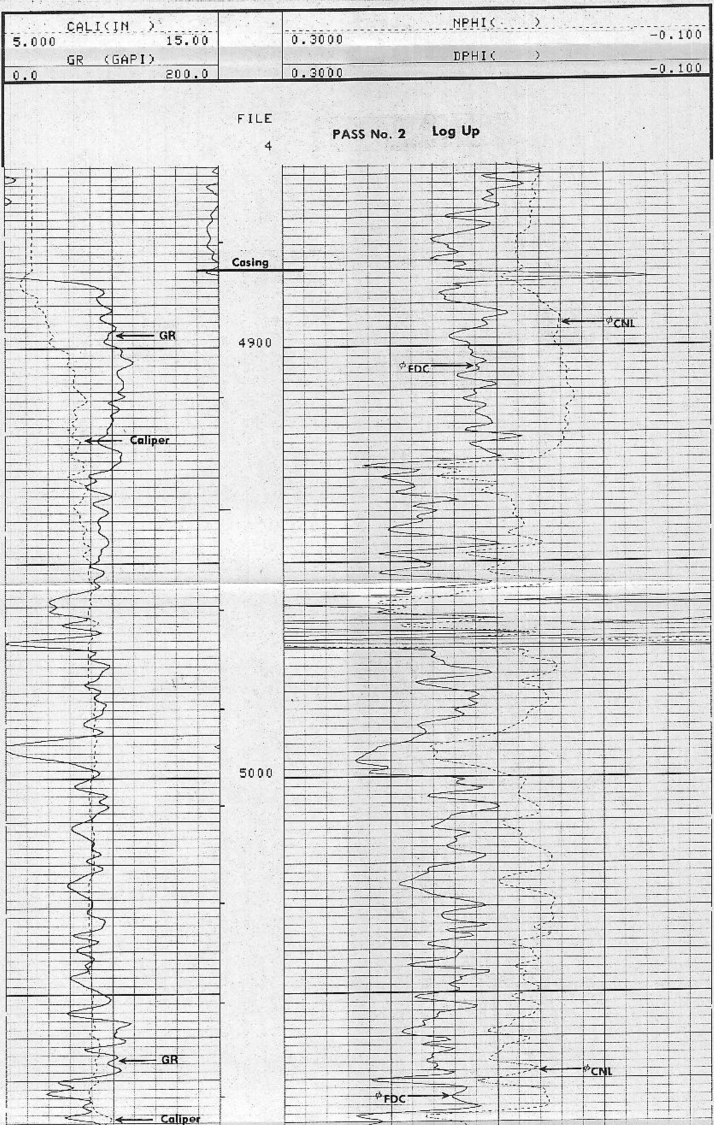
DRHO(G/C3)
-0.250 0.2500
RHOB(G/C3)
2.000 3.000

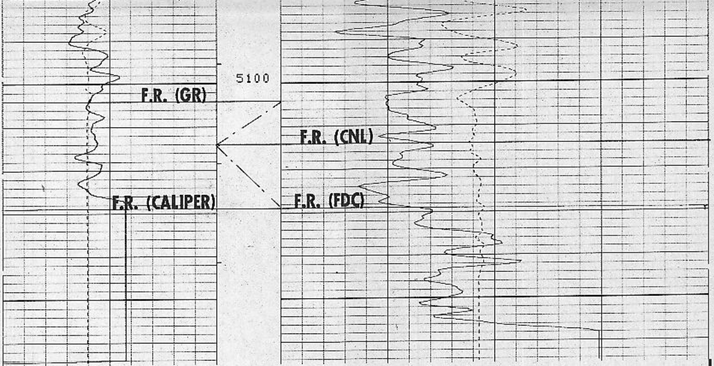
SENSOR MEASURE POINT TO TENSION REFERENCE POINT

CALI	31.7	FEET	GR	37.7	FEET
FCNL	18.1	FEET	NCNL	18.1	FEET
NFDC	7.0	FEET	FFDC	7.0	FEET
NRAT	18.1	FEET	TENS	.0	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
HC	CALI		BS	6.125	IN
FD	1.000	G/C3	MATR	LIME	
FDCC	ALLO		MDEN	2.710	G/C3
BHS	OPEN		BHF	WATE	
DO	0.0				





FILE

4

CALI(IN)
5.000 15.00
GR (GAPI)
0.0 200.0

NPHI( )
0.3000 -0.100
DPHI( )
0.3000 -0.100

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

CALI	31.7	FEET	GR	37.7	FEET
FCNL	18.1	FEET	NCNL	18.1	FEET
NFDC	7.0	FEET	FFDC	7.0	FEET
NRAT	18.1	FEET	TENS	.0	FEET

PARAMETERS

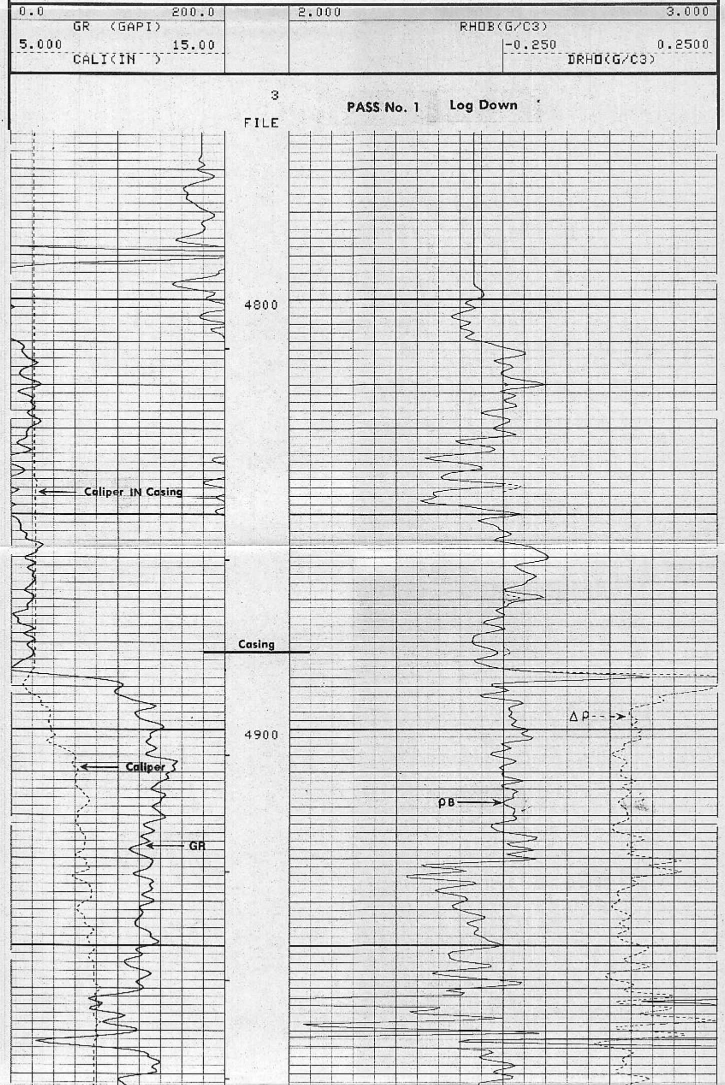
NAME	VALUE	UNIT	NAME	VALUE	UNIT
HC	CALI		BS	6.125	IN
FD	1.000	G/C3	MATR	LIME	
FDCC	ALLO		MDEN	2.710	G/C3
BHS	OPEN		BHF	WATE	
DO	0.0				

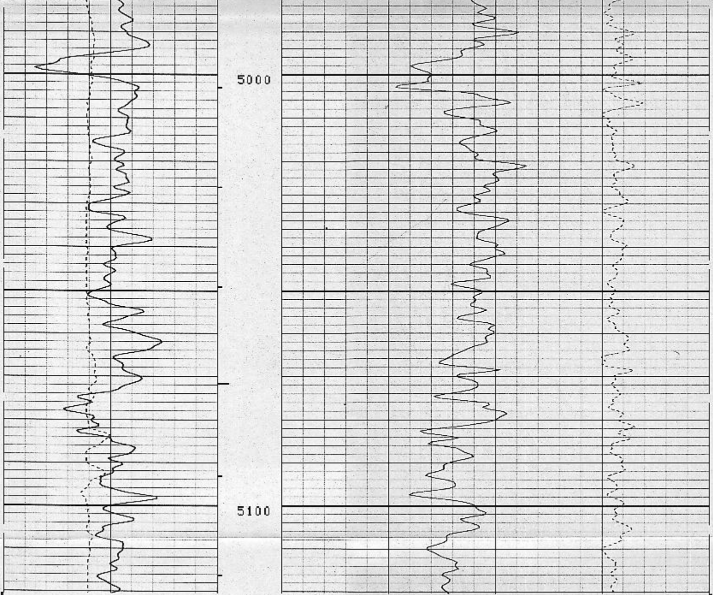
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
DO	0.0		BHS	OPEN	
BHF	WATE		FDCC	ALLO	
MDEN	2.710	G/C3	FD	1.000	G/C3
MATR	LIME		HC	CALI	
BS	6.125	IN			

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NRAT	-24.6	FEET	TENS	.0	FEET
NFDC	-35.7	FEET	FFDC	-35.7	FEET
FCNL	-24.6	FEET	NCNL	-24.6	FEET
CALI	-11.0	FEET	GR	-5.0	FEET





3

FILE

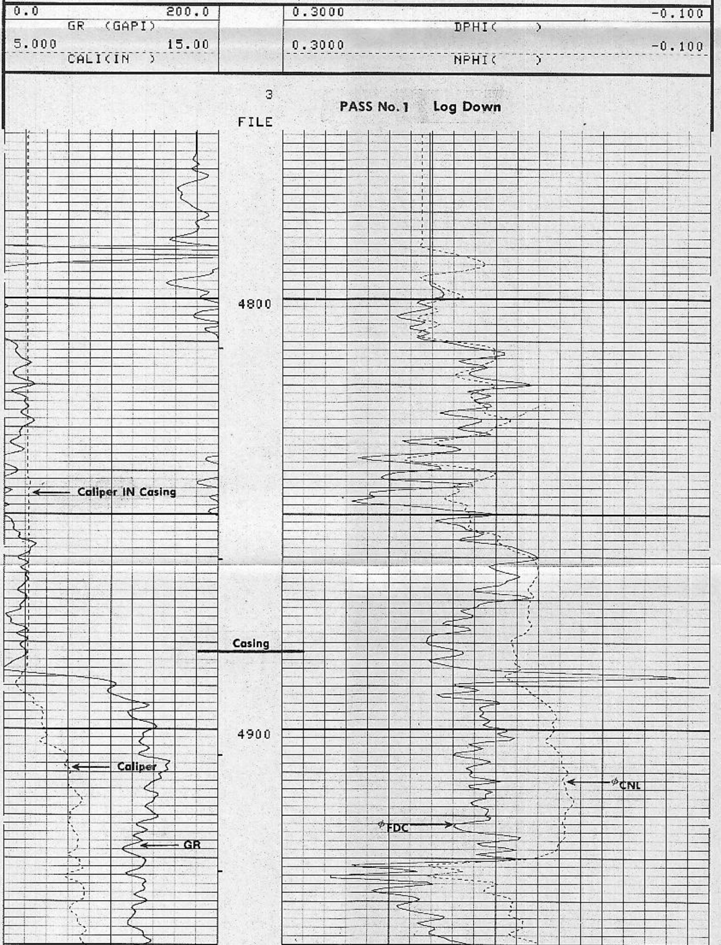
0.0	200.0	2.000	3.000
GR (GAPI)		RHOB(G/C3)	
5.000	15.00	-0.250	0.2500
CALI(IN)		DRHO(G/C3)	

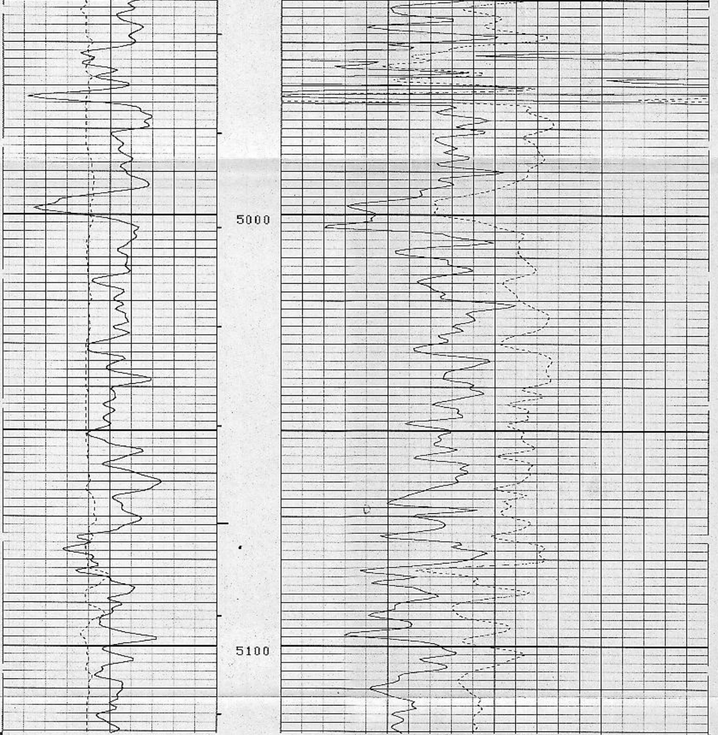
PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
DO	0.0		BHS	OPEN	
BHF	WATE		FDCC	ALLO	
MDEN	2.710	G/C3	FD	1.000	G/C3
MATR	LIME		HC	CALI	
BS	6.125	IN			

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NRAT	-24.6 FEET	TENS	.0 FEET
NFDC	-35.7 FEET	FFDC	-35.7 FEET
FCNL	-24.6 FEET	NCNL	-24.6 FEET
CALI	-11.0 FEET	GR	-5.0 FEET





3

FILE

```
0.0                 200.0     0.3000                                      -0.100
      GR   (GAPI)                                   DPHI(      )
5.000               15.00     0.3000                                      -0.100
      CALI(IN   )                                   NPHI(      )
```

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 81/10/07
PROGRAM FILE: HEL   (VERSION   20.2   81/ 1/30)

ATTC   DETECTOR CALIBRATION SUMMARY

```
              MEASURED
            BKGD     JIG          CALIBRATED          UNITS
     GR      60      144             153              GAPI


 CNTD                    DETECTOR CALIBRATION SUMMARY

                                            TOOL
                TANK     CALIBRATED        CHECK

   NRAT         4.09        4.57            6.6


 FGTC                   DETECTOR CALIBRATION SUMMARY

             BLOCK        JIG      CALIBRATED    UNITS

   FFDC      1039.      2140.       1300.          CPS
   NFDC       464.       468.2       400.0         CPS


 ECDC                   CALIPER CALIBRATION SUMMARY

              MEASURED                             CALIBRATED
            SMALL    LARGE                      SMALL     LARGE          UNITS
   CALI      5.5      9.2                        4.0       8.0            IN
                        FILE

                          2
```

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               AFTER SURVEY TOOL CHECK SUMMARY


   PERFORMED:      81/10/07
   PROGRAM FILE: HEL     (VERSION    20.2    81/ 1/30)


 FGTC                     TOOL  CHECK

                         JIG
              BEFORE           AFTER      UNITS

   FFDC       2140.         2134.         CPS
   NFDC        468.2         461.7        CPS
                        FILE

                          6
```

```
               SHOP SUMMARY


   PERFORMED:      80/06/10
   PROGRAM FILE: ATSHOP (VERSION    18.2    80/ 4/29)


 FGTC                    CALIBRATION SUMMARY

              BLOCK                            JIG
        MEASURED   CALIBRATED      MEASURED   CALIBRATED      UNITS

   FFDC  1039        1300            2236        2797           CPS
   NFDC   464         400             471         405           CPS

        (FGC-BA:50    , FGD-BA:62    , GSR-J:5650 , SFT-139:62    )
```

```
               SHOP SUMMARY


   PERFORMED:      00/28/01
   PROGRAM FILE: ATSHOP (VERSION    17.916  80/ 3/11)


 CNTD                    DETECTOR CALIBRATION SUMMARY

               TANK
        MEASURED  CALIBRATED

   NRAT    4.10       4.57

                    (CNC-BA:41    , CNH-CA:53    )
```

COMPANY UNION GEOTHERMAL CO. OF NEW MEXICO
WELL BACA 20 - REDRILL-1
FIELD REDONDO CREEK
COUNTY SANDOVAL STATE NEW MEXICO

SCHL. FR 5129
SCHL. TD 5138
DRLR. TD 5120

Elev: KB 9089
DF 9088
GL 9065