BW - ____19____

SUBSIDENCE MONITORING REPORTS

DATE:

JOHN WEST SURVEYING
EMPLOYEE OWNED

June 13, 2013

Jim Griswold
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505

Mr. Griswold,

Enclosed you will find the results of the most recent subsidence monitoring survey at the BW-19 Carlsbad No. 1 well near Carlsbad. Considering the manufacturer specification's for the equipment used in performing the survey it does not appear that there has been any ground subsidence at the site.

Please feel free to contact me if you have questions.

Regards,

Gary Eidson, PS
NM PS No. 12641

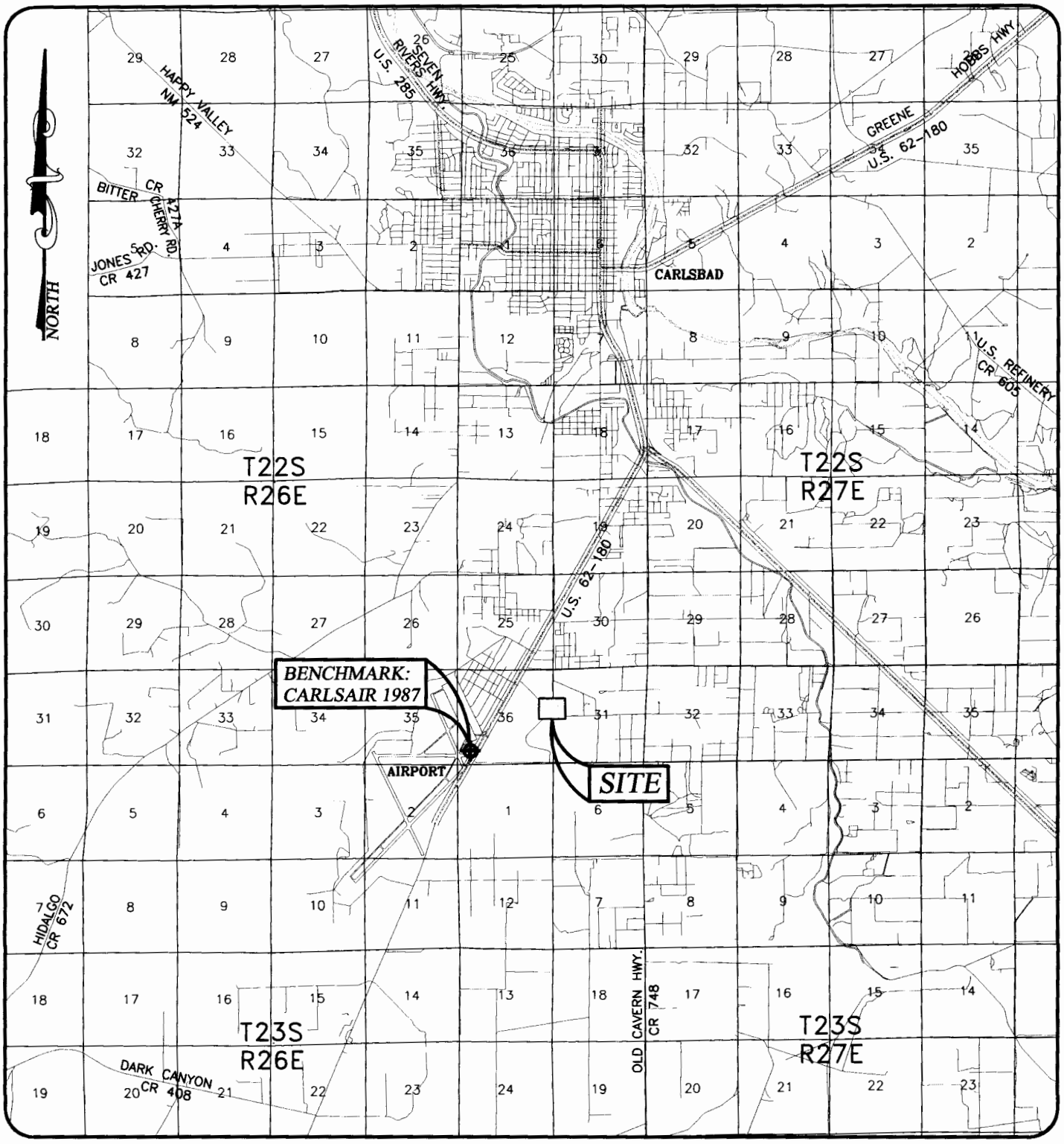
Cc Bob Patterson

John West Surveying Company Inc., 412 North Dal Paso, Hobbs, New Mexico 88240
Phone: (575) 393-3117 Fax: (575) 393-3450

Figure 1

VICINITY MAP

NOT TO SCALE



CARLSBAD, NEW MEXICO AND SURROUNDING AREA

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

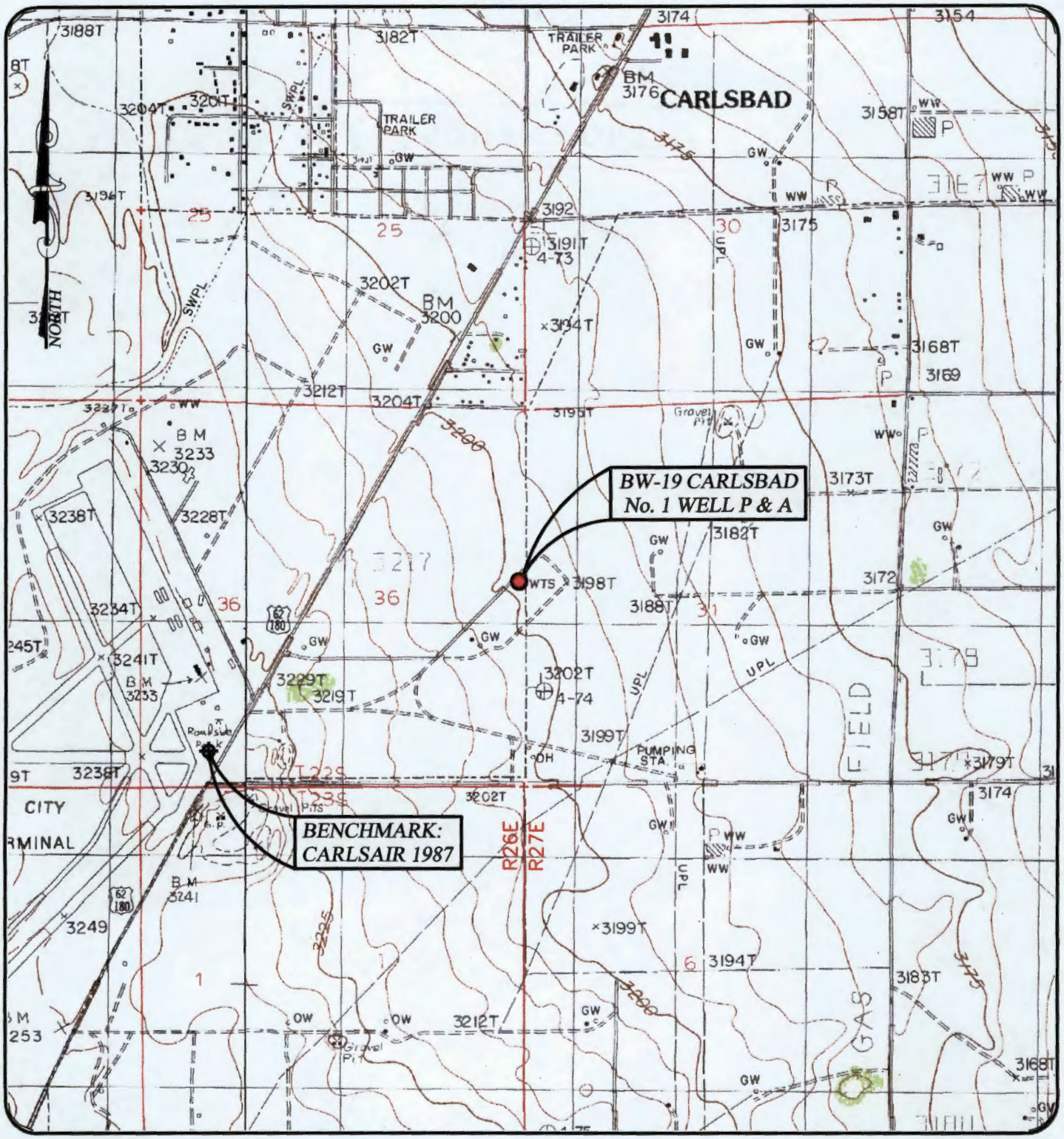
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\BW 19 Carlsbad No. 1\13110481

U.S.G.S. MAP

Figure 2

2000 1000 0 2000 4000 FEET

Scale: 1"=2000'



U.S.G.S. 7.5' SERIES TOPOGRAPHIC MAPS FOR:
OTIS, NEW MEXICO
KITCHEN COVE, NEW MEXICO

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
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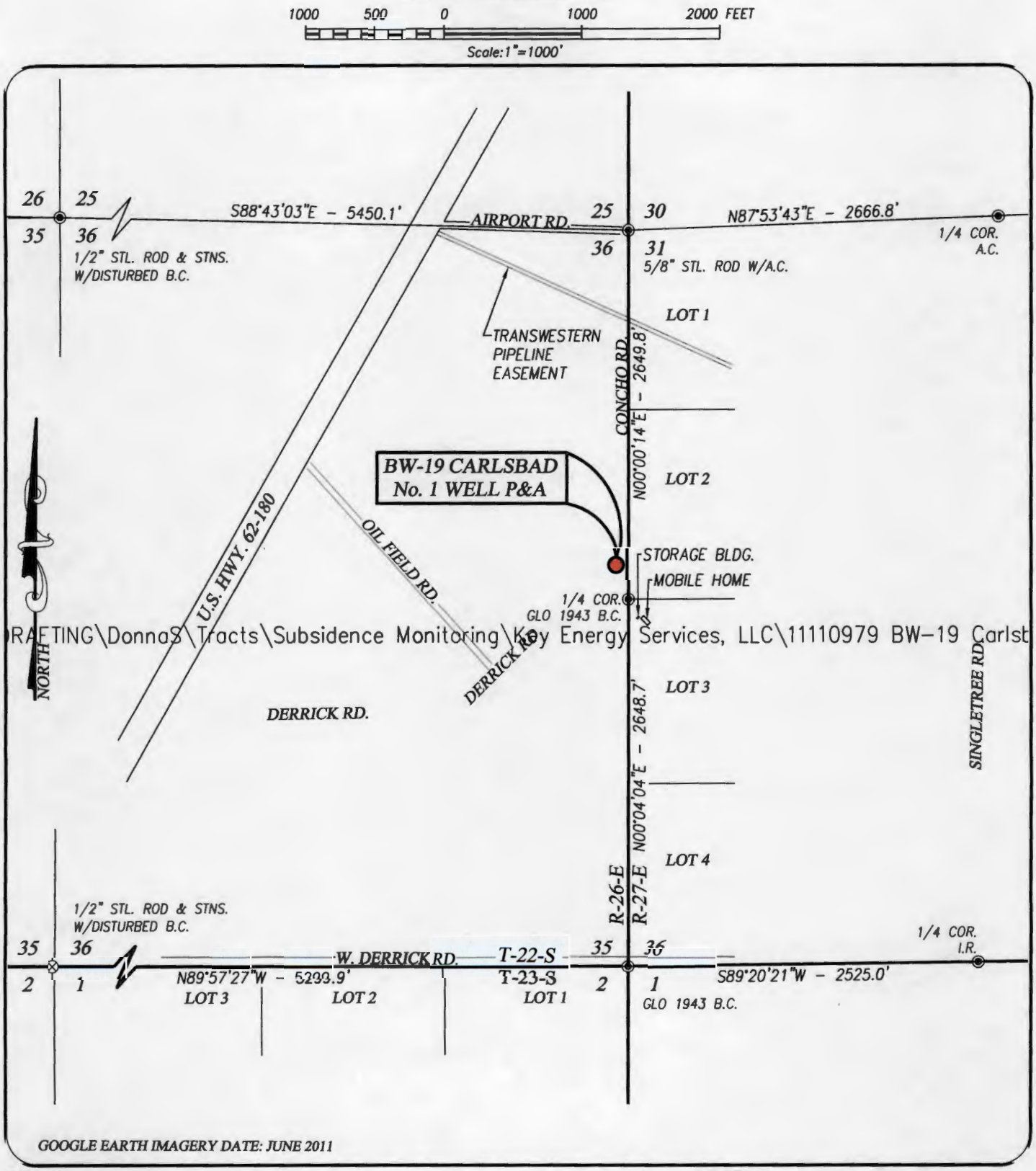
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

LOCATION MAP

Figure 3



GOOGLE EARTH IMAGERY DATE: JUNE 2011

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

LEGEND

◉ – DENOTES FOUND CORNER AS NOTED

⊗ – DENOTES CALCULATED POINT

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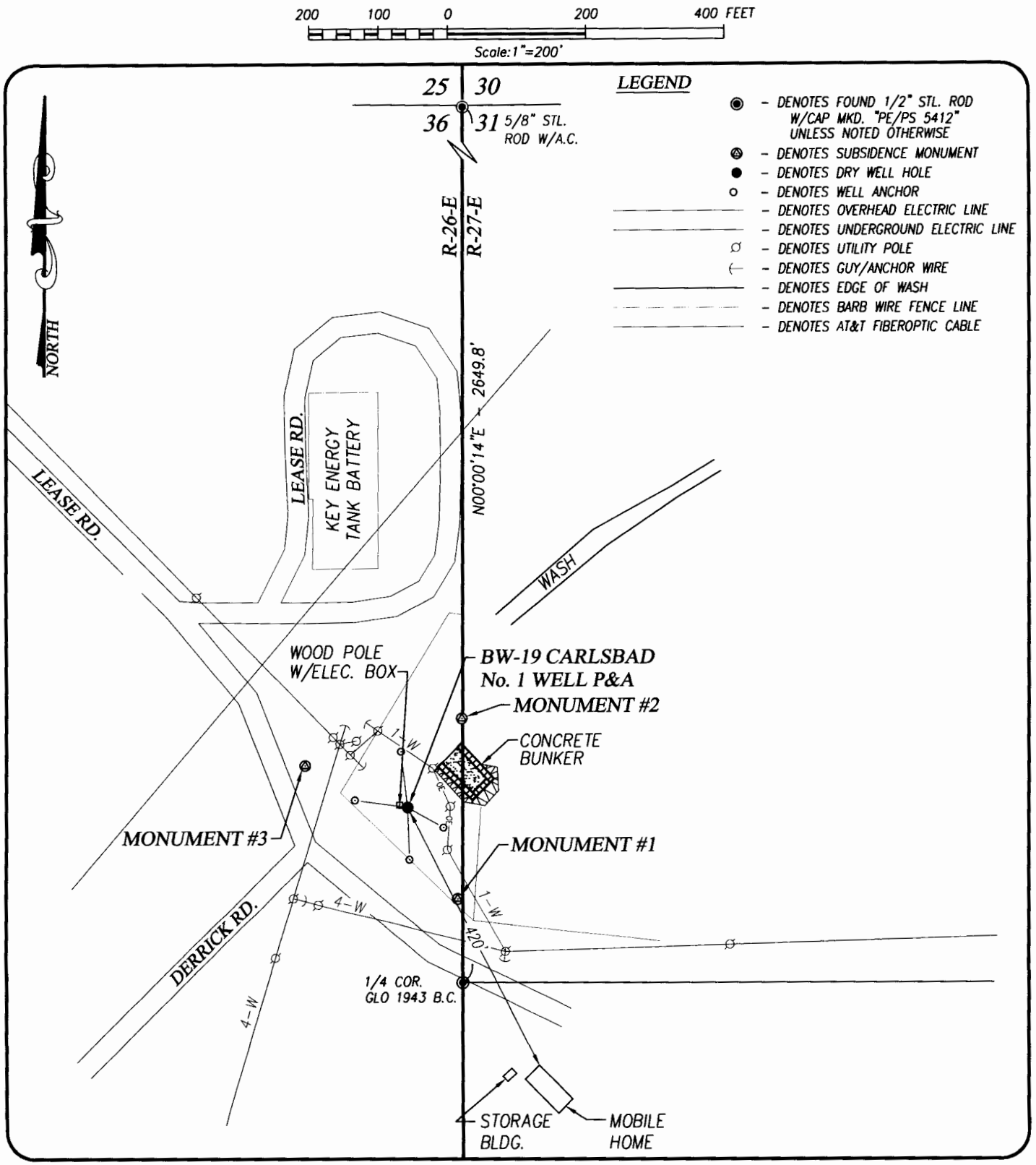
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Figure 4

TOPOGRAPHIC MAP



NOTE

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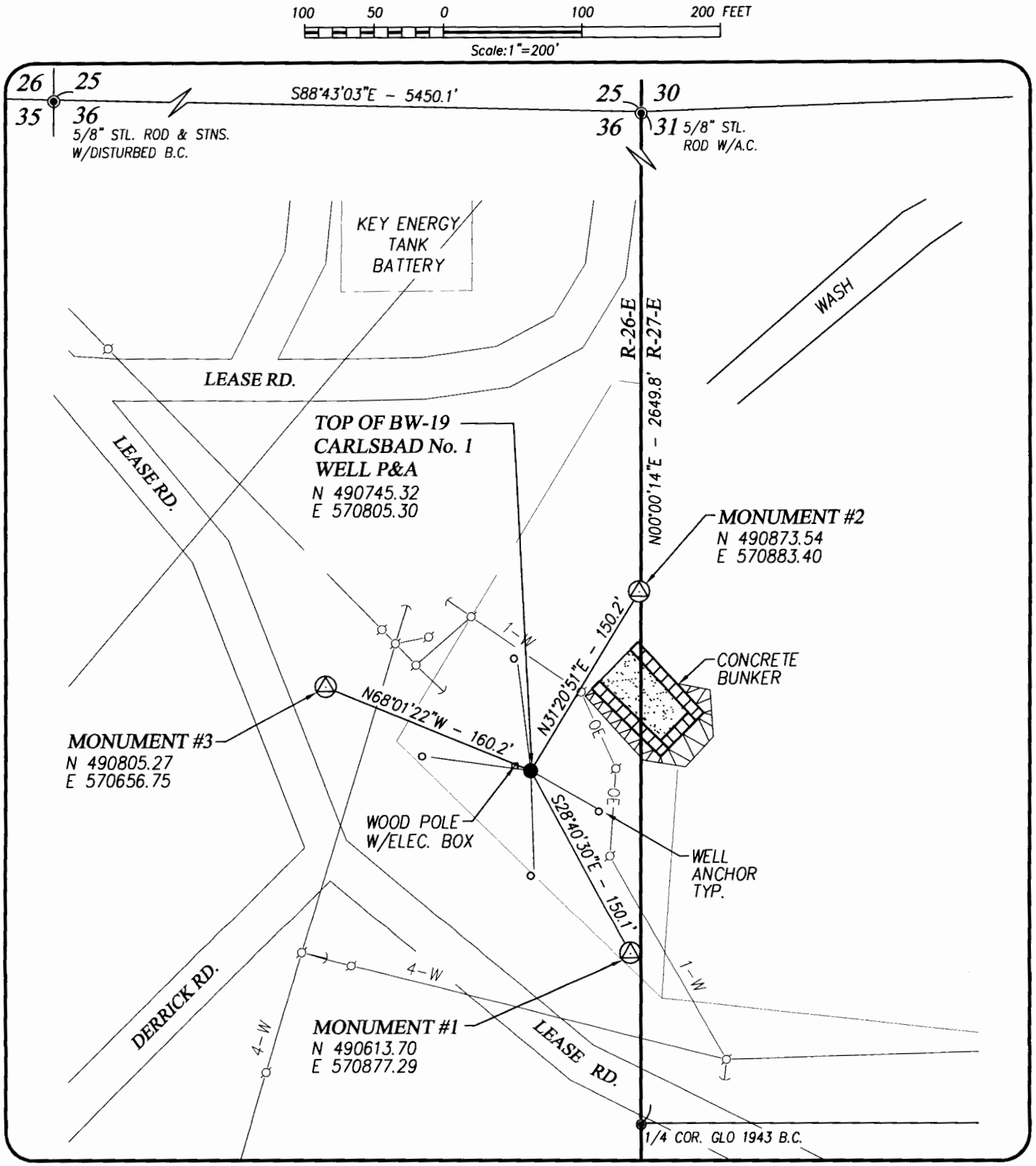
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\BW 19 Carlsbad No. 1\13110481

SUBSIDENCE MONUMENT LOCATION MAP

Figure 5



NOTE

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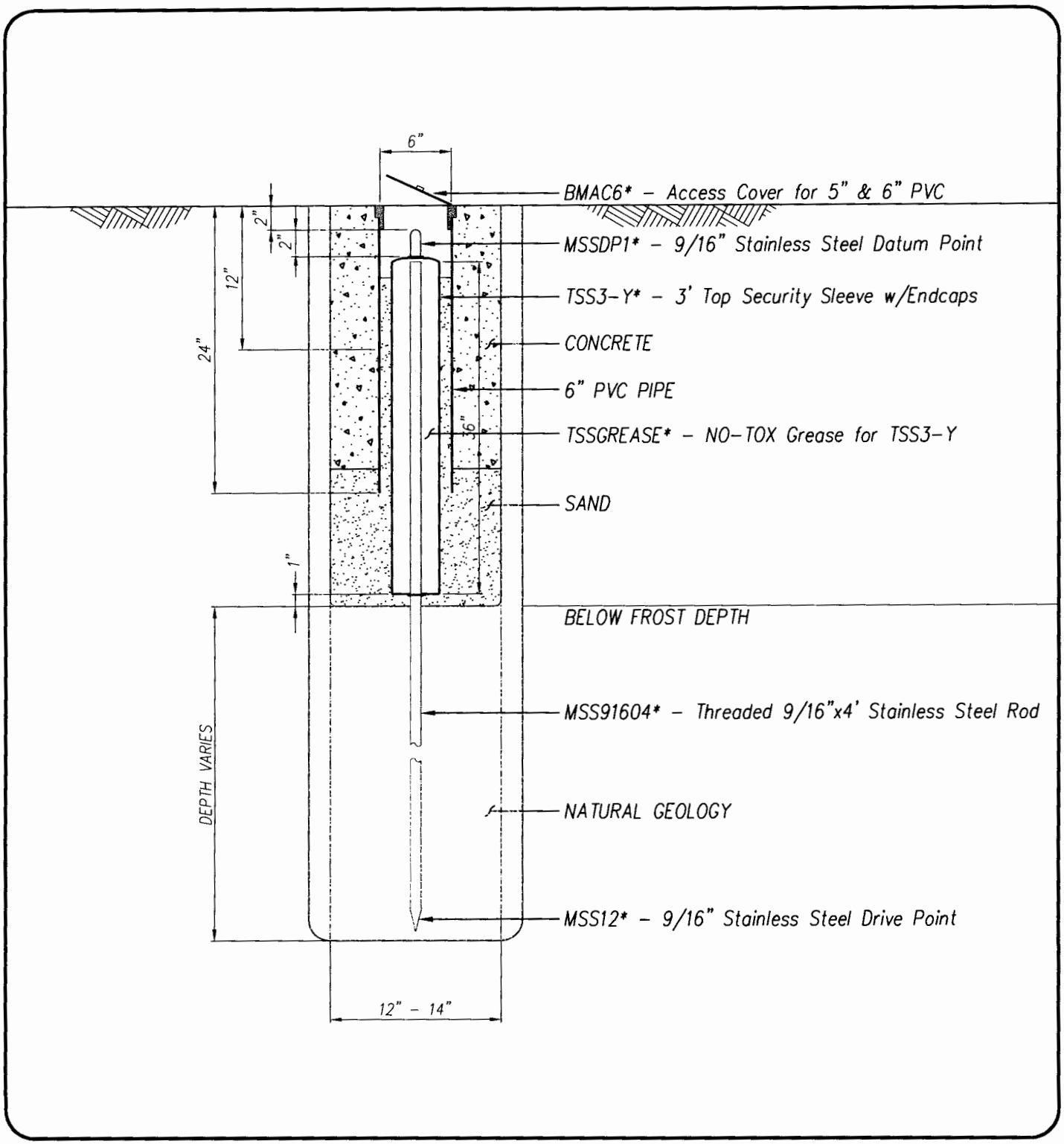
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Figure 6

BERNTSEN MONUMENT INSTALLATION DETAIL

NOT TO SCALE



*REFERENCE:
www.berntsen.com
9/16" STAINLESS STEEL TOP SECURITY SLEEVE MONUMENT

PROVIDING SURVEYING SERVICES
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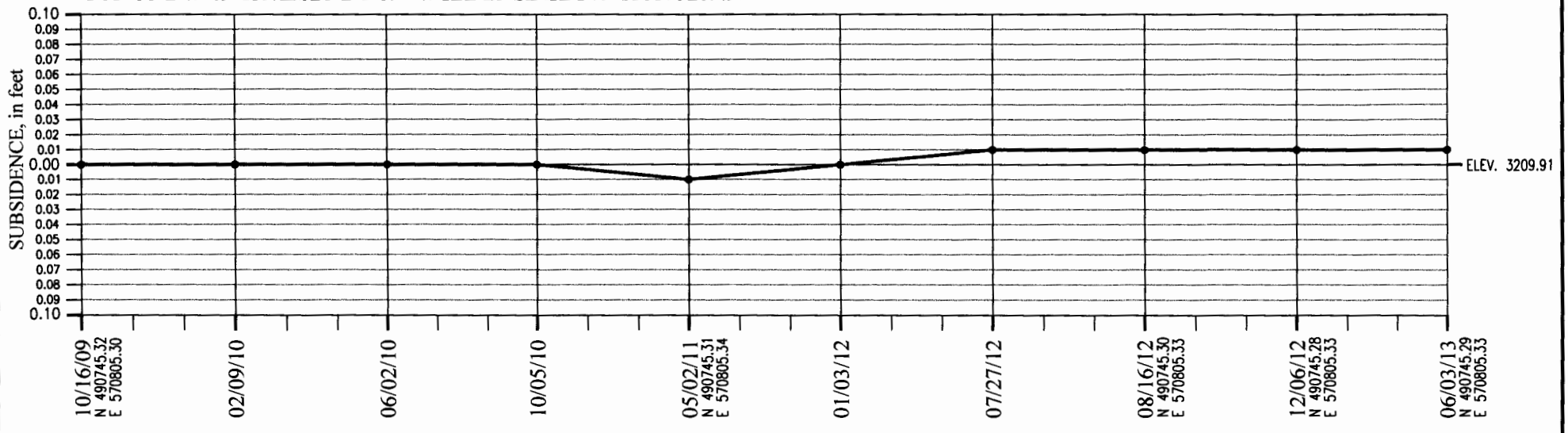
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

VERTICAL SUBSIDENCE TABLE

TOP OF BW-19 CARLSBAD No. 1 WELL BASE ELEVATION 3209.91



SUBSIDENCE MONUMENT #1 BASE ELEVATION 3203.11

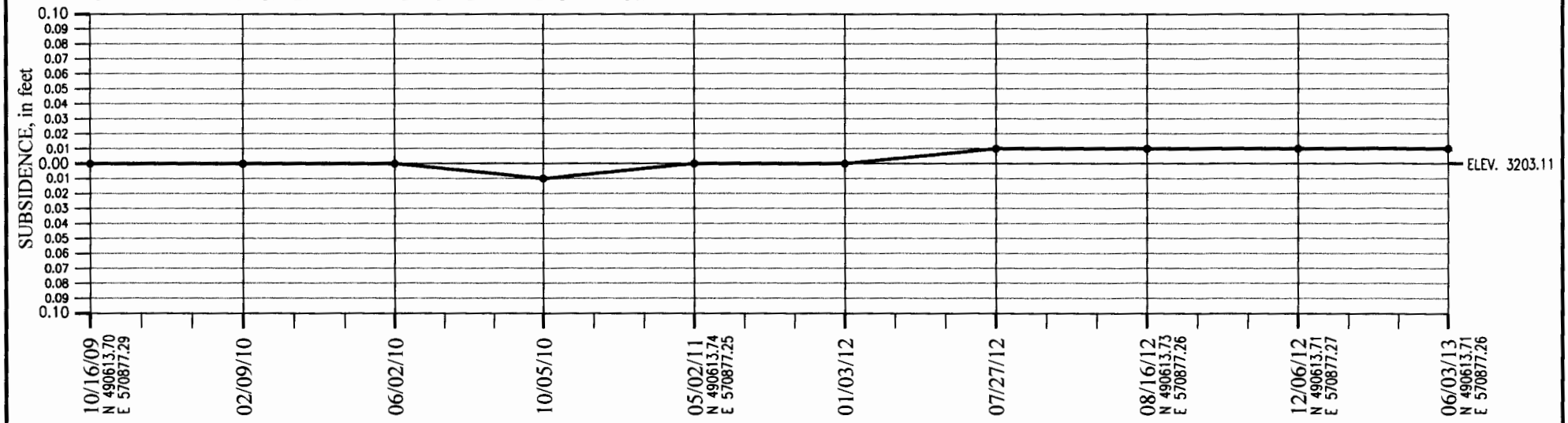


Figure 7A

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

NOTE:

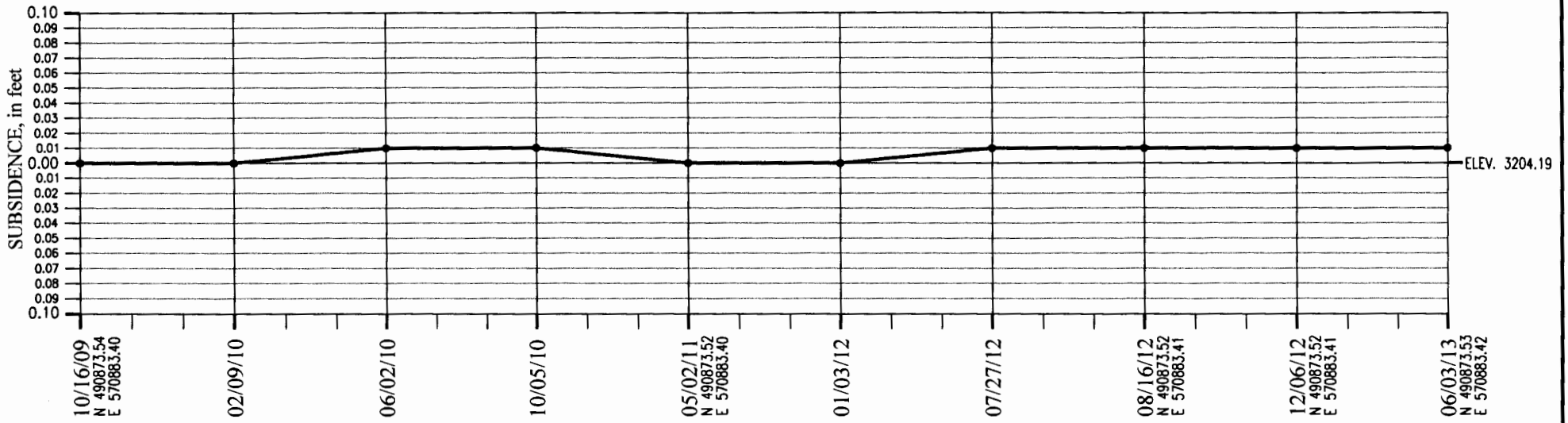
HORIZONTAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.02 FT.
VERTICAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.01 FT.

KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

VERTICAL SUBSIDENCE TABLE

SUBSIDENCE MONUMENT #2 BASE ELEVATION 3204.19



SUBSIDENCE MONUMENT #3 BASE ELEVATION 3203.99

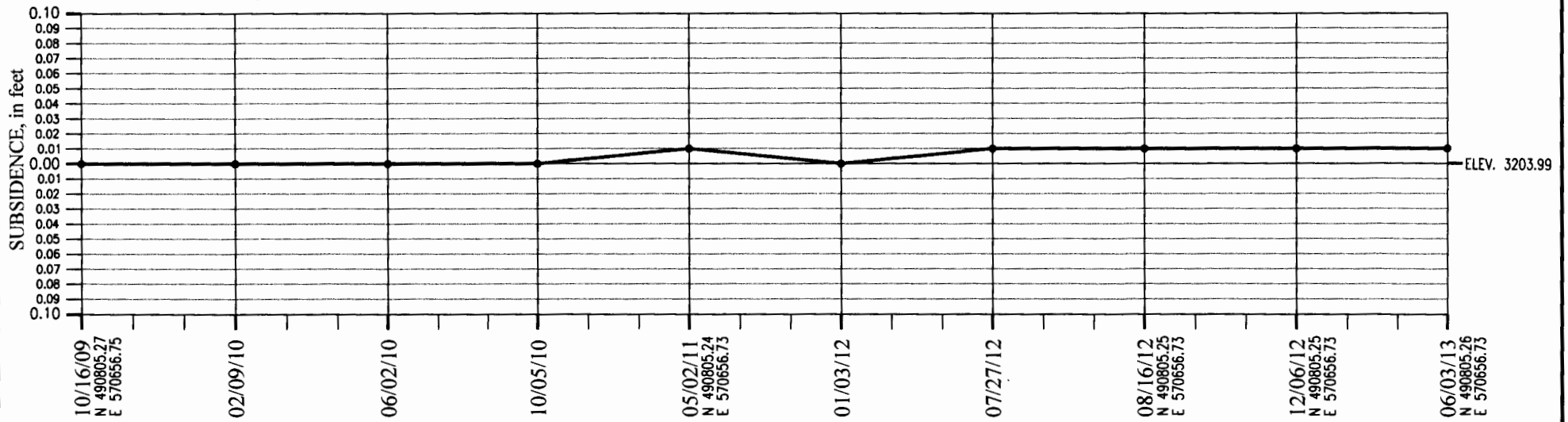


Figure 7B

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

NOTE:

HORIZONTAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.02 FT.
VERTICAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.01 FT.

KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

JOHN WEST
SURVEYING
EMPLOYEE OWNED

March 18, 2013

Jim Griswold
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505

Mr. Griswold,

Enclosed you will find the results of the most recent subsidence monitoring survey at the BW-19 Carlsbad No. 1 well near Carlsbad. Considering the manufacturer specification's for the equipment used in performing the survey it does not appear that there has been any ground subsidence at the site.

Please feel free to contact me if you have questions.

Regards,

Gary G Eidson

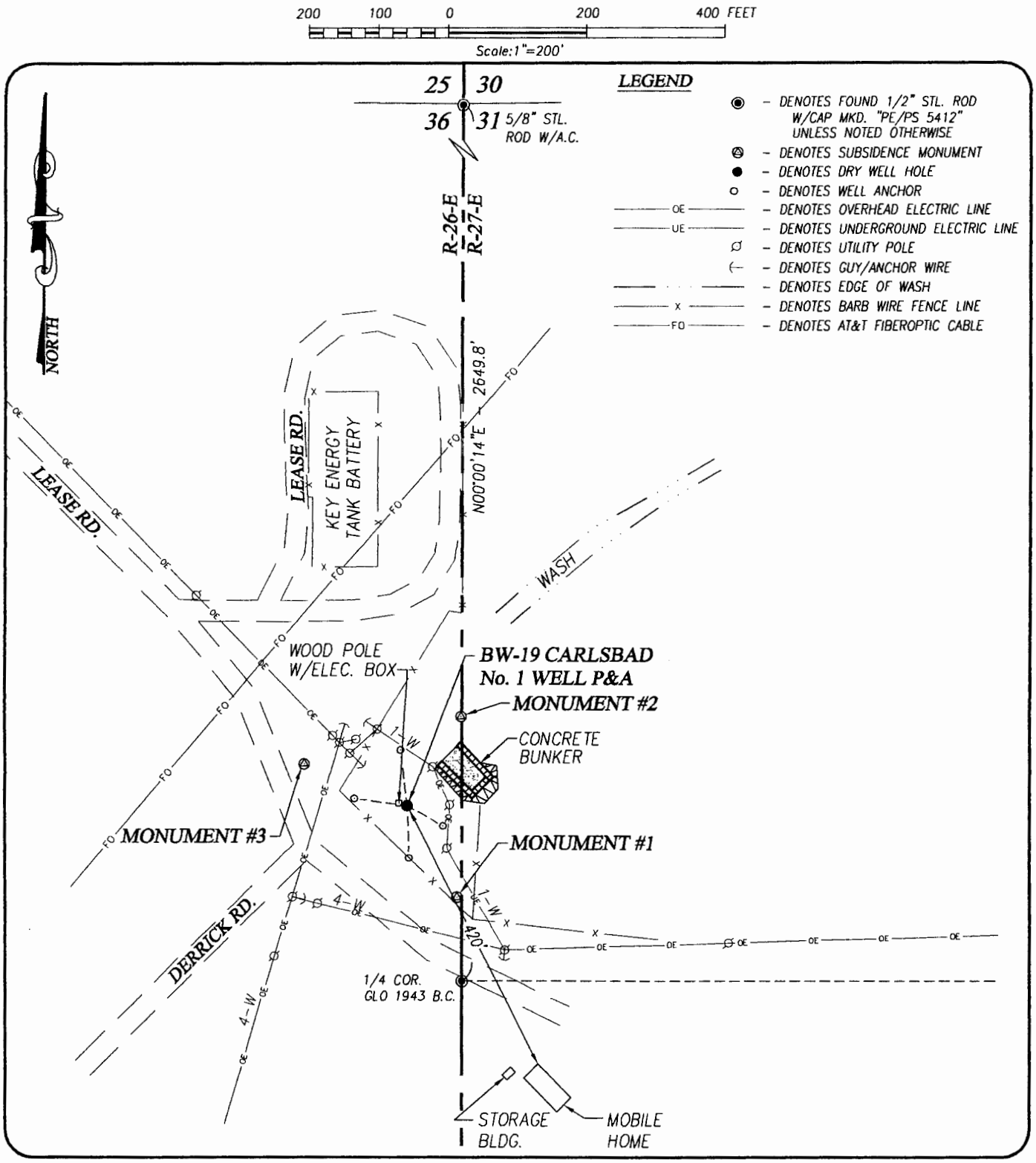
Gary Eidson, PS
NM PS No. 12641

Cc Bob Patterson

John West Surveying Company Inc., 412 North Dal Paso, Hobbs, New Mexico 88240
Phone: (575) 393-3117 Fax: (575) 393-3450

TOPOGRAPHIC MAP

Figure 4



NOTE

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PROVIDING SURVEYING SERVICES SINCE 1946
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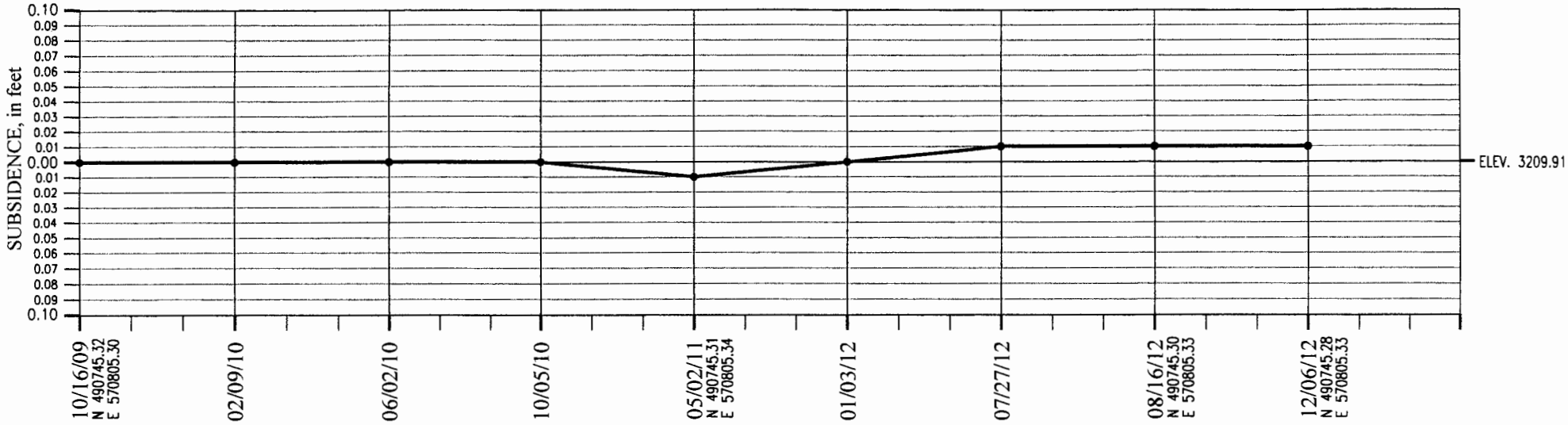
KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

VERTICAL SUBSIDENCE TABLE

TOP OF BW-19 CARLSBAD No. 1 WELL BASE ELEVATION 3209.91



SUBSIDENCE MONUMENT #1 BASE ELEVATION 3203.11

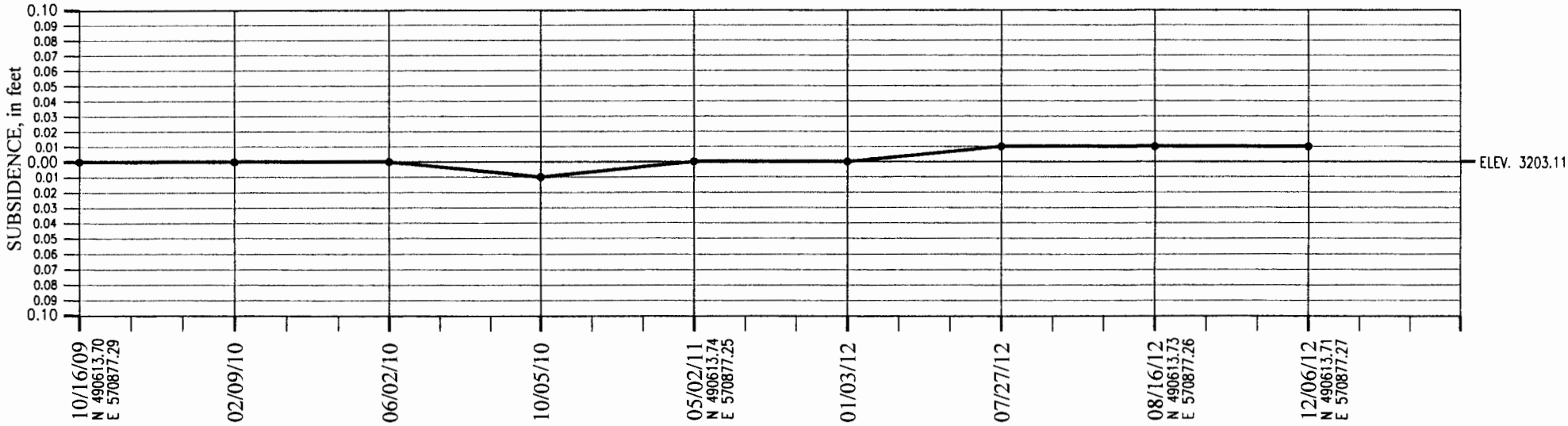


Figure 7A

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

NOTE:

HORIZONTAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.02 FT.
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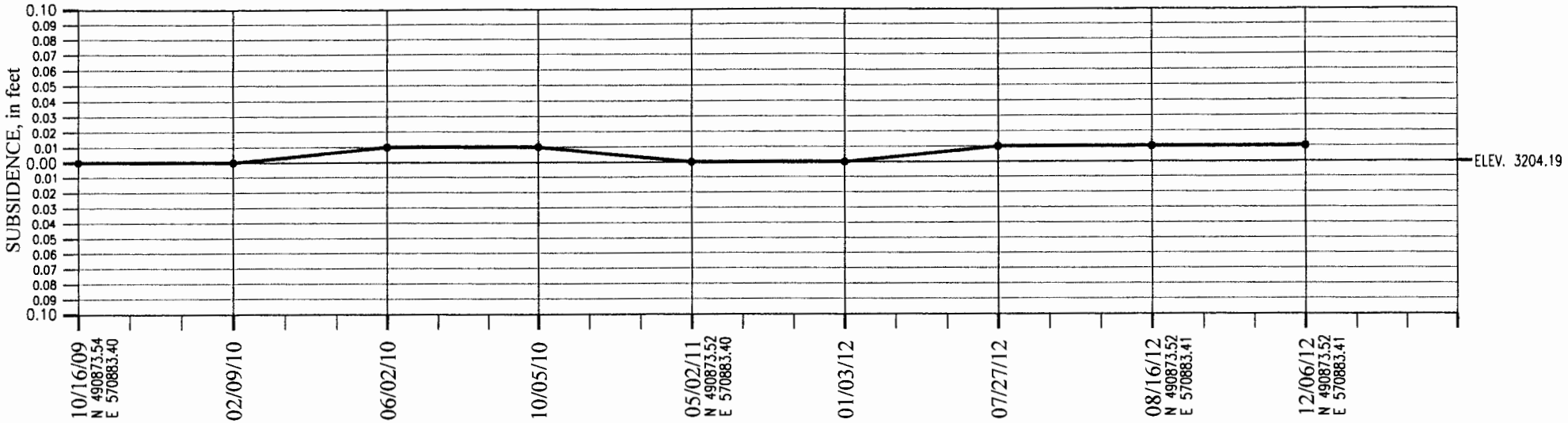
KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

VERTICAL SUBSIDENCE TABLE

SUBSIDENCE MONUMENT #2 BASE ELEVATION 3204.19



SUBSIDENCE MONUMENT #3 BASE ELEVATION 3203.99

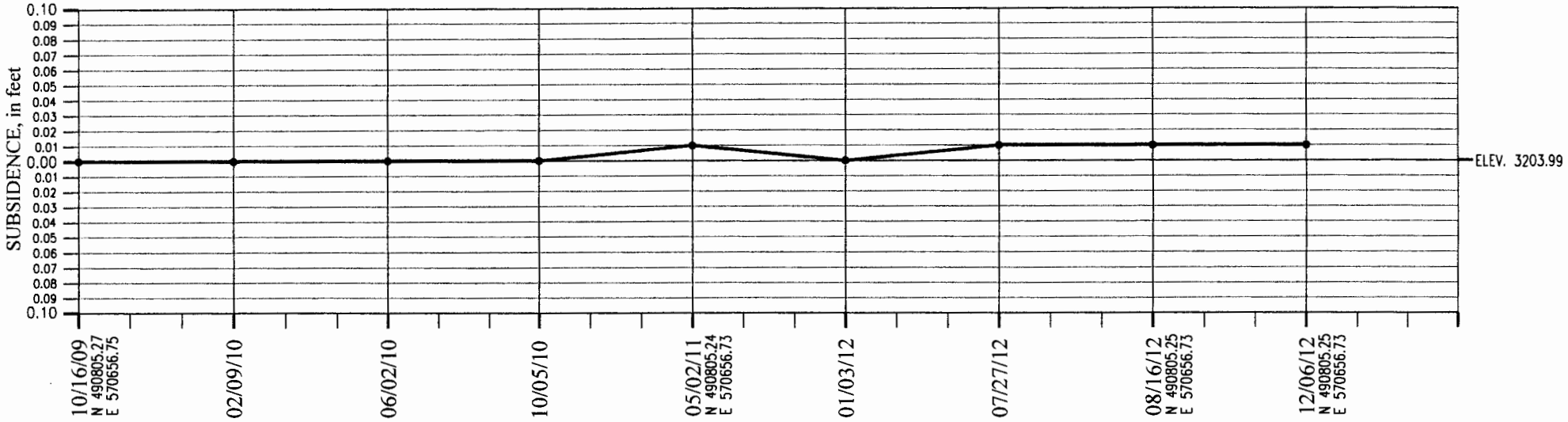


Figure 7B

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

NOTE:

HORIZONTAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.02 FT.
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KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

JOHN WEST
SURVEYING
EMPLOYEE OWNED

October 6, 2011

Carl J. Chavez
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505

Mr. Chavez,

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Please feel free to contact me if you have questions.

Regards

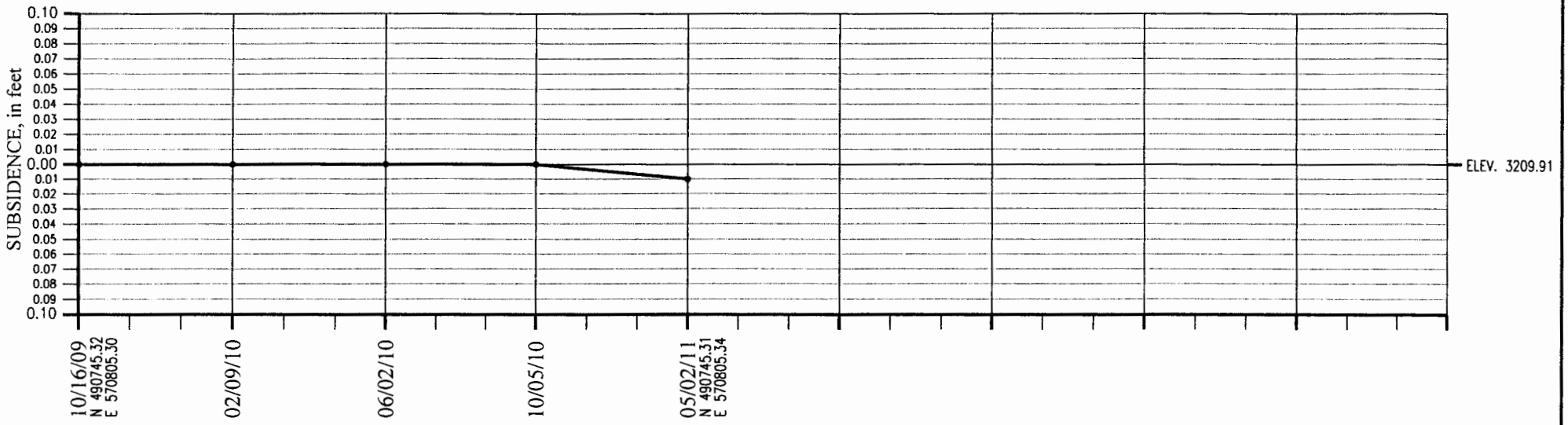
Gary Eidson

Gary Eidson, PS
NM PS No. 12641

Cc Bob Patterson

VERTICAL SUBSIDENCE TABLE

TOP OF BW-19 CARLSBAD No. 1 WELL BASE ELEVATION 3209.91



SUBSIDENCE MONUMENT #1 BASE ELEVATION 3203.11

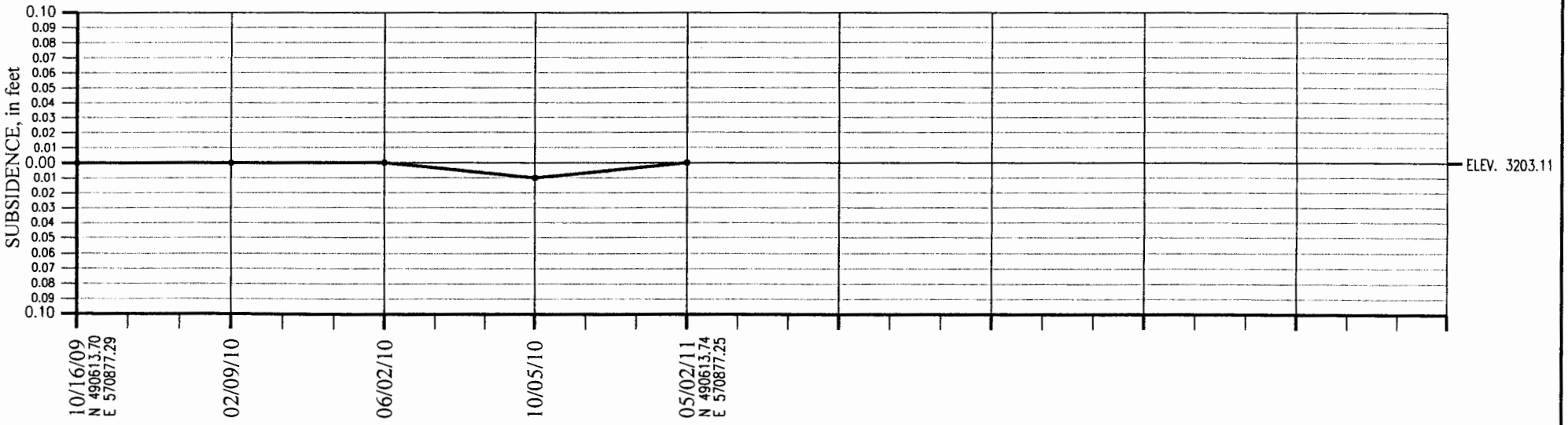


Figure 7A

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
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NOTE:

HORIZONTAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.02 FT.
VERTICAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.01 FT.

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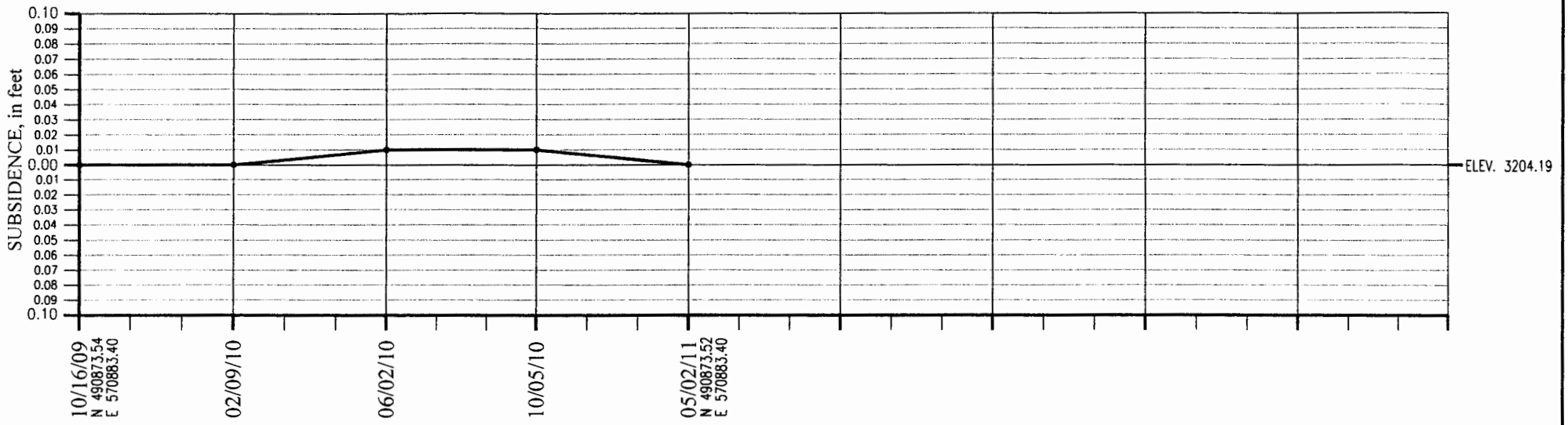
SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

VERTICAL SUBSIDENCE TABLE

SUBSIDENCE MONUMENT #2 BASE ELEVATION 3204.19



SUBSIDENCE MONUMENT #3 BASE ELEVATION 3203.99

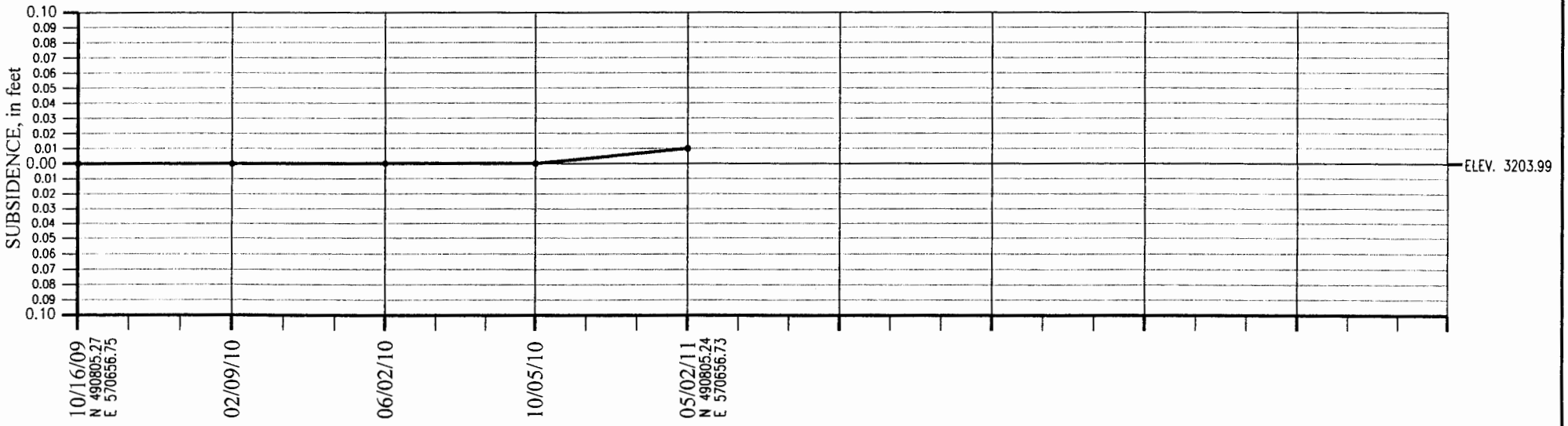


Figure 7B

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

NOTE:

HORIZONTAL ACCURACY OF EQUIPMENT PER MANUFACTURER ±0.02 FT.
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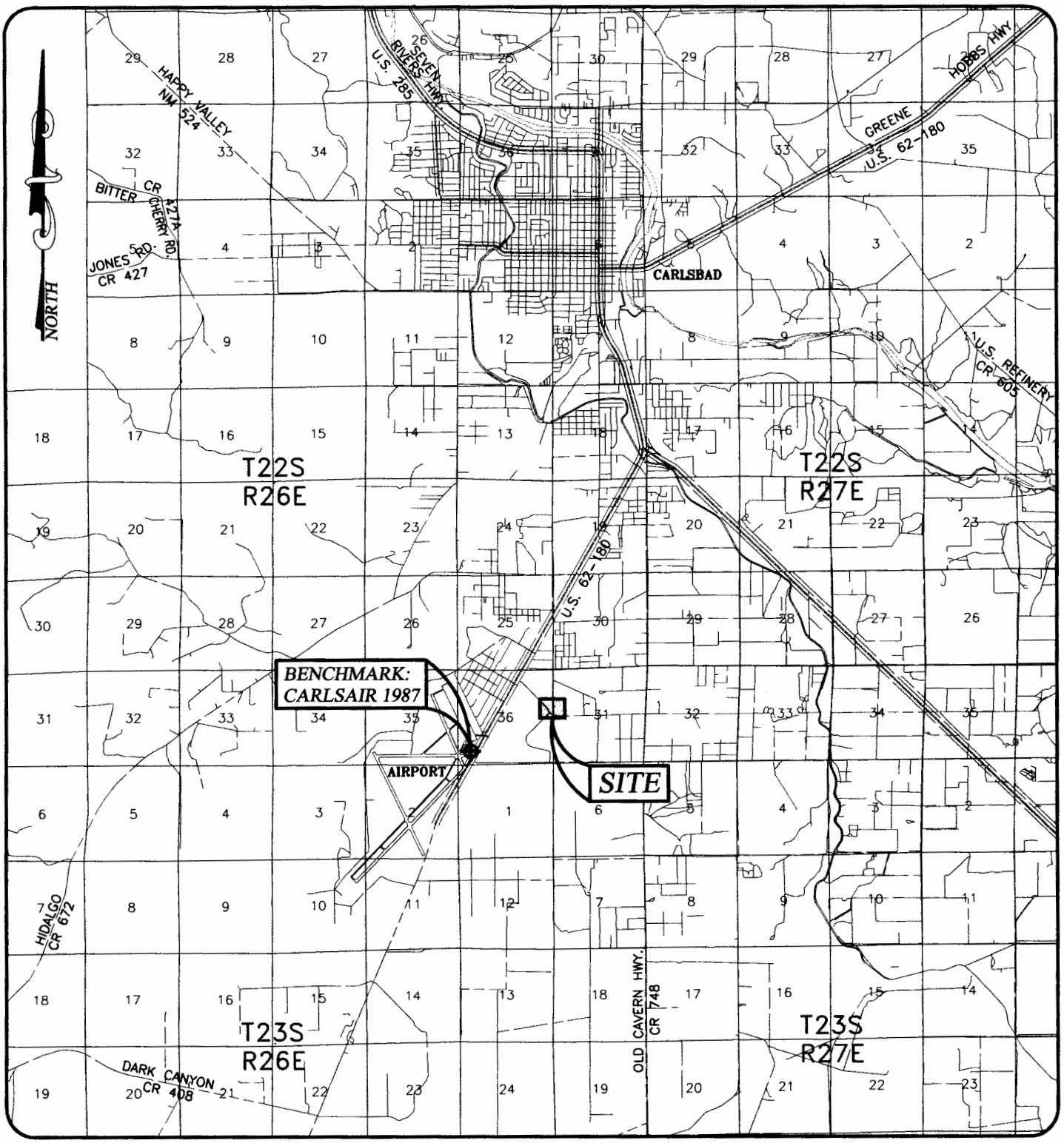
SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Figure 1

VICINITY MAP

NOT TO SCALE



CARLSBAD, NEW MEXICO AND SURROUNDING AREA

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

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TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

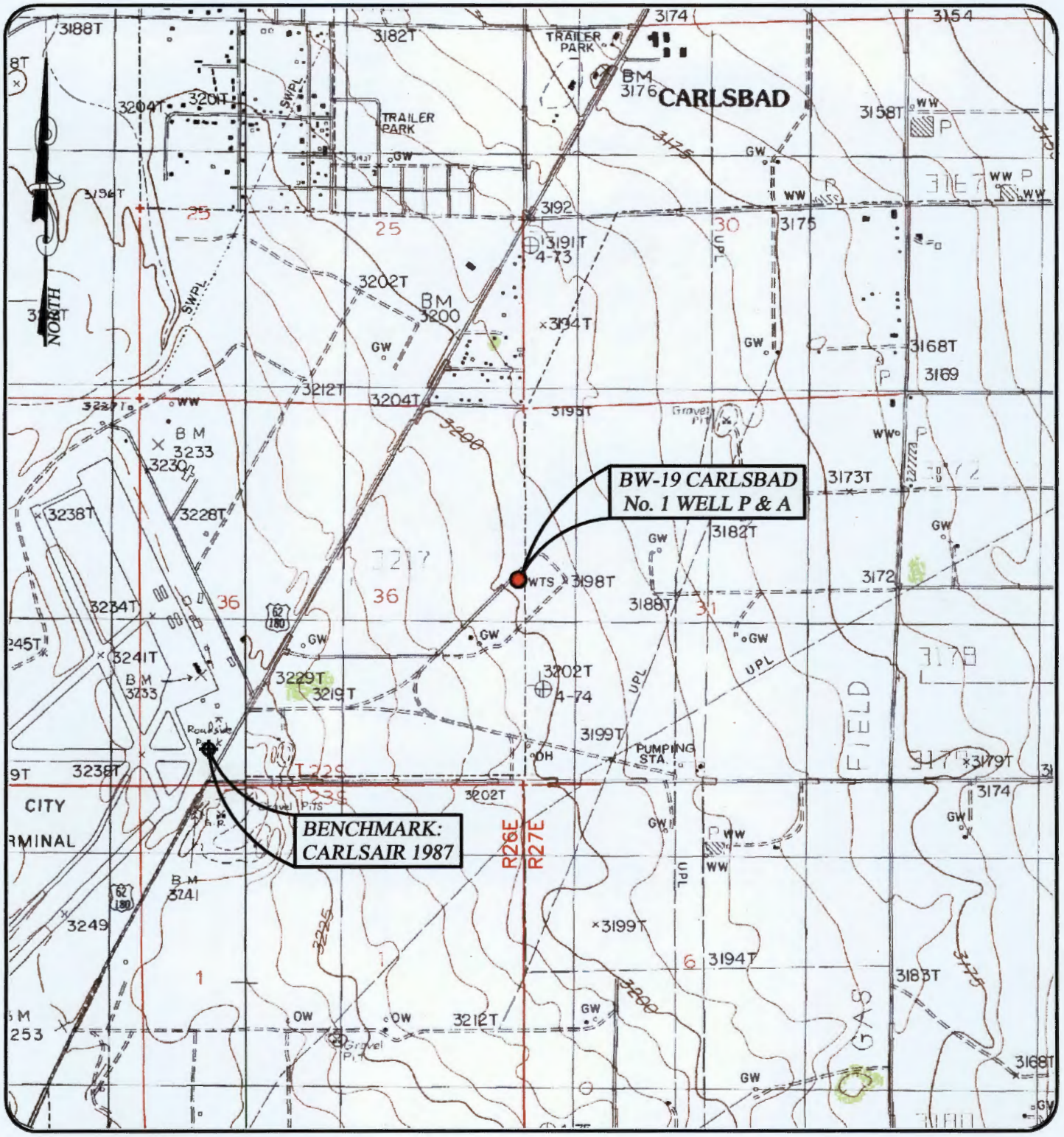
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\11110979 BW-19 Carlsbad No. 1\11110979.dwg 10/6/11

U.S.G.S. MAP

Figure 2

2000 1000 0 2000 4000 FEET

Scale: 1"=2000'



U.S.G.S. 7.5' SERIES TOPOGRAPHIC MAPS FOR:
OTIS, NEW MEXICO
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LOCATION MAP

Figure 3

1000 500 0 1000 2000 FEET

Scale: 1"=1000'

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

LEGEND

◉ – DENOTES FOUND CORNER AS NOTED

⊗ – DENOTES CALCULATED POINT

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

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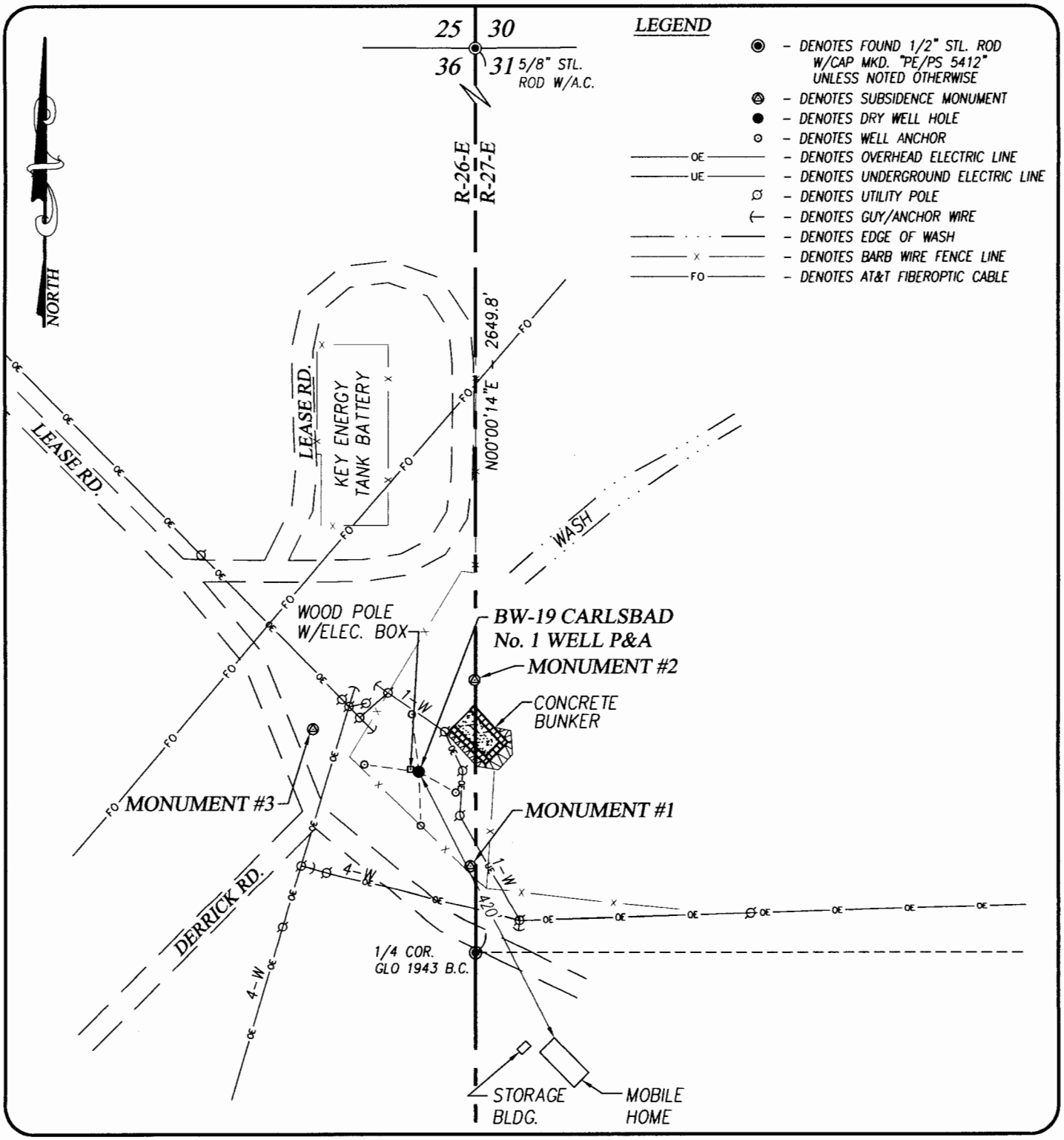
TOPOGRAPHIC MAP

Figure 4

200 100 0 200 400 FEET

Scale: 1"=200'



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PROVIDING SURVEYING SERVICES SINCE 1946

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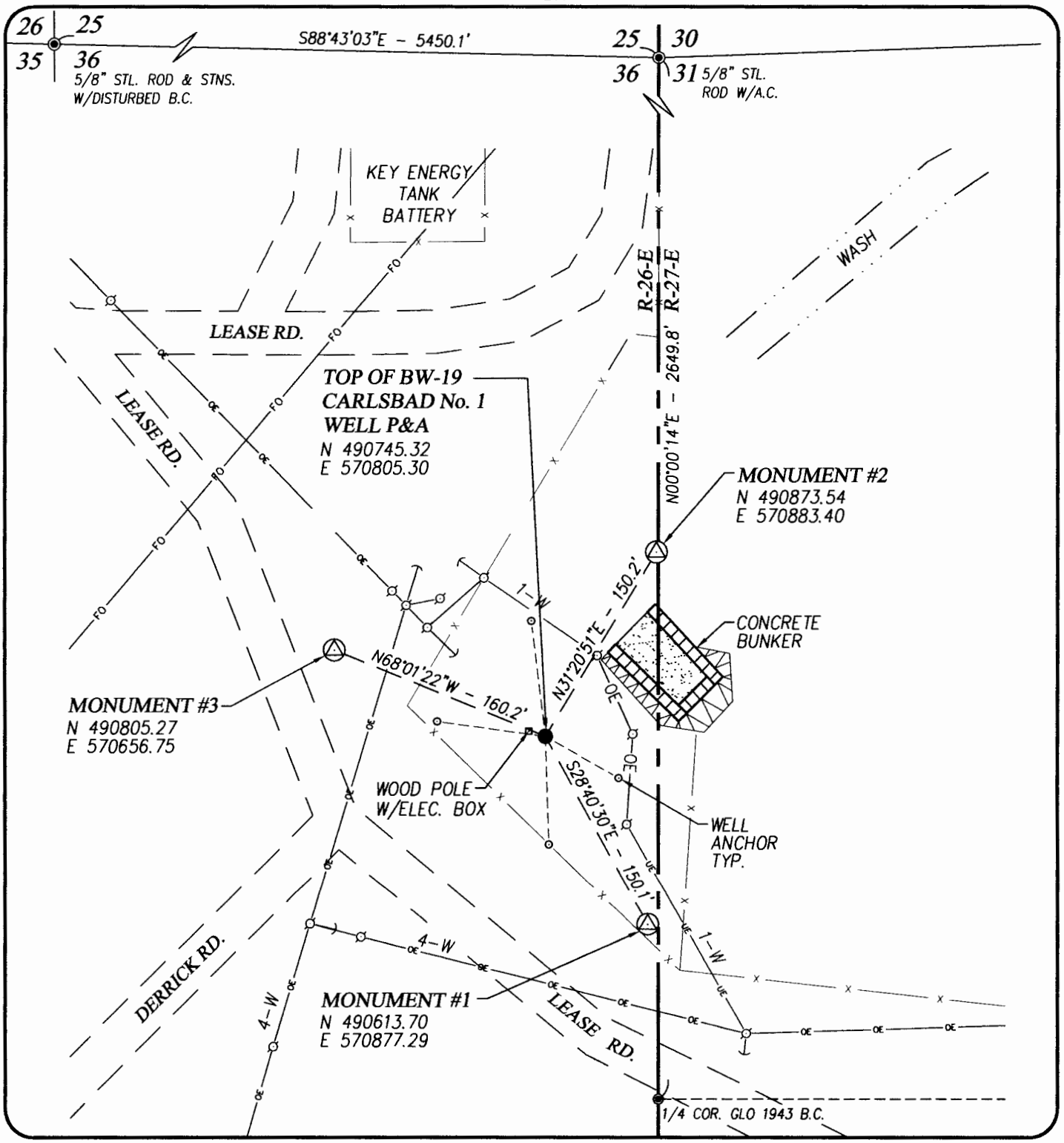
SUBSIDENCE MONUMENT LOCATION MAP

Figure 5



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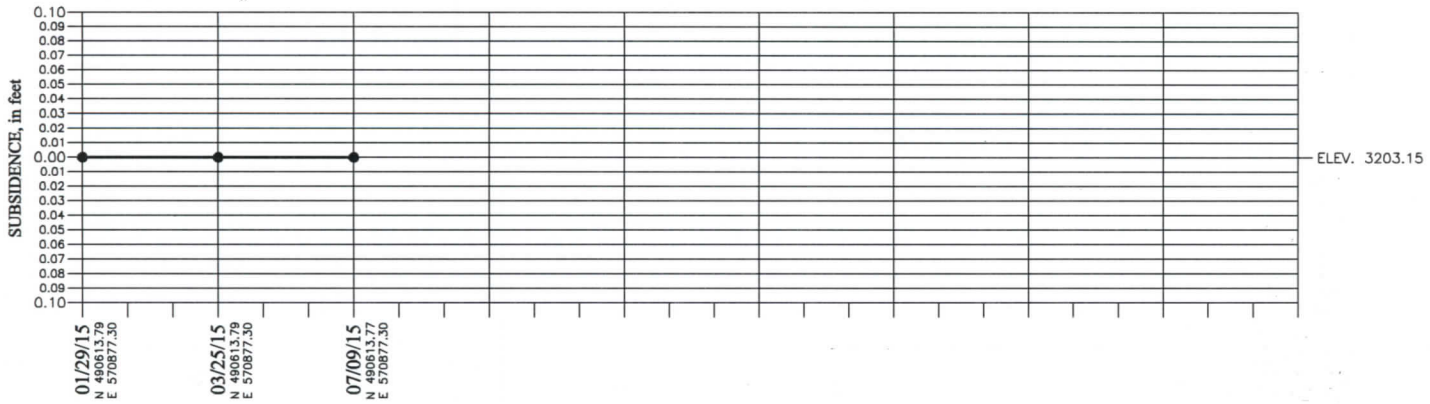
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\10111471 BW-19 Carlsbad No. 1\10111471.dwg

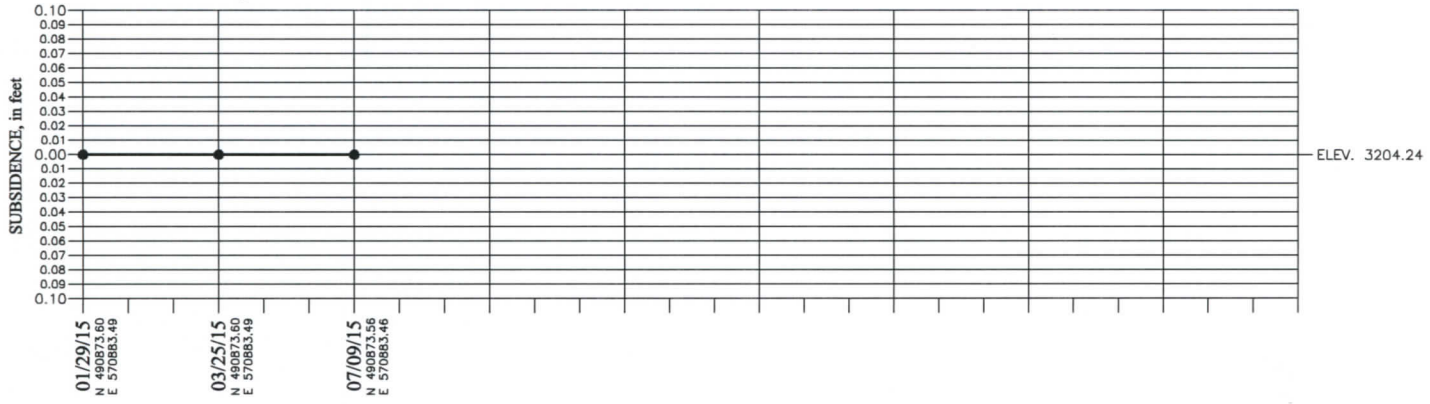
VERTICAL SUBSIDENCE TABLE
KEY ENERGY SERVICES, LLC. – BW–19 CARLSBAD NO. 1

NEW MEXICO EAST NAD 83

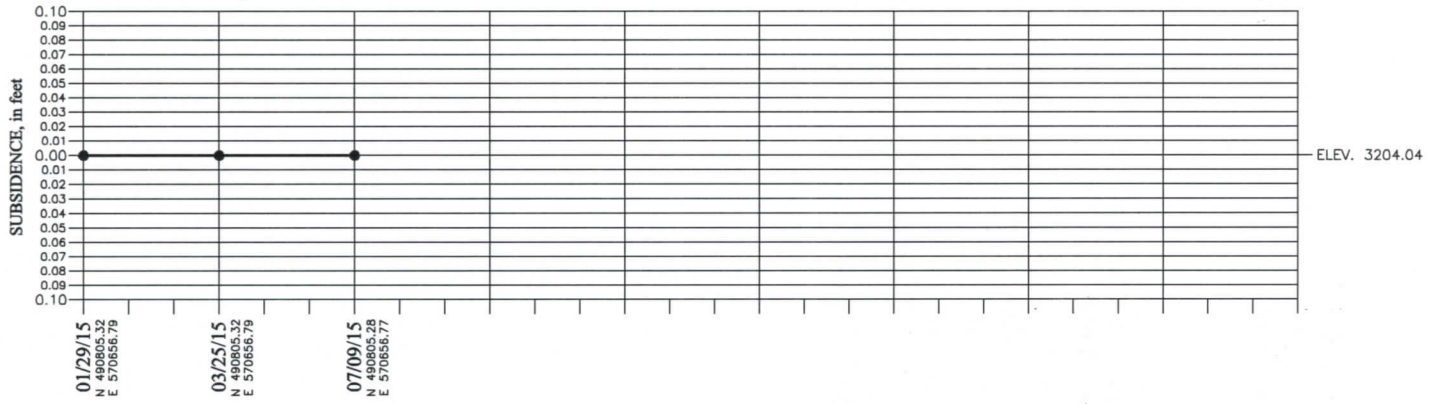
MONUMENT #1



MONUMENT #2



MONUMENT #3



SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

TERRY J ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

Terry J. Asel 7/9/2015

Terry J. Asel N.M. R.P.L.S. No. 15079

BASIS OF ELEVATIONS: TRI STATION "CARLSAIR 1987"
ELEV. = 3234.9

Asel Surveying

P.O. BOX 393 – 310 W. TAYLOR
HOBBS, NEW MEXICO – 575–393–9146

KEY ENERGY SERVICES, LLC.

SUBSIDENCE MONITORING FOR THE KEY ENERGY SERVICES, LLC. – BW–19 CARLSBAD NO. 1 WELL IN SECTION 36, TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 07/09/15	Sheet 1 of 1 Sheets	
W.O. Number: 150129MS–a	Drawn By: KA	Rev:
Date: 07/10/15	150129MS–a	Scale:1"=1000'

John West Surveying Company
Surface Subsidence Monitoring Survey Procedures

In an effort to monitor changes in surface conditions at the Key Energy BW-19 Carlsbad No. 1 well in Eddy County, New Mexico, John West Surveying Company (JWSC) will establish three subsidence monuments suitable for three dimensional surface monitoring as well as establishing an X, Y, and Z position on the well in question.

The monuments will be Berntsen's 9/16" stainless steel road floating sleeve monuments (see Figure 6) which are well suited for monitoring positional changes in the ground surface. The monument is designed so that frost heave and swelling and shrinking soil conditions has no affect on the stainless steel rod on which measurements will be made.

A location point on the well will be established so that the well itself will also be used as a subsidence monument. See Figure 5 for the proposed location of the three subsidence monuments relative to the well location and existing facilities near the well.

JWSC will use modern survey equipment to establish X, Y, Z positions on the subsidence monuments. Survey grade GPS equipment will be utilized to establish the horizontal position of each subsidence monument relative to the New Mexico Coordinate System North American Datum 1983 (2007). Using Static and Fast Static observations the expected horizontal accuracy of the GPS equipment as established by the manufacturer for the subsidence monuments is ±0.01 ft.

A digital level will be utilized to establish the vertical position of the subsidence monuments relative to the North American Vertical Datum of 1988 (NAVD88). Using differential leveling techniques the expected vertical accuracy of the equipment as established by the manufacturer for the subsidence monuments is ±0.01 ft.

Subsidence – Monitoring Network Design and Monument Construction

The network (Figure 5) is designed to monitor any positional changes of the ground surface conditions around the well. The location of the subsidence monuments were selected for their relationship to roads and facilities that may be used by the public. The horizontal and vertical positions for each subsidence monument will be established from Federal Base Network Control Station "Carlsair" (CW0982) located at the Cavern City Air Terminal Airport. Horizontal positions of the monuments will be established using static observations with GPS equipment. Vertical positions will be established through differential leveling procedures using a digital level.

Subsidence Survey

The initial survey will establish horizontal and vertical coordinate values on the three monuments and the well. Additional surveys will be performed quarterly in order to compare coordinate values checking for movement in the monuments and well. See Figure #7 for an example of subsidence table.

John West Surveying Company
Proposed Monuments and Installation Procedure

Berntsen stainless steel top security sleeve monuments (Figure 6) or other approved monument will be set around the subject injection well(s) pending approval by the client and/or governing body.

Secure Monument procedures:

1. Upon approval of monumentation positioning, a 12 inch diameter hole will be bored to an approximate depth of 4 feet (±).

2. A 4 foot stainless steel threaded rod will be driven into the center of the bore hole. Additional 4 foot sections will be added and driven down until refusal is obtained.

3. Approximately 10 inches (±) of the bore hole will be filled with nearby spoils.

4. A 3 foot sleeve will be inserted over the stainless steel rod at which time grease will be injected between the stainless steel rod and the sleeve, then capped over.

5. Approximately 12 inches of sand will be filled around the rod and sleeve.

6. A 6 inch diameter pvc pipe cut at 24 inches will be centered around the sleeve, the bottom of the pvc pipe resting on top of the sand.

7. Upon placement of the pvc pipe, an additional 20 inches of sand will be added inside of the pvc pipe to approximately 4 inches below the top of the steel datum point.

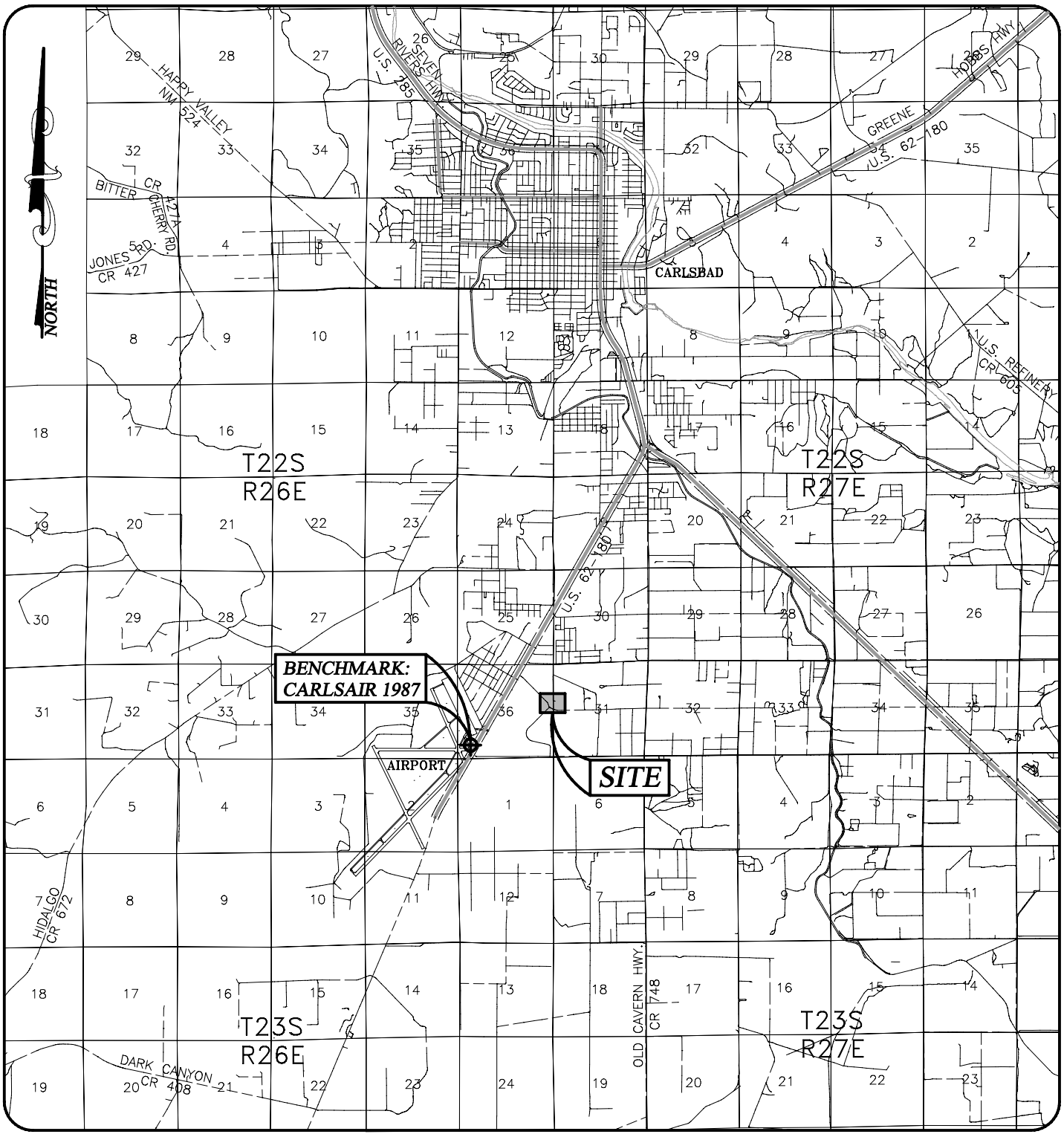
8. The cavity left over outside of the 6 inch pvc pipe will be filled with concrete.

9. A 6 inch aluminum hinged cap will be secured to the top of the 6 inch pvc pipe at ground level.

Figure 1

VICINITY MAP

NOT TO SCALE



CARLSBAD, NEW MEXICO AND SURROUNDING AREA

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

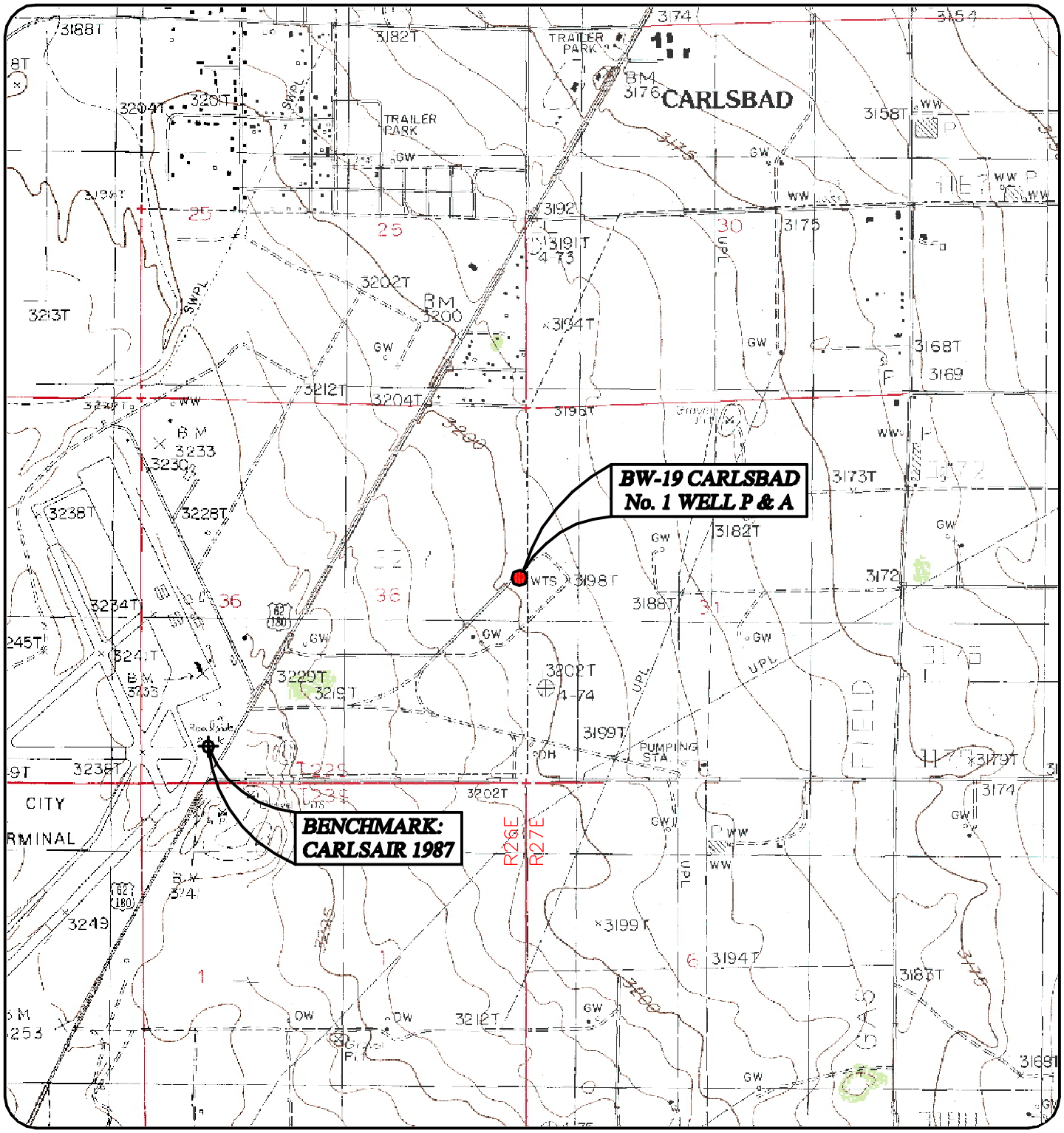
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

U.S.G.S. MAP

Figure 2

2000 1000 0 2000 4000 FEET

Scale:1"=2000'



U.S.G.S. 7.5' SERIES TOPOGRAPHIC MAPS FOR:
OTIS, NEW MEXICO
KITCHEN COVE, NEW MEXICO

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
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SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

LOCATION MAP

Figure 3

1000 500 0 1000 2000 FEET

Scale:1"=1000'

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

LEGEND

◉ – DENOTES FOUND CORNER AS NOTED

⊗ – DENOTES CALCULATED POINT

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

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SUBSIDENCE MONITORING FOR THE KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36, TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

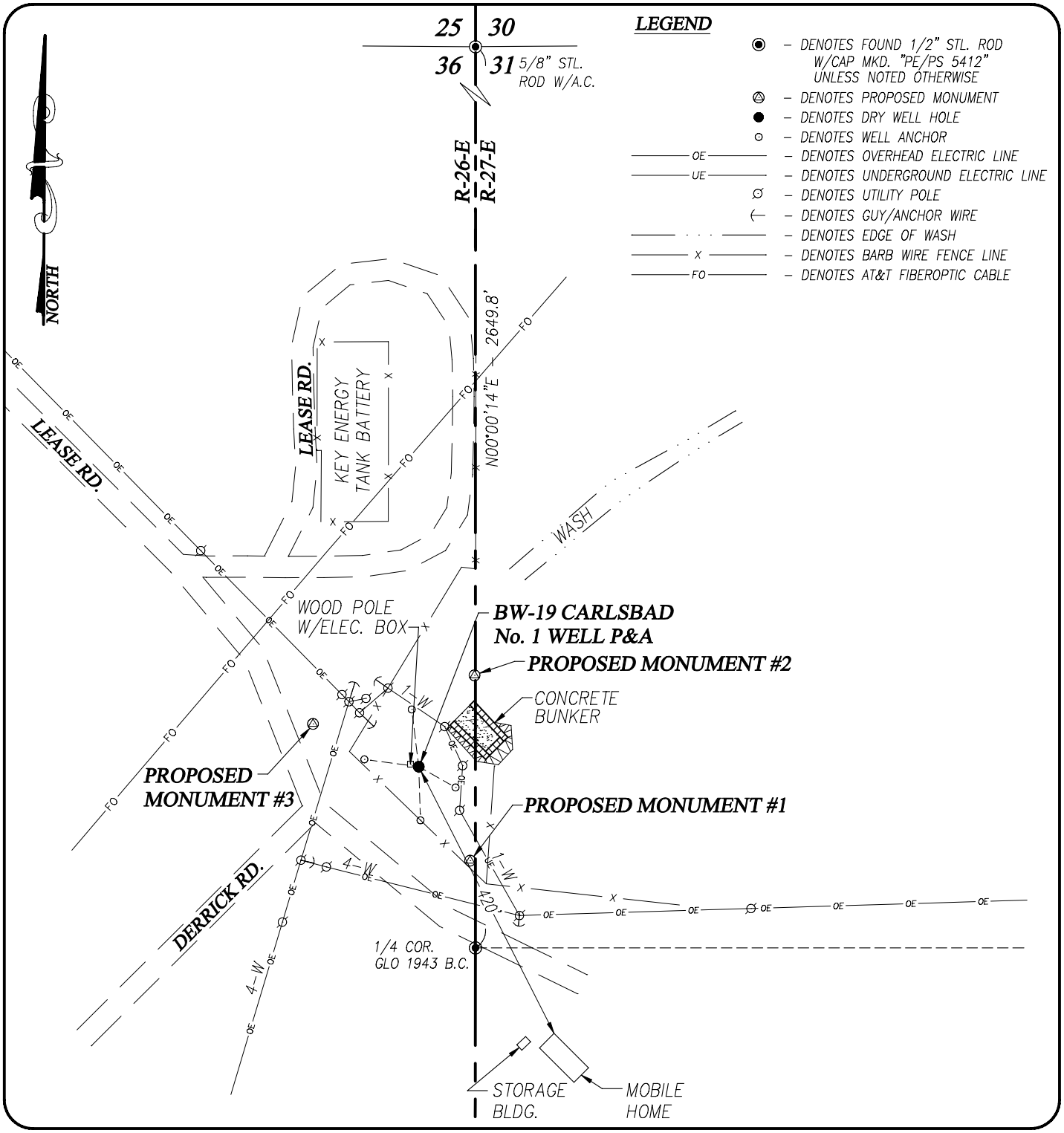
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

TOPOGRAPHIC MAP

Figure 4

200 100 0 200 400 FEET

Scale:1"=200'



NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

PROVIDING SURVEYING SERVICES SINCE 1946

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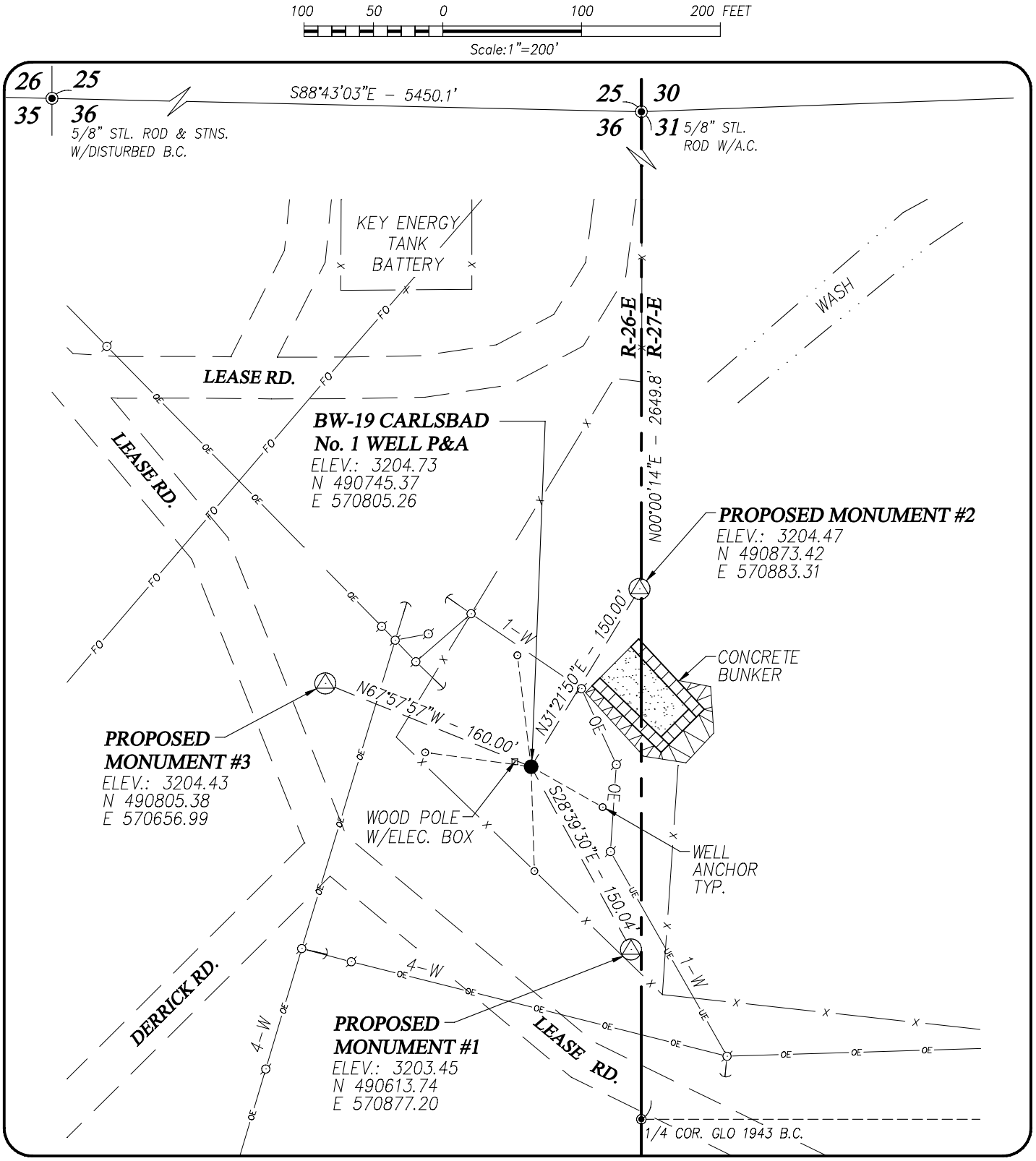
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

PROPOSED SUBSIDENCE MONUMENT LOCATION MAP

Figure 5



NOTE

BEARINGS AND COORDINATE VALUES SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

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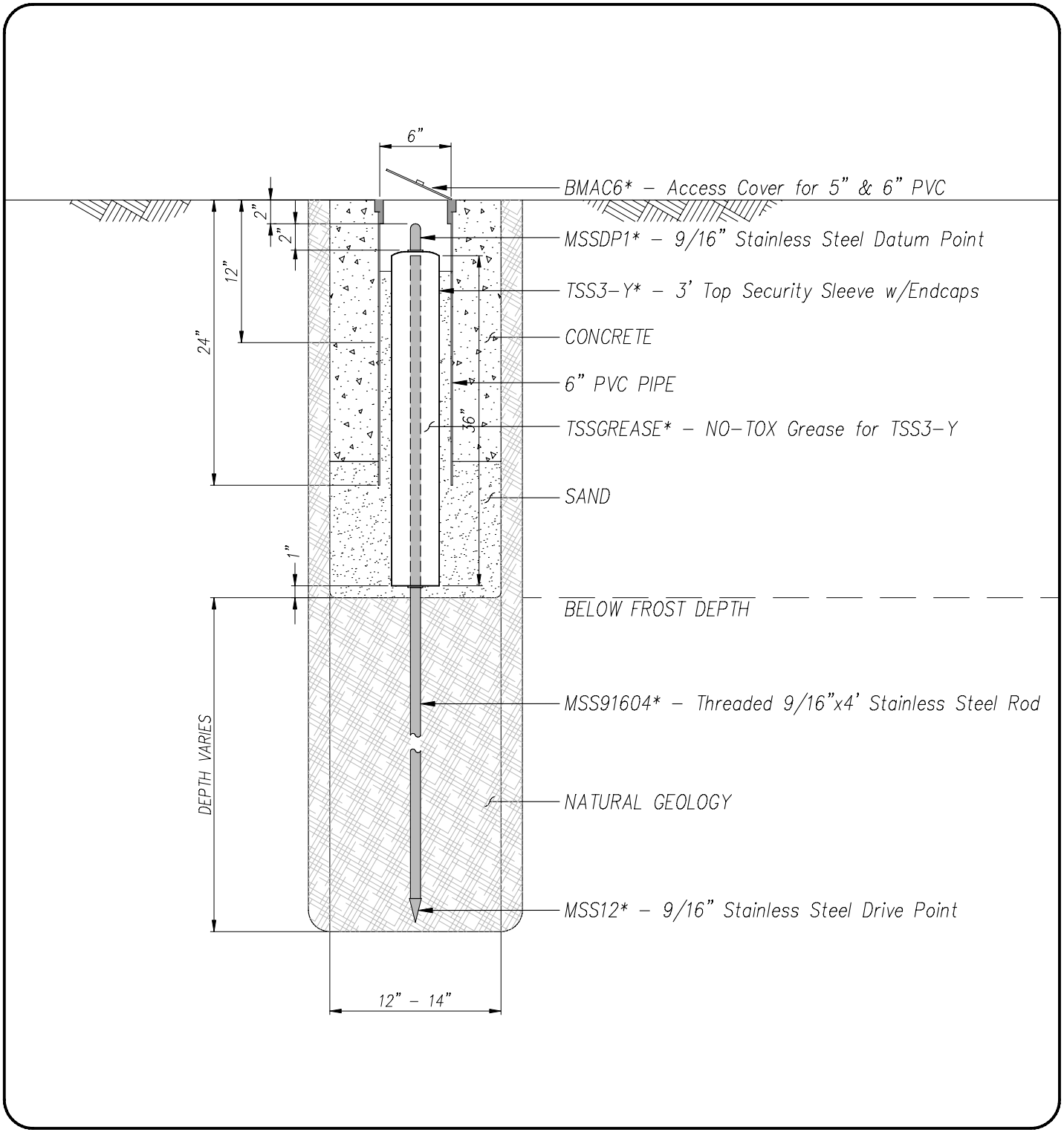
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

Figure 6

BERNTSEN MONUMENT INSTALLATION DETAIL

NOT TO SCALE



*REFERENCE:
www.berntsen.com
9/16" STAINLESS STEEL TOP SECURITY SLEEVE MONUMENT

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TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

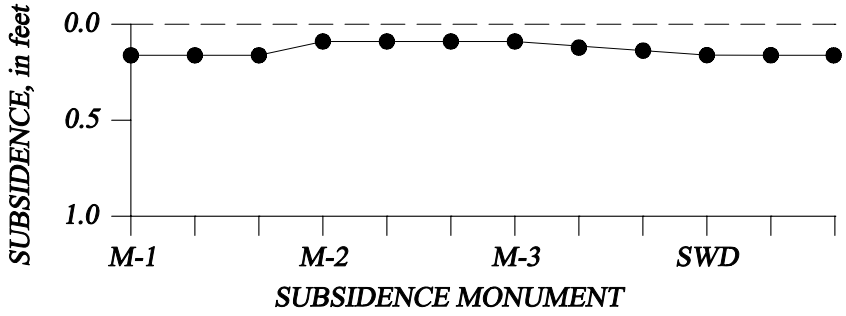
Figure 7

SUBSIDENCE TABLE

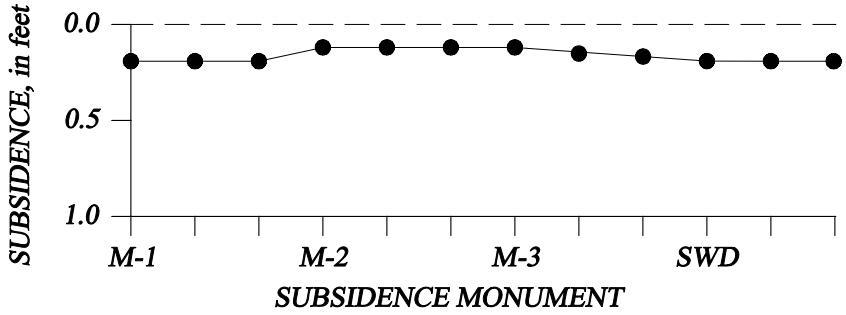
MONUMENT #1, #2, #3 AND SWD

** EXAMPLE **

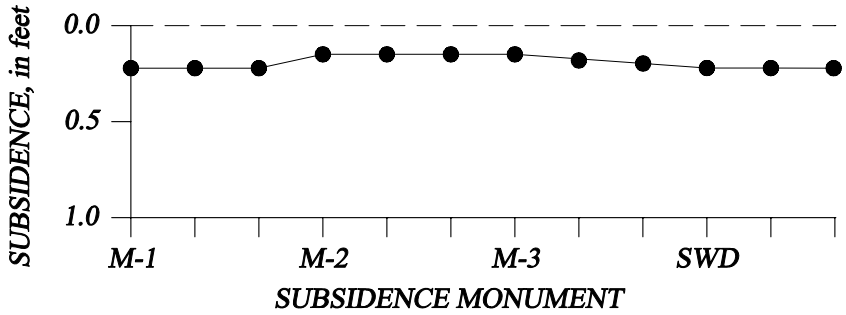
First Quarter - January through March



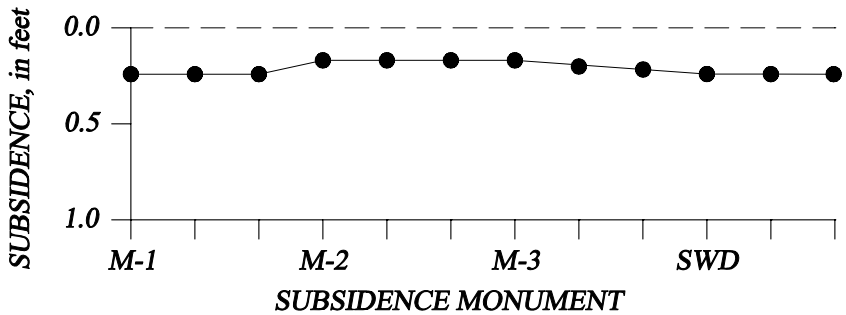
Second Quarter - April through June



Third Quarter - July through September



Fourth Quarter - October through December



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TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = AUGUST 10, 2009
 CW0982 ***********************************************************************
 CW0982  FBN          -  This is a Federal Base Network Control Station.
 CW0982  PACS         -  This is a Primary Airport Control Station.
 CW0982  DESIGNATION -  CARLSAIR
 CW0982  PID          -  CW0982
 CW0982  STATE/COUNTY-  NM/EDDY
 CW0982  USGS QUAD    -  KITCHEN COVE (1985)
 CW0982
 CW0982                        *CURRENT SURVEY CONTROL
 CW0982  ______________________________________________________________________
 CW0982* NAD 83(2007)-  32 20 33.22813(N)    104 15 07.57551(W)     ADJUSTED
 CW0982* NAVD 88      -       986.00   (meters)    3234.9    (feet)  GPS OBS
 CW0982  ______________________________________________________________________
 CW0982  EPOCH DATE   -        2002.00
 CW0982  X            -  -1,328,101.544 (meters)                    COMP
 CW0982  Y            -  -5,228,607.433 (meters)                    COMP
 CW0982  Z            -   3,393,100.115 (meters)                    COMP
 CW0982  LAPLACE CORR-          -4.44  (seconds)                    DEFLEC99
 CW0982  ELLIP HEIGHT-         961.581 (meters)          (02/10/07) ADJUSTED
 CW0982  GEOID HEIGHT-         -24.41  (meters)                    GEOID03
 CW0982
 CW0982  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 CW0982  Type    PID    Designation                     North   East  Ellip
 CW0982  ----------------------------------------------------------------
 CW0982  NETWORK CW0982 CARLSAIR                         0.41   0.41   1.41
 CW0982  ----------------------------------------------------------------
 CW0982
 CW0982.This mark is at Cavern City Air Terminal Airport (CNM)
 CW0982
 CW0982.The horizontal coordinates were established by GPS observations
 CW0982.and adjusted by the National Geodetic Survey in February 2007.
 CW0982
 CW0982.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 CW0982.See National Readjustment for more information.
 CW0982.The horizontal coordinates are valid at the epoch date displayed above.
 CW0982.The epoch date for horizontal control is a decimal equivalence
 CW0982.of Year/Month/Day.
 CW0982
 CW0982.The orthometric height was determined by GPS observations and a
 CW0982.high-resolution geoid model.
 CW0982
 CW0982.GPS derived orthometric heights for airport stations designated as
 CW0982.PACS or SACS are published to 2 decimal places.  This maintains
 CW0982.centimeter relative accuracy between the PACS and SACS.  It does
 CW0982.not indicate centimeter accuracy relative to other marks which are
 CW0982.part of the NAVD 88 network.
 CW0982
 CW0982.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 CW0982
 CW0982.The Laplace correction was computed from DEFLEC99 derived deflections.
 CW0982
 CW0982.The ellipsoidal height was determined by GPS observations
 CW0982.and is referenced to NAD 83.
 CW0982
 CW0982.The geoid height was determined by GEOID03.
 CW0982
 CW0982;                    North         East     Units Scale Factor Converg.
 CW0982;SPC NM E      -   148,854.265   172,646.217   MT  0.99990981   +0 02 36.4
 CW0982;SPC NM E      -   488,366.03    566,423.46   sFT  0.99990981   +0 02 36.4
 CW0982;UTM  13       - 3,578,653.034   570,379.696   MT  0.99966108   +0 24 00.5
 CW0982
 CW0982!              -  Elev Factor  x  Scale Factor =   Combined Factor
 CW0982!SPC NM E      -   0.99984904  x   0.99990981  =   0.99975887
 CW0982!UTM  13       -   0.99984904  x   0.99966108  =   0.99951017
 CW0982
 CW0982                          SUPERSEDED SURVEY CONTROL
 CW0982
 CW0982  ELLIP H (05/26/00)  961.615  (m)                       GP(       ) 2 1
 CW0982  NAD 83(1986)-  32 20 33.23332(N)    104 15 07.57484(W) AD(       ) 3
 CW0982  NAD 83(1992)-  32 20 33.22764(N)    104 15 07.57505(W) AD(       ) B
 CW0982  ELLIP H (05/26/92)  961.613  (m)                       GP(       ) 4 1
 CW0982  NGVD 29 (06/11/92)  985.9    (m)         3235.     (f) GPS OBS     3
 CW0982
 CW0982.Superseded values are not recommended for survey control.
 CW0982.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
```

CW0982.See file dsdata.txt to determine how the superseded data were derived.
CW0982
CW0982_U.S. NATIONAL GRID SPATIAL ADDRESS: 13SER7038078653(NAD 83)
CW0982_MARKER: F = FLANGE-ENCASED ROD
CW0982_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
CW0982_SP_SET: STAINLESS STEEL ROD IN SLEEVE
CW0982_STAMPING: CARLSAIR 1987
CW0982_MARK LOGO: NGS
CW0982_PROJECTION: FLUSH
CW0982_MAGNETIC: N = NO MAGNETIC MATERIAL
CW0982_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
CW0982_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
CW0982+SATELLITE: SATELLITE OBSERVATIONS - May 18, 2009
CW0982_ROD/PIPE-DEPTH: 4.9 meters
CW0982_SLEEVE-DEPTH : 0.9 meters
CW0982
CW0982 HISTORY - Date Condition Report By
CW0982 HISTORY - 1987 MONUMENTED NMHD
CW0982 HISTORY - 19900918 GOOD
CW0982 HISTORY - 19960114 GOOD CHANCE
CW0982 HISTORY - 19970408 GOOD NGS
CW0982 HISTORY - 19981217 GOOD NGS
CW0982 HISTORY - 20040320 GOOD USPSQD
CW0982 HISTORY - 20090518 GOOD INDIV
CW0982
CW0982 STATION DESCRIPTION
CW0982
CW0982'DESCRIBED BY NM HIGHWAY DEPT 1987
CW0982'THE STATION IS LOCATED ABOUT 4.8 KM (3.0 MI) SOUTH OF CARLSBAD JUST
CW0982'EAST OF THE CARLSBAD MUNICIPAL AIRPORT. OWNERSHIP--CITY OF CARLSBAD,
CW0982'AIRPORT MANAGER-FRANK NOLAND, PO BOX 1569 CARLSBAD, NM 88220.
CW0982'TO REACH THE STATION FROM THE Y INTERSECTION OF US 62-180 AND 285 IN
CW0982'SOUTH CARLSBAD, GO SOUTH ON US 62-180 FOR 5.8 KM (3.6 MI) TO THE
CW0982'ENTRANCE OF THE CARLSBAD MUNICIPAL AIRPORT, CONTINUE SOUTH ON US 62-
CW0982'180 FOR 0.32 KM (0.20 MI) TO THE STATION ON THE RIGHT.
CW0982'THE STATION IS A PUNCH MARK IN TOP OF A STAINLESS STEEL ROD THAT IS
CW0982'DRIVEN TO A DEPTH OF 4.9 M (16.1 FT) , INSIDE A GREASE FILLED SLEEVE
CW0982'EXTENDING TO A DEPTH OF 0.9 M (3.0 FT) , INSIDE A 5-INCH DIAMETER PVC
CW0982'PIPE WITH AN NGS LOGO CAP STAMPED--- CARLSAIR 1987 ---, FLUSH WITH
CW0982'THE GROUND. THE TOP OF THE ROD IS RECESSED 12 CM BELOW THE LOGO CAP.
CW0982'STATION IS 64.5 M (211.6 FT) WEST FROM THE CENTERLINE OF US62-180 AT
CW0982'MILEPOST 29.9, 31.7 M (104.0 FT) SOUTH FROM THE FLOWLINE OF A SMALL
CW0982'DRAINAGE DITCH, AND 46.9 M (153.9 FT) NORTHEAST FROM A CHAIN LINK
CW0982'FENCE.
CW0982'NOTE--ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
CW0982
CW0982 STATION RECOVERY (1990)
CW0982
CW0982'RECOVERED 1990
CW0982'RECOVERED IN GOOD CONDITION.
CW0982
CW0982 STATION RECOVERY (1996)
CW0982
CW0982'RECOVERY NOTE BY JE CHANCE AND ASSOCIATES 1996 (KB)
CW0982'RECOVERED AS DESCRIBED IN GOOD CONDITION. FOR ACCESS CONTACT -- CITY
CW0982'OF CARLSBAD, MIKE MEDLEY - AIRPORT MANAGER, PHONE (505) 887-3060 THE
CW0982'STATION IS DESIGNATED AS A PRIMARY AIRPORT CONTROL STATION (PACS) -
CW0982'NEW MEXICO ANA SURVEYS 1996
CW0982
CW0982 STATION RECOVERY (1997)
CW0982
CW0982'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1997 (AJL)
CW0982'THE STATION IS LOCATED ABOUT 4.8 KM (3.00 MI) SOUTH OF CARLSBAD JUST
CW0982'EAST OF THE CARLSBAD MUNICIPAL AIRPORT. OWNERSHIP--CITY OF CARLSBAD,
CW0982'PO BOX 1569 CARLSBAD, NM 88220. THERE IS NO AIRPORT MANAGER AT THIS
CW0982'TIME, CONTACT CITY HALL. TO REACH THE STATION FROM THE Y INTERSECTION
CW0982'OF US HIGHWAYS 62/180 AND 285 IN SOUTH CARLSBAD, GO SOUTH ON US 62/180
CW0982'FOR 5.8 KM (3.60 MI) TO THE ENTRANCE OF THE CARLSBAD MUNICIPAL
CW0982'AIRPORT. CONTINUE SOUTH ON US 62/180 FOR 0.32 KM (0.20 MI) TO THE
CW0982'STATION ON THE RIGHT JUST SOUTH OF A ROADSIDE REST AREA. THE STATION
CW0982'IS A PUNCH MARK ON THE TOP OF A STAINLESS STEEL ROD THAT IS DRIVEN TO
CW0982'A DEPTH OF 4.9 M, (16.1 FT) INSIDE A GREASE FILLED SLEEVE EXTENDING TO
CW0982'A DEPTH OF 0.9 M, (3.0 FT) INSIDE A 5-INCH DIAMETER PVC PIPE WITH A
CW0982'NGS LOGO CAP STAMPED--- CARLSAIR 1987 ---, SET FLUSH WITH THE GROUND.
CW0982'THE TOP OF THE ROD IS RECESSED 12 CM BELOW THE LOGO CAP. THE STATION
CW0982'IS 64.5 M (211.6 FT) WEST OF THE CENTERLINE OF THE HIGHWAY AT MILEPOST
CW0982'29.9, 31.7 M (104.0 FT) SOUTH FROM THE FLOWLINE OF A SMALL DRAINAGE
CW0982'DITCH, AND 46.9 M (153.9 FT) NORTHEAST FROM A CHAIN LINK FENCE
CW0982'NOTE--ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
CW0982'NOTE THIS WAS USED AS A SECONDARY AIRPORT CONTROL STATION (SACS) .
CW0982
CW0982 STATION RECOVERY (1998)
CW0982
CW0982'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1998 (WAS)
CW0982'THE STATION IS LOCATED ABOUT 3 MI (4.8 KM) SOUTH OF CARLSBAD, AT THE
CW0982'CARLSBAD MUNICIPAL AIRPORT. OWNERSHIP--CITY OF CARLSBAD, CARLSBAD
CW0982'MUNICIPAL AIRPORT, MANAGER - JON HAGG, TELEPHONE 505-887-1191, ON SITE

CW0982'CONTACT - GILBERT GONZALEZ, TELEPHONE 505-887-3060, PO BOX 1569,
CW0982'CARLSBAD NM 88220. TO REACH THE STATION FROM THE Y-INTERSECTION OF US
CW0982'HIGHWAYS 62, 180 AND 285 IN SOUTH CARLSBAD, GO SOUTH ON HIGHWAY 62/180
CW0982'FOR 3.6 MI (5.8 KM) TO THE ENTRANCE TO THE CARLSBAD MUNICIPAL AIRPORT.
CW0982'CONTINUE SOUTH ON HIGHWAY 62/180 FOR 0.25 MI (0.40 KM) TO THE STATION
CW0982'ON THE RIGHT, JUST SOUTH OF A ROADSIDE REST AREA. THE STATION IS A
CW0982'PUNCH MARK ON TOP OF A STAINLESS STEEL ROD THAT IS ACCESSED THROUGH AN
CW0982'ALUMINUM LOGO CAP. LOCATED 46.7 M (153.2 FT) EAST-NORTHEAST OF A
CW0982'FENCE AND 64.5 M (211.6 FT) NORTHWEST OF THE CENTERLINE OF THE
CW0982'HIGHWAY.
CW0982
CW0982   STATION RECOVERY (2004)
CW0982
CW0982'RECOVERY NOTE BY US POWER SQUADRON 2004 (CAG)
CW0982'RECOVERED IN GOOD CONDITION.
CW0982
CW0982   STATION RECOVERY (2009)
CW0982
CW0982'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2009 (RB)
CW0982'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:00

Chavez, Carl J, EMNRD

From: Gary Eidson [gary@jwsc.biz]
Sent: Tuesday, August 18, 2009 4:26 PM
To: Chavez, Carl J, EMNRD
Cc: Bob Patterson; Griswold, Jim, EMNRD
Subject: Re: Key Energy BW-19 Carlsbad No. 1

Carl,
We will schedule a crew to set the monuments at the locations shown on the drawings. We will then notify you at least 72 hrs in advance when the survey is scheduled.
Gary

----- Original Message -----
From: Chavez, Carl J, EMNRD
To: Gary Eidson
Cc: Bob Patterson ; Griswold, Jim, EMNRD
Sent: Tuesday, August 18, 2009 4:20 PM
Subject: RE: Key Energy BW-19 Carlsbad No. 1

Mr. Eidson:

The subsidence monitoring work plan or process for Key Energy Services, L.L.C. and the above plugged and abandoned brine well is approved with the following conditions:

1) A quarterly monitoring program shall be implemented for the first 2 years with a proposed change in monitoring frequency based on survey data and conclusions of ground movement.
2) The surveyor shall conduct a standard survey loop each survey event and record accurate mean sea level survey monument data to the nearest 0.01 ft. as proposed. A survey loop from the benchmark to the 4 other subsidence monitoring points and back to the benchmark shall verify closure of the loop to be accurate to within 0.01 ft in order for a survey event to be successful. Unsuccessful survey events shall be followed by a resurvey in order to comply with the above.
3) Monument charts (site-specific vertical mean sea level elevation (foot) per monument) for each monument point over time shall be maintained and submitted quarterly along with the survey event data to the OCD to reflect the initial mean sea level elevation of each datum or monument over time. Any anomalous changes in the monument elevations shall require a resurvey in order to confirm the discovery of any potential subsidence.
4) Notify the OCD at least 72 hours in advance of a survey or provide a schedule with an exact date and time so the OCD may be available to witness a survey.

Please contact me if you have questions about the charts, survey loop, etc.. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Gary Eidson [mailto:gary@jwsc.biz]
Sent: Monday, August 10, 2009 5:06 PM
To: Chavez, Carl J, EMNRD
Cc: Bob Patterson
Subject: Re: Key Energy BW-19 Carlsbad No. 1

Carl,

I have attached a information for your review. Please let me know if we have left anything out.

Gary Eidson
John West Surveying Co.
Hobbs, NM

----- Original Message -----
From: Chavez, Carl J, EMNRD
To: Gary Eidson ; Griswold, Jim, EMNRD
Cc: Patterson, Bob
Sent: Thursday, May 07, 2009 5:18 PM
Subject: RE: Key Energy BW-19 Carlsbad No. 1

Gary:

Good afternoon. The Berntsen Sectional Rod Monument with Floating Sleeve subsidence monuments look good and you indicated that you will follow the installation guidance.

Please provide the OCD with a subsidence monitoring work plan for OCD approval that includes the following:

- Berntsen Sectional Rod Monument w/ Floating Sleeve Device Info. w/ recommended installation procedure
- A basic map to scale from the well head with the total number and locations for the monuments in addition to the well head. Confirm nearest location to official bench mark from DOT, Irrigation District, etc. to start the survey off and make your loop w/ confirmation back at the bench mark that each survey is within 0.01 foot accuracy. If not, a re-survey will be needed again starting from the bench mark and making the loop back to the bench mark to confirm an accurate survey was conducted to the nearest 0.01 foot.
- Schedule for install
- Schedule for surveying (Quarterly first year; depending on the quarterly surveying data, may go to Semi-annual; and depending on semi-annual could go to Annual)
- Survey equipment description w/ confirmation of accuracy to the nearest 0.01 foot.
- For Key's annual brine well report and the subsidence monitoring requirement of the permit, please propose a graph for each monument location survey point in mean sea level vs. date of survey with brief summary of any anomalous changes in elevation (max, min) from the start of surveying to the point in time of the last survey.

Please submit a work plan for OCD review within 30 days of this e-mail message so we may start the subsidence monitoring program for this facility.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Gary Eidson [mailto:gary@jwsc.biz]
Sent: Wednesday, May 06, 2009 5:08 PM
To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD
Subject: Re: Key Energy BW-19 Carlsbad No. 1

Carl & Jim,

We are ready to begin survey work if the monuments are acceptable.

Gary Eidson
John West Surveying.

----- Original Message -----
From: Chavez, Carl J, EMNRD
To: Griswold, Jim, EMNRD
Cc: gary@jwsc.biz
Sent: Tuesday, April 07, 2009 11:01 PM
Subject: FW: Key Energy BW-19 Carlsbad No. 1

Jim:

Please find the subsidence monitoring work plan for the above reference BW for your review. Key is also supposed to be submitting a plan for their Eunice BW that was PA'd. Thnx.

From: Gary Eidson [mailto:gary@jwsc.biz]
Sent: Tue 4/7/2009 8:59 AM
To: Chavez, Carl J, EMNRD
Cc: Bob Patterson
Subject: Key Energy BW-19 Carlsbad No. 1

Carl,

I have attached a link to the type of monuments we plan to set for subsidence monitoring on this project.

http://www.berntsen.com/GoShopping/Surveying/Monuments/TopSecuritySleeveRodMonuments/tabid/1760/Default.aspx

Before we order the material I want to make sure these monuments will be acceptable to the OCD.

Per your recommendations we plan to set 3 of these monuments for subsidence monitoring and use the dry hole marker as another monitoring point.

Prior to setting any monuments we will submit a drawing showing the proposed locations for approval.

Please review and let me know if these monuments will be acceptable.

Thanks

.
Gary Eidson, PS
John West Surveying Co., Inc.
412 N. Dal Paso
Hobbs, NM 88240
(575) 393-3117 off
(575) 393-3450 fax

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John West Surveying Company
Surface Subsidence Monitoring Survey Procedures

In an effort to monitor changes in surface conditions at the Key Energy BW-19 Carlsbad No. 1 well in Eddy County, New Mexico, John West Surveying Company (JWSC) will establish three subsidence monuments suitable for three dimensional surface monitoring as well as establishing an X, Y, and Z position on the well in question.

The monuments will be Berntsen's 9/16" stainless steel road floating sleeve monuments (see Figure 6) which are well suited for monitoring positional changes in the ground surface. The monument is designed so that frost heave and swelling and shrinking soil conditions has no affect on the stainless steel rod on which measurements will be made.

A location point on the well will be established so that the well itself will also be used as a subsidence monument. See Figure 5 for the proposed location of the three subsidence monuments relative to the well location and existing facilities near the well.

JWSC will use modern survey equipment to establish X, Y, Z positions on the subsidence monuments. Survey grade GPS equipment will be utilized to establish the horizontal position of each subsidence monument relative to the New Mexico Coordinate System North American Datum 1983 (2007). Using Static and Fast Static observations the expected horizontal accuracy of the GPS equipment as established by the manufacturer for the subsidence monuments is ±0.01 ft.

A digital level will be utilized to establish the vertical position of the subsidence monuments relative to the North American Vertical Datum of 1988 (NAVD88). Using differential leveling techniques the expected vertical accuracy of the equipment as established by the manufacturer for the subsidence monuments is ±0.01 ft.

Subsidence – Monitoring Network Design and Monument Construction

The network (Figure 5) is designed to monitor any positional changes of the ground surface conditions around the well. The location of the subsidence monuments were selected for their relationship to roads and facilities that may be used by the public. The horizontal and vertical positions for each subsidence monument will be established from Federal Base Network Control Station "Carlsair" (CW0982) located at the Cavern City Air Terminal Airport. Horizontal positions of the monuments will be established using static observations with GPS equipment. Vertical positions will be established through differential leveling procedures using a digital level.

Subsidence Survey

The initial survey will establish horizontal and vertical coordinate values on the three monuments and the well. Additional surveys will be performed quarterly in order to compare coordinate values checking for movement in the monuments and well. See Figure #7 for an example of subsidence table.

John West Surveying Company
Proposed Monuments and Installation Procedure

Berntsen stainless steel top security sleeve monuments (Figure 6) or other approved monument will be set around the subject injection well(s) pending approval by the client and/or governing body.

Secure Monument procedures:

1. Upon approval of monumentation positioning, a 12 inch diameter hole will be bored to an approximate depth of 4 feet (±).

2. A 4 foot stainless steel threaded rod will be driven into the center of the bore hole. Additional 4 foot sections will be added and driven down until refusal is obtained.

3. Approximately 10 inches (±) of the bore hole will be filled with nearby spoils.

4. A 3 foot sleeve will be inserted over the stainless steel rod at which time grease will be injected between the stainless steel rod and the sleeve, then capped over.

5. Approximately 12 inches of sand will be filled around the rod and sleeve.

6. A 6 inch diameter pvc pipe cut at 24 inches will be centered around the sleeve, the bottom of the pvc pipe resting on top of the sand.

7. Upon placement of the pvc pipe, an additional 20 inches of sand will be added inside of the pvc pipe to approximately 4 inches below the top of the steel datum point.

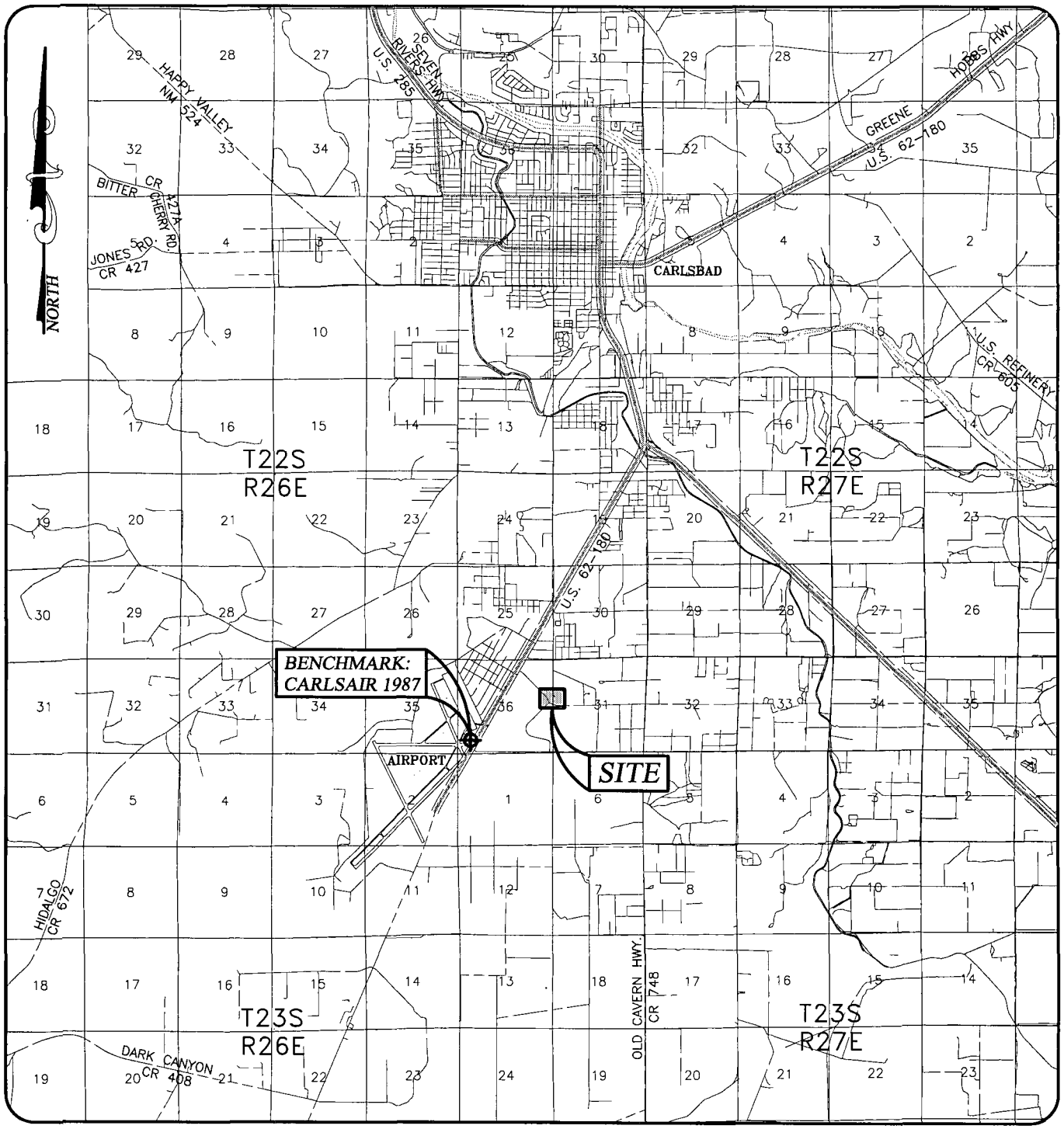
8. The cavity left over outside of the 6 inch pvc pipe will be filled with concrete.

9. A 6 inch aluminum hinged cap will be secured to the top of the 6 inch pvc pipe at ground level.

Figure 1

VICINITY MAP

NOT TO SCALE



CARLSBAD, NEW MEXICO AND SURROUNDING AREA

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO

HOBBS, N.M. 88240

(575) 393-3117

KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE

KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36, TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

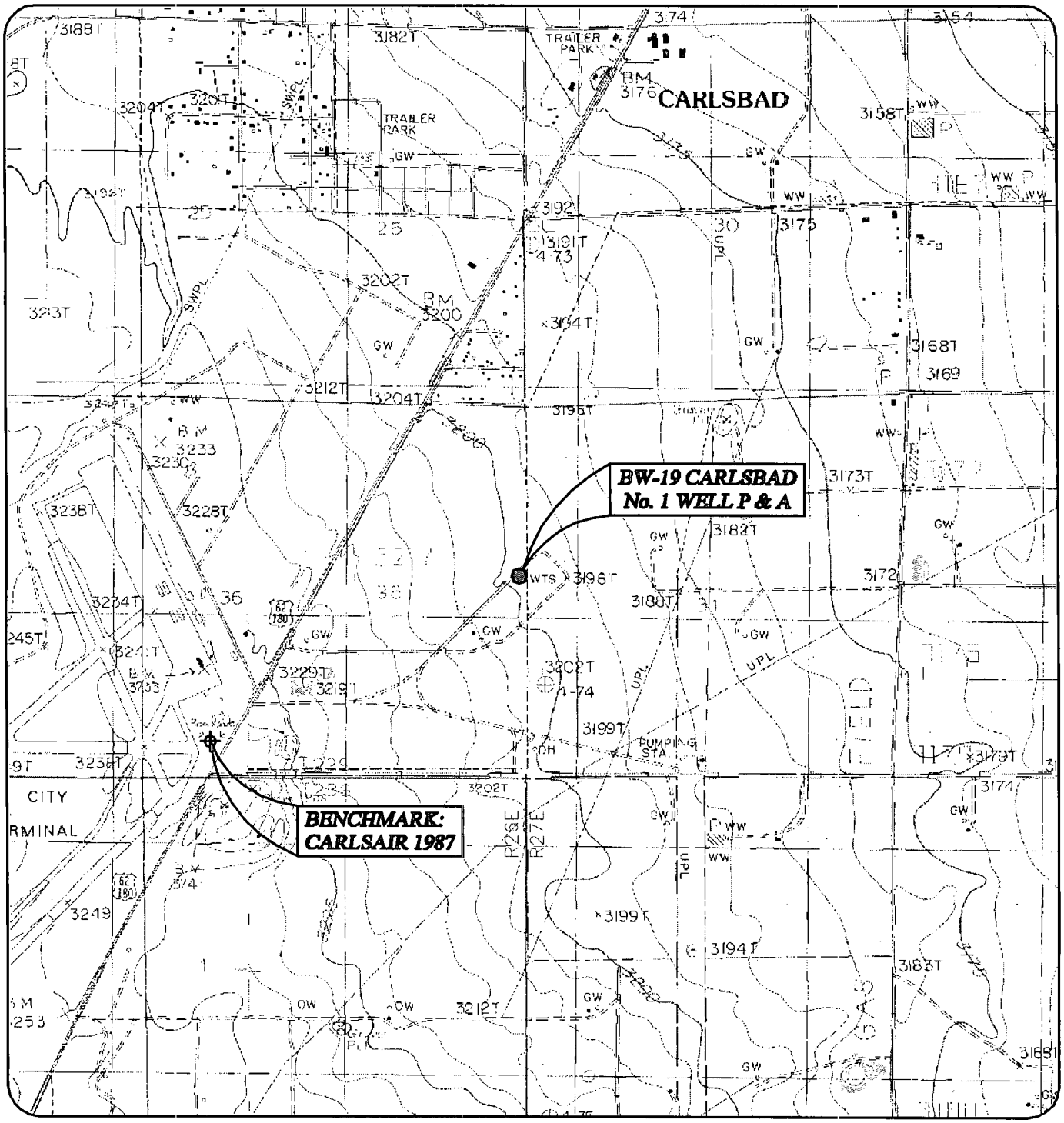
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

U.S.G.S. MAP

Figure 2

2000 1000 0 2000 4000 FEET

Scale: 1"=2000'



U.S.G.S. 7.5' SERIES TOPOGRAPHIC MAPS FOR:
OTIS, NEW MEXICO
KITCHEN COVE, NEW MEXICO

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KEY ENERGY SERVICES, LLC

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TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

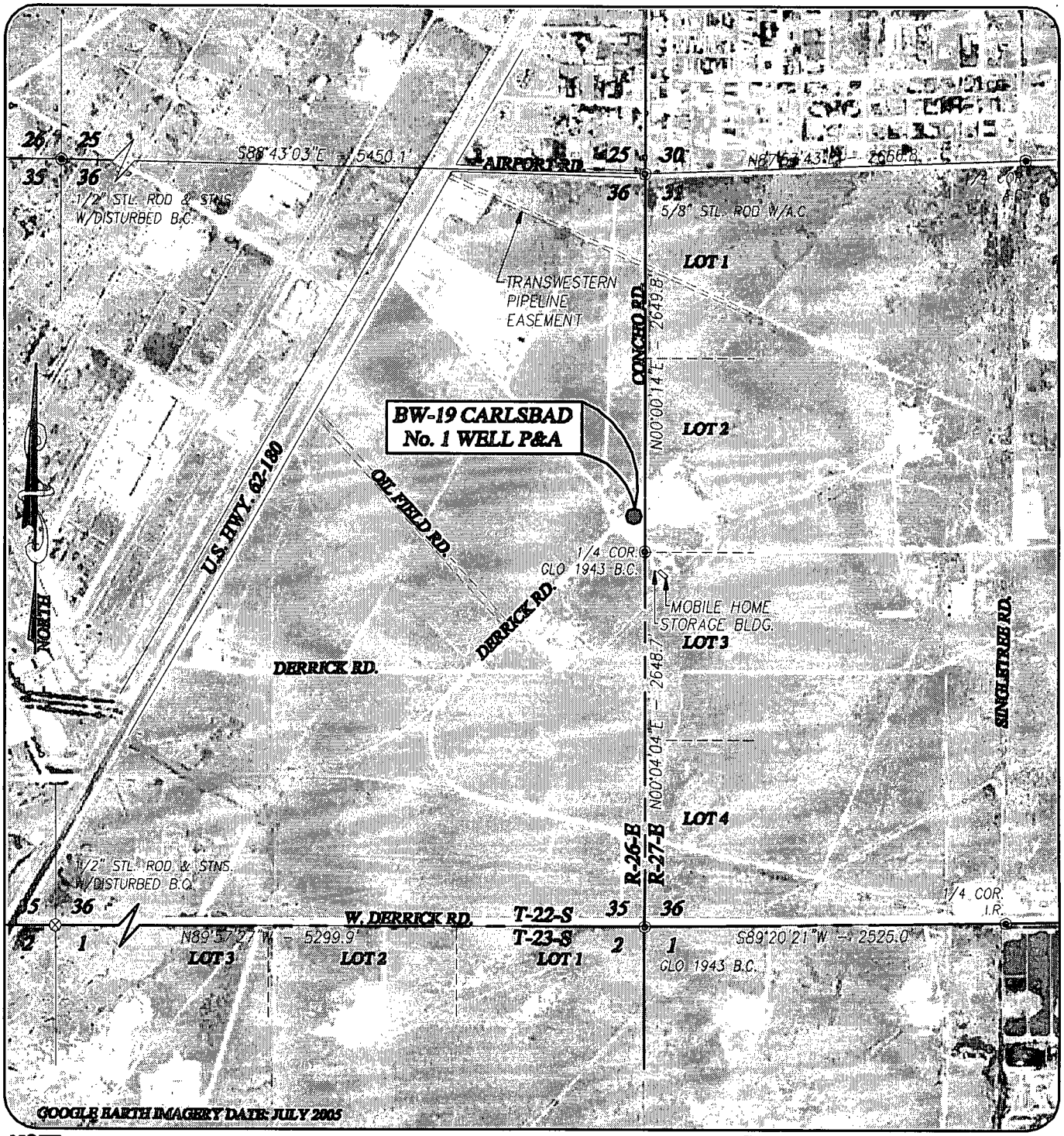
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

LOCATION MAP

Figure 3

1000 500 0 1000 2000 FEET

Scale: 1"=1000'



NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

LEGEND

◉ – DENOTES FOUND CORNER AS NOTED

⊗ – DENOTES CALCULATED POINT

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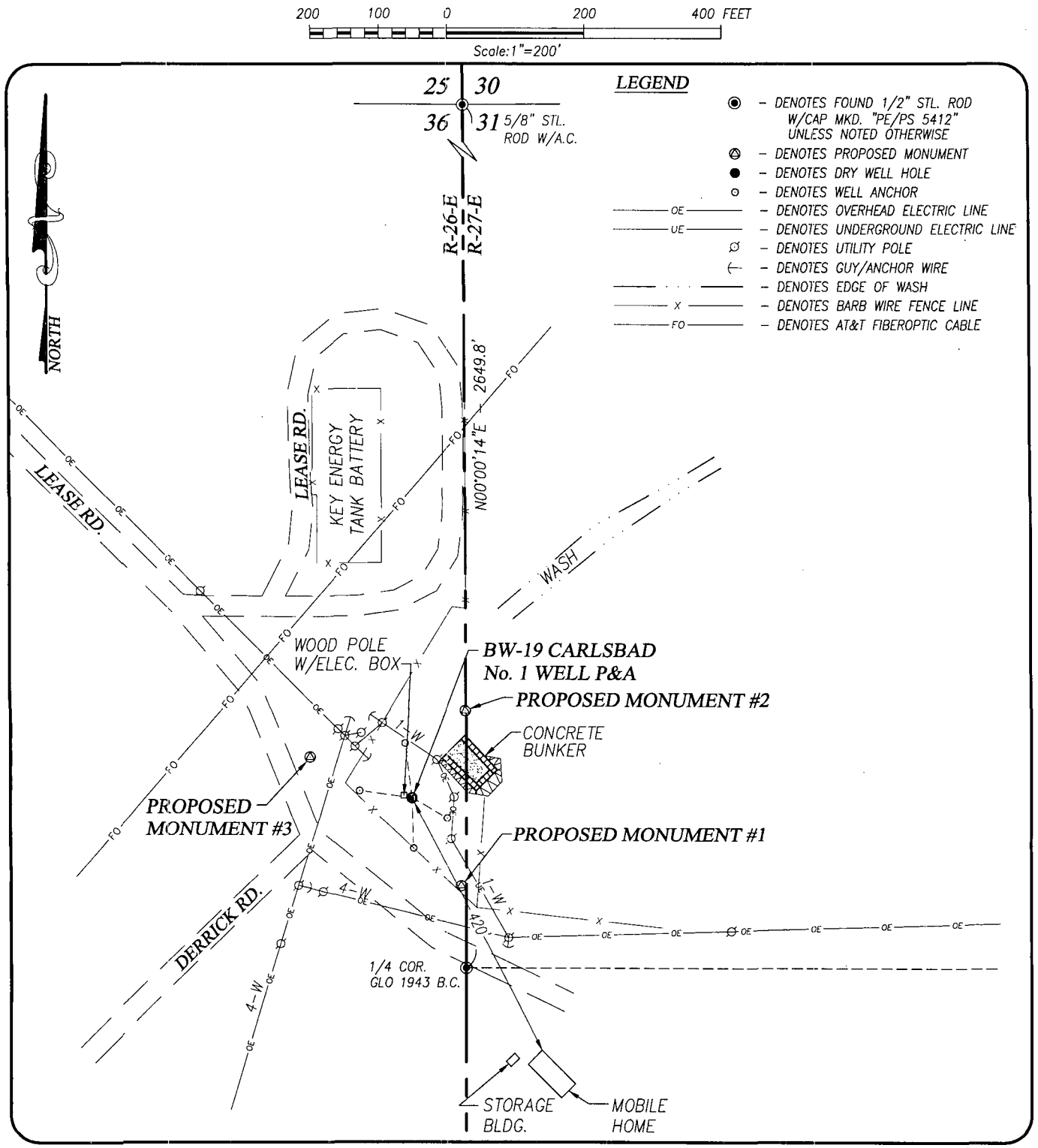
TOPOGRAPHIC MAP

Figure 4



NOTE

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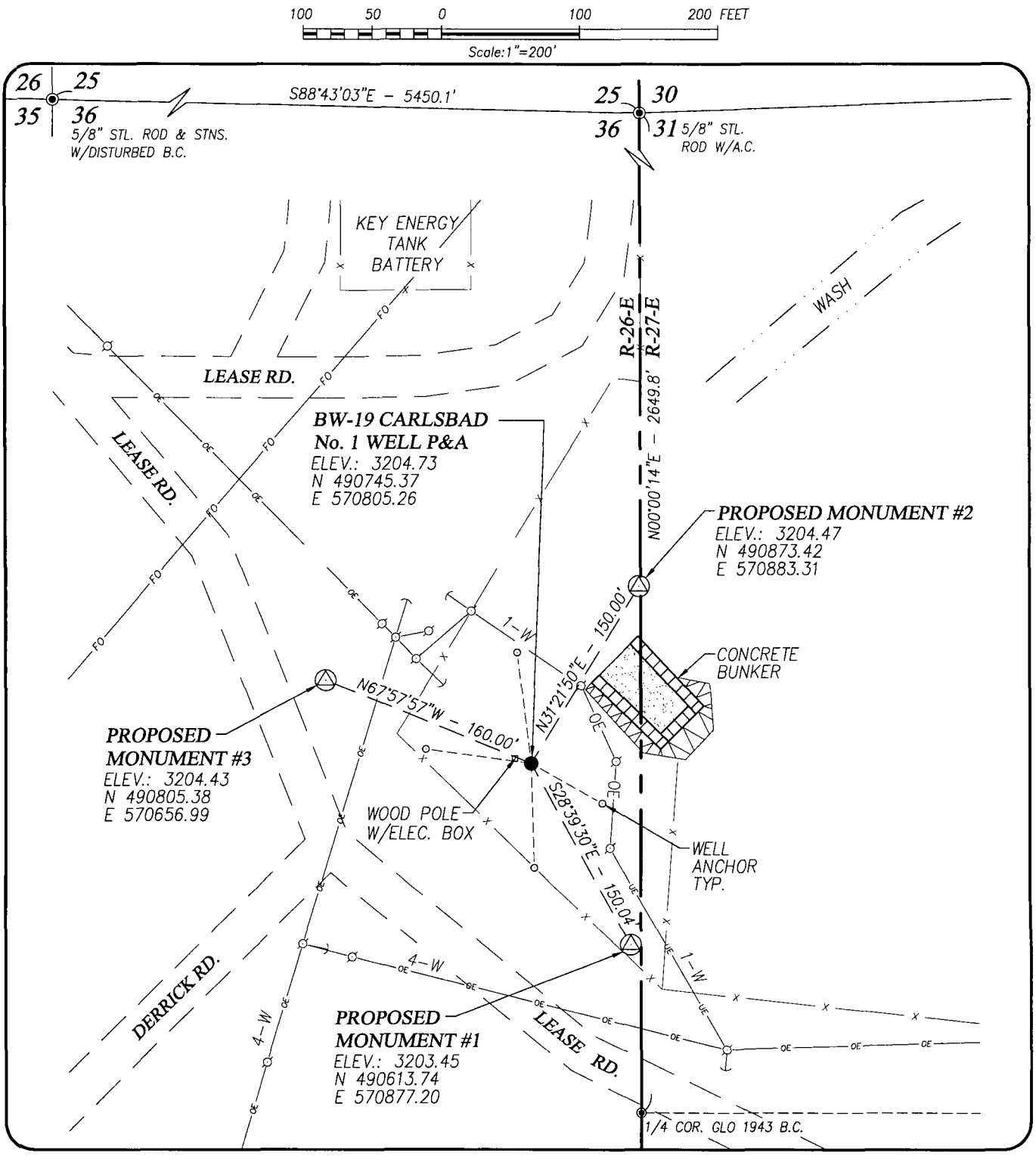
PROPOSED SUBSIDENCE MONUMENT LOCATION MAP

Figure 5



NOTE

BEARINGS AND COORDINATE VALUES SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

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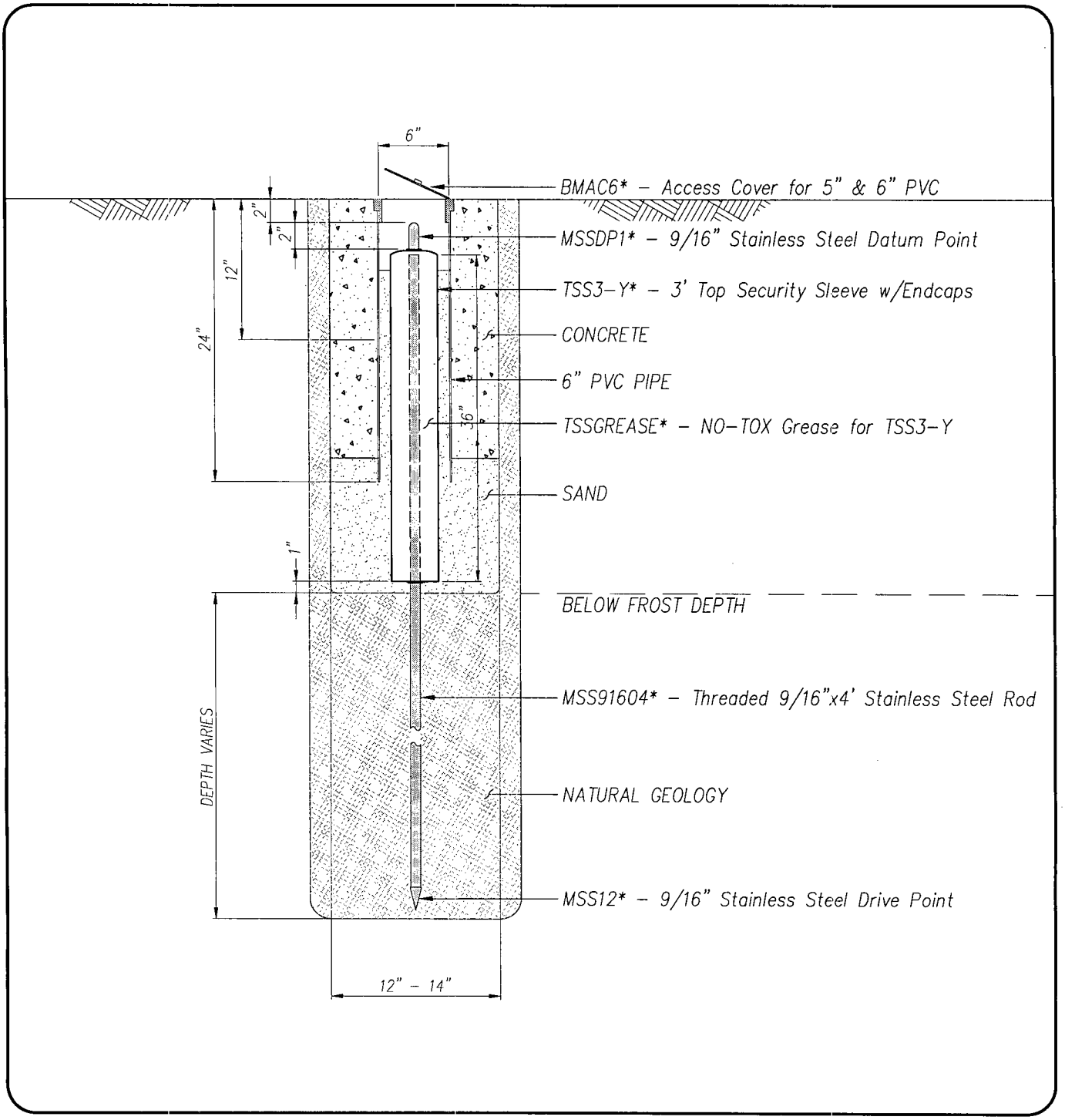
DonnaS\Tracts\Subsidence Monitoring\Key Energy Services, LLC\09110219 BW-19 Carlsbad No. 1\09110219.dwg

Figure 6

BERNTSEN MONUMENT INSTALLATION DETAIL

NOT TO SCALE



*REFERENCE:
www.berntsen.com
9/16" STAINLESS STEEL TOP SECURITY SLEEVE MONUMENT

PROVIDING SURVEYING SERVICES
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(575) 393–3117

KEY ENERGY SERVICES, LLC

SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

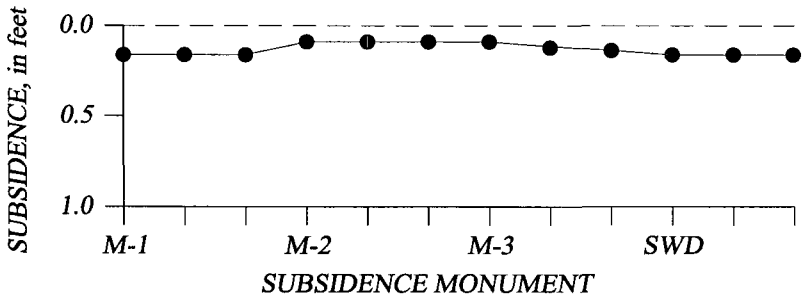
Figure 7

SUBSIDENCE TABLE

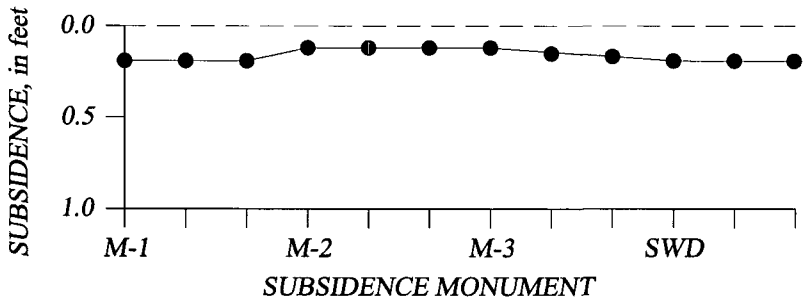
MONUMENT #1, #2, #3 AND SWD

** EXAMPLE **

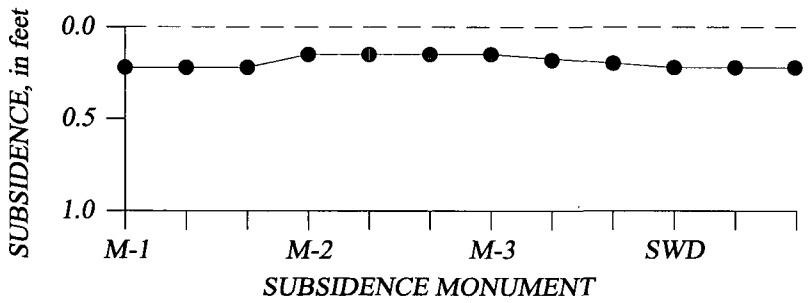
First Quarter - January through March



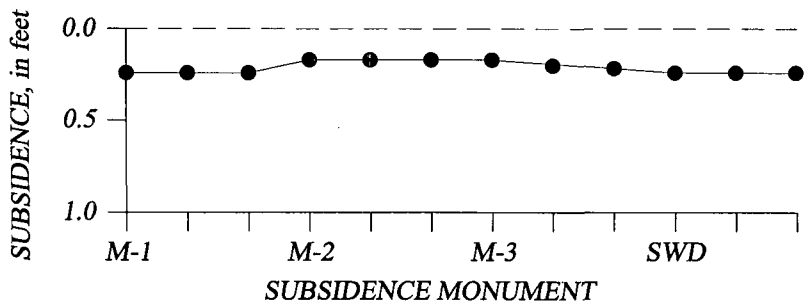
Second Quarter - April through June



Third Quarter - July through September



Fourth Quarter - October through December



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SUBSIDENCE MONITORING FOR THE
KEY ENERGY BW-19 CARLSBAD No. 1 WELL IN SECTION 36,
TOWNSHIP 22 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.67
1        National Geodetic Survey,   Retrieval Date = AUGUST 10, 2009
 CW0982 ***********************************************************************
 CW0982  FBN          -  This is a Federal Base Network Control Station.
 CW0982  PACS         -  This is a Primary Airport Control Station.
 CW0982  DESIGNATION -  CARLSAIR
 CW0982  PID          -  CW0982
 CW0982  STATE/COUNTY-  NM/EDDY
 CW0982  USGS QUAD    -  KITCHEN COVE (1985)
 CW0982
 CW0982                          *CURRENT SURVEY CONTROL
 CW0982
 CW0982* NAD 83(2007)-  32 20 33.22813(N)     104 15 07.57551(W)      ADJUSTED
 CW0982* NAVD 88      -       986.00   (meters)     3234.9    (feet)  GPS OBS
 CW0982
 CW0982  EPOCH DATE   -         2002.00
 CW0982  X            -  -1,328,101.544 (meters)                      COMP
 CW0982  Y            -  -5,228,607.433 (meters)                      COMP
 CW0982  Z            -   3,393,100.115 (meters)                      COMP
 CW0982  LAPLACE CORR-          -4.44  (seconds)                      DEFLEC99
 CW0982  ELLIP HEIGHT-         961.581 (meters)           (02/10/07) ADJUSTED
 CW0982  GEOID HEIGHT-         -24.41  (meters)                      GEOID03
 CW0982
 CW0982  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 CW0982  Type    PID    Designation                      North   East  Ellip
 CW0982  ----------------------------------------------------------------
 CW0982  NETWORK CW0982 CARLSAIR                          0.41   0.41   1.41
 CW0982  ----------------------------------------------------------------
 CW0982
 CW0982.This mark is at Cavern City Air Terminal Airport (CNM)
 CW0982
 CW0982.The horizontal coordinates were established by GPS observations
 CW0982.and adjusted by the National Geodetic Survey in February 2007.
 CW0982
 CW0982.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 CW0982.See National Readjustment for more information.
 CW0982.The horizontal coordinates are valid at the epoch date displayed above.
 CW0982.The epoch date for horizontal control is a decimal equivalence
 CW0982.of Year/Month/Day.
 CW0982
 CW0982.The orthometric height was determined by GPS observations and a
 CW0982.high-resolution geoid model.
 CW0982
 CW0982.GPS derived orthometric heights for airport stations designated as
 CW0982.PACS or SACS are published to 2 decimal places.  This maintains
 CW0982.centimeter relative accuracy between the PACS and SACS.  It does
 CW0982.not indicate centimeter accuracy relative to other marks which are
 CW0982.part of the NAVD 88 network.
 CW0982
 CW0982.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 CW0982
 CW0982.The Laplace correction was computed from DEFLEC99 derived deflections.
 CW0982
 CW0982.The ellipsoidal height was determined by GPS observations
 CW0982.and is referenced to NAD 83.
 CW0982
 CW0982.The geoid height was determined by GEOID03.
 CW0982
 CW0982;                    North         East     Units Scale Factor Converg.
 CW0982;SPC NM E     -   148,854.265   172,646.217   MT  0.99990981   +0 02 36.4
 CW0982;SPC NM E     -   488,366.03    566,423.46    sFT 0.99990981   +0 02 36.4
 CW0982;UTM  13      - 3,578,653.034   570,379.696   MT  0.99966108   +0 24 00.5
 CW0982
 CW0982!             -  Elev Factor  x  Scale Factor =   Combined Factor
 CW0982!SPC NM E     -   0.99984904  x   0.99990981  =   0.99975887
 CW0982!UTM  13      -   0.99984904  x   0.99966108  =   0.99951017
 CW0982
 CW0982                          SUPERSEDED SURVEY CONTROL
 CW0982
 CW0982  ELLIP H (05/26/00)  961.615  (m)                        GP(       ) 2 1
 CW0982  NAD 83(1986)-  32 20 33.23332(N)    104 15 07.57484(W) AD(       ) 3
 CW0982  NAD 83(1992)-  32 20 33.22764(N)    104 15 07.57505(W) AD(       ) B
 CW0982  ELLIP H (05/26/92)  961.613  (m)                        GP(       ) 4 1
 CW0982  NGVD 29 (06/11/92)  985.9    (m)          3235.     (f) GPS OBS     3
 CW0982
 CW0982.Superseded values are not recommended for survey control.
 CW0982.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
```

```
CW0982.See file dsdata.txt to determine how the superseded data were derived.
CW0982
CW0982 U.S. NATIONAL GRID SPATIAL ADDRESS: 13SER7038078653(NAD 83)
CW0982 MARKER: F = FLANGE-ENCASED ROD
CW0982 SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
CW0982 SP_SET: STAINLESS STEEL ROD IN SLEEVE
CW0982 STAMPING: CARLSAIR 1987
CW0982 MARK LOGO: NGS
CW0982 PROJECTION: FLUSH
CW0982 MAGNETIC: N = NO MAGNETIC MATERIAL
CW0982 STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
CW0982 SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
CW0982+SATELLITE: SATELLITE OBSERVATIONS - May 18, 2009
CW0982 ROD/PIPE-DEPTH: 4.9  meters
CW0982 SLEEVE-DEPTH  : 0.9 meters
CW0982
CW0982  HISTORY     - Date     Condition        Report By
CW0982  HISTORY     - 1987     MONUMENTED       NMHD
CW0982  HISTORY     - 19900918 GOOD
CW0982  HISTORY     - 19960114 GOOD             CHANCE
CW0982  HISTORY     - 19970408 GOOD             NGS
CW0982  HISTORY     - 19981217 GOOD             NGS
CW0982  HISTORY     - 20040320 GOOD             USPSQD
CW0982  HISTORY     - 20090518 GOOD             INDIV
CW0982
CW0982                          STATION DESCRIPTION
CW0982
CW0982'DESCRIBED BY NM HIGHWAY DEPT 1987
CW0982'THE STATION IS LOCATED ABOUT 4.8 KM (3.0 MI) SOUTH OF CARLSBAD JUST
CW0982'EAST OF THE CARLSBAD MUNICIPAL AIRPORT.  OWNERSHIP--CITY OF CARLSBAD,
CW0982'AIRPORT MANAGER-FRANK NOLAND, PO BOX 1569 CARLSBAD, NM 88220.
CW0982'TO REACH THE STATION FROM THE Y INTERSECTION OF US 62-180 AND 285 IN
CW0982'SOUTH CARLSBAD, GO SOUTH ON US 62-180 FOR 5.8 KM (3.6 MI) TO THE
CW0982'ENTRANCE OF THE CARLSBAD MUNICIPAL AIRPORT, CONTINUE SOUTH ON US 62-
CW0982'180 FOR 0.32 KM (0.20 MI) TO THE STATION ON THE RIGHT.
CW0982'THE STATION IS A PUNCH MARK IN TOP OF A STAINLESS STEEL ROD THAT IS
CW0982'DRIVEN TO A DEPTH OF 4.9 M (16.1 FT) , INSIDE A GREASE FILLED SLEEVE
CW0982'EXTENDING TO A DEPTH OF 0.9 M (3.0 FT) , INSIDE A 5-INCH DIAMETER PVC
CW0982'PIPE WITH AN NGS LOGO CAP STAMPED--- CARLSAIR 1987 ---, FLUSH WITH
CW0982'THE GROUND.  THE TOP OF THE ROD IS RECESSED 12 CM BELOW THE LOGO CAP.
CW0982'STATION IS 64.5 M (211.6 FT) WEST FROM THE CENTERLINE OF US62-180 AT
CW0982'MILEPOST 29.9, 31.7 M (104.0 FT) SOUTH FROM THE FLOWLINE OF A SMALL
CW0982'DRAINAGE DITCH, AND 46.9 M (153.9 FT) NORTHEAST FROM A CHAIN LINK
CW0982'FENCE.
CW0982'NOTE--ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
CW0982
CW0982                          STATION RECOVERY (1990)
CW0982
CW0982'RECOVERED 1990
CW0982'RECOVERED IN GOOD CONDITION.
CW0982
CW0982                          STATION RECOVERY (1996)
CW0982
CW0982'RECOVERY NOTE BY JE CHANCE AND ASSOCIATES 1996 (KB)
CW0982'RECOVERED AS DESCRIBED IN GOOD CONDITION.  FOR ACCESS CONTACT -- CITY
CW0982'OF CARLSBAD, MIKE MEDLEY - AIRPORT MANAGER, PHONE (505) 887-3060 THE
CW0982'STATION IS DESIGNATED AS A PRIMARY AIRPORT CONTROL STATION (PACS) -
CW0982'NEW MEXICO ANA SURVEYS 1996
CW0982
CW0982                          STATION RECOVERY (1997)
CW0982
CW0982'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1997 (AJL)
CW0982'THE STATION IS LOCATED ABOUT 4.8 KM (3.00 MI) SOUTH OF CARLSBAD JUST
CW0982'EAST OF THE CARLSBAD MUNICIPAL AIRPORT.  OWNERSHIP--CITY OF CARLSBAD,
CW0982'PO BOX 1569 CARLSBAD, NM 88220.  THERE IS NO AIRPORT MANAGER AT THIS
CW0982'TIME, CONTACT CITY HALL.  TO REACH THE STATION FROM THE Y INTERSECTION
CW0982'OF US HIGHWAYS 62/180 AND 285 IN SOUTH CARLSBAD, GO SOUTH ON US 62/180
CW0982'FOR 5.8 KM (3.60 MI) TO THE ENTRANCE OF THE CARLSBAD MUNICIPAL
CW0982'AIRPORT.  CONTINUE SOUTH ON US 62/180 FOR 0.32 KM (0.20 MI) TO THE
CW0982'STATION ON THE RIGHT JUST SOUTH OF A ROADSIDE REST AREA.  THE STATION
CW0982'IS A PUNCH MARK ON THE TOP OF A STAINLESS STEEL ROD THAT IS DRIVEN TO
CW0982'A DEPTH OF 4.9 M, (16.1 FT) INSIDE A GREASE FILLED SLEEVE EXTENDING TO
CW0982'A DEPTH OF 0.9 M, (3.0 FT) INSIDE A 5-INCH DIAMETER PVC PIPE WITH A
CW0982'NGS LOGO CAP STAMPED--- CARLSAIR 1987 ---, SET FLUSH WITH THE GROUND.
CW0982'THE TOP OF THE ROD IS RECESSED 12 CM BELOW THE LOGO CAP.  THE STATION
CW0982'IS 64.5 M (211.6 FT) WEST OF THE CENTERLINE OF THE HIGHWAY AT MILEPOST
CW0982'29.9, 31.7 M (104.0 FT) SOUTH FROM THE FLOWLINE OF A SMALL DRAINAGE
CW0982'DITCH, AND 46.9 M (153.9 FT) NORTHEAST FROM A CHAIN LINK FENCE
CW0982'NOTE--ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
CW0982'NOTE THIS WAS USED AS A SECONDARY AIRPORT CONTROL STATION (SACS) .
CW0982
CW0982                          STATION RECOVERY (1998)
CW0982
CW0982'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1998 (WAS)
CW0982'THE STATION IS LOCATED ABOUT 3 MI (4.8 KM) SOUTH OF CARLSBAD, AT THE
CW0982'CARLSBAD MUNICIPAL AIRPORT.  OWNERSHIP--CITY OF CARLSBAD, CARLSBAD
CW0982'MUNICIPAL AIRPORT, MANAGER - JON HAGG, TELEPHONE 505-887-1191, ON SITE
```

CW0982'CONTACT - GILBERT GONZALEZ, TELEPHONE 505-887-3060, PO BOX 1569,
CW0982'CARLSBAD NM 88220. TO REACH THE STATION FROM THE Y-INTERSECTION OF US
CW0982'HIGHWAYS 62, 180 AND 285 IN SOUTH CARLSBAD, GO SOUTH ON HIGHWAY 62/180
CW0982'FOR 3.6 MI (5.8 KM) TO THE ENTRANCE TO THE CARLSBAD MUNICIPAL AIRPORT.
CW0982'CONTINUE SOUTH ON HIGHWAY 62/180 FOR 0.25 MI (0.40 KM) TO THE STATION
CW0982'ON THE RIGHT, JUST SOUTH OF A ROADSIDE REST AREA. THE STATION IS A
CW0982'PUNCH MARK ON TOP OF A STAINLESS STEEL ROD THAT IS ACCESSED THROUGH AN
CW0982'ALUMINUM LOGO CAP. LOCATED 46.7 M (153.2 FT) EAST-NORTHEAST OF A
CW0982'FENCE AND 64.5 M (211.6 FT) NORTHWEST OF THE CENTERLINE OF THE
CW0982'HIGHWAY.
CW0982
CW0982 STATION RECOVERY (2004)
CW0982
CW0982'RECOVERY NOTE BY US POWER SQUADRON 2004 (CAG)
CW0982'RECOVERED IN GOOD CONDITION.
CW0982
CW0982 STATION RECOVERY (2009)
CW0982
CW0982'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2009 (RB)
CW0982'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:00

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 07, 2009 5:19 PM
To: 'Gary Eidson'; Griswold, Jim, EMNRD
Cc: 'Patterson, Bob'
Subject: RE: Key Energy BW-19 Carlsbad No. 1

Gary:

Good afternoon. The Berntsen Sectional Rod Monument with Floating Sleeve subsidence monuments look good and you indicated that you will follow the installation guidance.

Please provide the OCD with a subsidence monitoring work plan for OCD approval that includes the following:

- Berntsen Sectional Rod Monument w/ Floating Sleeve Device Info. w/ recommended installation procedure
- A basic map to scale from the well head with the total number and locations for the monuments in addition to the well head. Confirm nearest location to official bench mark from DOT, Irrigation District, etc. to start the survey off and make your loop w/ confirmation back at the bench mark that each survey is within 0.01 foot accuracy. If not, a re-survey will be needed again starting from the bench mark and making the loop back to the bench mark to confirm an accurate survey was conducted to the nearest 0.01 foot.
- Schedule for install
- Schedule for surveying (Quarterly first year; depending on the quarterly surveying data, may go to Semi-annual; and depending on semi-annual could go to Annual)
- Survey equipment description w/ confirmation of accuracy to the nearest 0.01 foot.
- For Key's annual brine well report and the subsidence monitoring requirement of the permit, please propose a graph for each monument location survey point in mean sea level vs. date of survey with brief summary of any anomalous changes in elevation (max, min) from the start of surveying to the point in time of the last survey.

Please submit a work plan for OCD review within 30 days of this e-mail message so we may start the subsidence monitoring program for this facility.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Gary Eidson [mailto:gary@jwsc.biz]
Sent: Wednesday, May 06, 2009 5:08 PM
To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD
Subject: Re: Key Energy BW-19 Carlsbad No. 1

Carl & Jim,

We are ready to begin survey work if the monuments are acceptable.

Gary Eidson
John West Surveying.

----- Original Message -----
From: Chavez, Carl J, EMNRD

To: Griswold, Jim, EMNRD
Cc: gary@jwsc.biz
Sent: Tuesday, April 07, 2009 11:01 PM
Subject: FW: Key Energy BW-19 Carlsbad No. 1

Jim:

Please find the subsidence monitoring work plan for the above reference BW for your review. Key is also supposed to be submitting a plan for their Eunice BW that was PA'd. Thnx.

From: Gary Eidson [mailto:gary@jwsc.biz]
Sent: Tue 4/7/2009 8:59 AM
To: Chavez, Carl J, EMNRD
Cc: Bob Patterson
Subject: Key Energy BW-19 Carlsbad No. 1

Carl,

I have attached a link to the type of monuments we plan to set for subsidence monitoring on this project.

http://www.berntsen.com/GoShopping/Surveying/Monuments/TopSecuritySleeveRodMonuments/tabid/1760/Default.aspx

Before we order the material I want to make sure these monuments will be acceptable to the OCD.

Per your recommendations we plan to set 3 of these monuments for subsidence monitoring and use the dry hole marker as another monitoring point.

Prior to setting any monuments we will submit a drawing showing the proposed locations for approval.

Please review and let me know if these monuments will be acceptable.

Thanks

Gary Eidson, PS
John West Surveying Co., Inc.
412 N. Dal Paso
Hobbs, NM 88240
(575) 393-3117 off
(575) 393-3450 fax

Search:

You are here: Go Shopping >> Surveying >> Monuments >> Top Security Sleeve Rod Monuments

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  - FENO
  - Sectional Rod Monuments
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  - Top Security Sleeve Rod Monuments
  - Benchmark Access Covers
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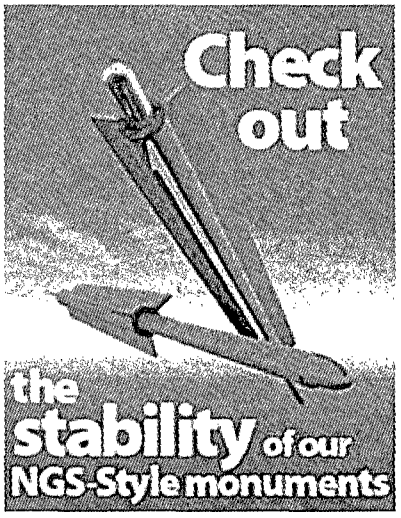
Top Security Sleeve Rod Monuments

3/4" Aluminum Top Security Sleeve Monument	9/16" Stainless Steel Top Security Sleeve Monument

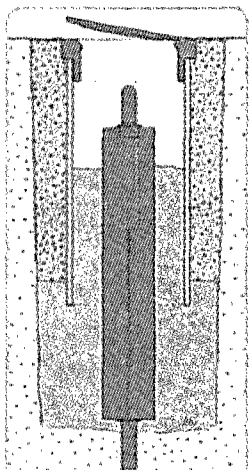
A BERNTSEN EXCLUSIVE! PRODUCT

Berntsen Sectional Rod Monument with Floating Sleeve

Berntsen's exclusive Top Security™ Sleeve 3-Dimensional Rod Monument System is *specifically designed for high-precision geodetic and GPS surveys. Its patented design* helps protect against excessive movements in the control monument. The Berntsen extendible rods, when driven to refusal, provide excellent vertical stability. The unique Y-shaped design of the Top Security Sleeve adds the second and third dimension to provide the most stable 3-D survey monument available.



Eliminate most common and unexpected shifts in stability by eliminating most of the direct transfer of shifts in movement from ground level or surface movement. Here's how: Rod markers (driven to refusal) have good vertical stability but can be disturbed by the natural phenomenon known as frost heave. Rod markers, installed with a greased-filled PVC pipe surrounding the upper three or four feet (900 or 1200 mm) (or more) of rod, are known to be effective in combating movement caused by frost heave but offer little protection against possible horizontal movement of surrounding earth (another major cause of differences in readings on rod markers). For the first time, Berntsen's Top Security Sleeve™ with the horizontal stability of the original Berntsen Top Security™ finned rod marker system, this is now available in a commercially available survey monument.



It's even extendible! 3' (914mm) lengths of Top Security Sleeves can also be connected together by Berntsen's exclusive End Cap Alignment Bushings and a little PVC Cement. When used in combination(s), nearly any even-foot length over six feet long (1.83m) of support for the rod marker is possible. That's innovative and flexible design at work for you.

More good news! The Top Security Sleeves' greatest advantage at installation time is speed. Simply drive standard Berntsen round rods to refusal, slip on the grease-filled finned Top Security Sleeve (recommended sleeve length greater than maximum recorded local frost depth), back-fill around the fins with sand, tamp firmly. The color coded End Cap Alignment Bushings follow Berntsen's long established universal color codes for rod marker systems and tell other surveyor's at a glance what size rod is installed - 9/16" (14 mm) Yellow; 3/4" (19 mm) Blue. We recommend NO-TOX lubricating

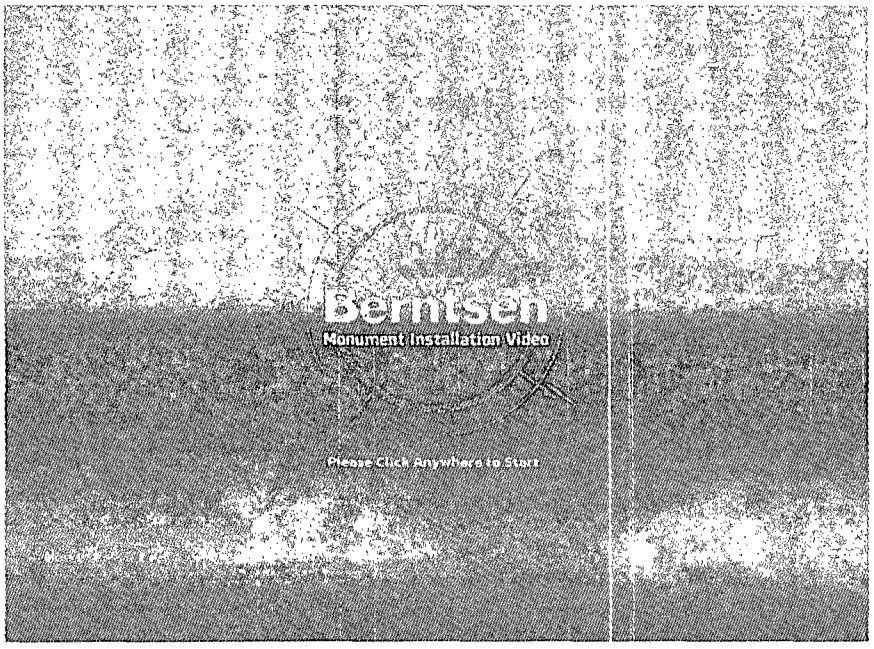
grease to fill the Top Security Sleeve. It is specially formulated to be non-toxic and environmentally safe. It is available in an easy to use cartridge that fits a standard "grease gun". One cartridge should be used for each 36" (915mm) long Top Security Sleeve.

For installation instructions Click Here

Berntsen Monument Installation Video

Our monument installation video includes everything your crew needs to know to install sectional rod monuments, including the exclusive Berntsen Top Security® and Sleeved Rod monuments.

Each video segment includes clear, step-by-step written instructions and helpful animated sequences. *You'll also find useful tips gleaned from our years of working directly with* customers to understand their needs on the job.



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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, February 17, 2009 11:35 AM
To: 'gary@jwsc.biz'
Subject: RE: Key Energy BW-19 Carlsbad No.1

Gary:

Pg. 37 of BW-6 Subsidence Monitoring thumbnail at http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pENV0000BW0007 shows a good exhibit of a monument for subsidence monitoring. There is another example past pg. 40 too.

The size of the survey area may extend to the nearest Federal (ex., DOT) elevation marker along a nearby roadway, bridge, etc.. The survey company should start its survey using the federal elevation point and move onto the property with proposed monument monitors. Survey to the nearest 0.01 ft. Plug and abandonment markers may also be used as a monitor point. Monitor locations should extend in a direction most apt to affect public health where possible. Is there a standard area to monitor? It is site-specific.

Please contact me to discuss. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: gary.eidson@gmail.com [mailto:gary.eidson@gmail.com] **On Behalf Of** Gary Eidson
Sent: Tuesday, February 17, 2009 9:02 AM
To: Chavez, Carl J, EMNRD
Cc: bpatterson@keyenergy.com
Subject: Key Energy BW-19 Carlsbad No.1

Carl,

I thought I would send you this email after our failed attempts at phone tag.

We have been asked by Key Energy to perform the surveying services required for the subject project.

At this time I gathering information on the site we are to survey. I would appreciate it if you could supply me with any survey requirements you may have.

I have been given a copy of an email regarding the BW-6 Subsidence Monitoring Program dated July 2, 2008 which apparently addresses some survey deficiencies on that project by another survey firm but I'm hoping for a set of survey guidelines or examples.

I also noticed in that email that monuments are to be constructed to certain specifications. Can you supply me with a diagram of how the survey monuments are to be constructed?

And finally for now...do you have dimensions as to the size of the area we are to survey around the brine well?

Thank you for you help and I look forward to hearing from you.

Gary Eidson, PS
John West Surveying Co.
412 N. Dal Paso
Hobbs, NM 88240

ph. (575) 393-3117
fax (575) 393-3450

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, January 16, 2009 2:38 PM
To: 'Molleur, Loren'
Cc: Perry, Mark; Patterson, Bob; Price, Wayne, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Loren:

Pursuant to our telephone conversation related to your e-mail below on 1/13/2009, where you indicated that BW-19 in Carlsbad had been plugged and abandoned, subsequent to submitting the sonar test report. The OCD is aware of Key Energy Services, L.L.C.'s desire to drill another two-brine well system at the facility and Key is aware of the OCD Brine Well Moratorium issued November 14, 2008. Since the OCD is currently putting together a Brine Well Work Group to satisfy the EMNRD's Cabinet Secretary's Brine Well Moratorium, more information will be learned that will help the OCD to determine whether Key Energy Services LLC should apply for another brine well system at the BW-19 facility. The Moratorium ends May 14, 2009. The report to the Cabinet Secretary is due May 1, 2009. The OCD is working to get the brine well work group together in March of 2009. The OCD will be formally inviting you and your recommended brine well expert to the Work Group soon.

Also, the OCD needs the final C-103s documenting the PA and any work on both of the BW-9 and BW-19 brine wells with PA dates. I have the PA date from BW-9, but need the PA date for BW-19 ASAP for EPA reporting purposes. Please submit them to me. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Molleur, Loren [mailto:lmolleur@keyenergy.com]
Sent: Wednesday, December 17, 2008 4:24 PM
To: Chavez, Carl J, EMNRD
Cc: Perry, Mark; Patterson, Bob; Price, Wayne, EMNRD
Subject: FW: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Carl,
Attached, please find the well bore sketch of the Carlsbad Brine Well and also a copy of the Sonarwire Cavern Survey performed on that well on April 2, 2008 in open hole and again on June 12, 2008 through 3-1/2" tubing. The pictures taken in both surveys were merged together to obtain a completed view of the well.
I know that Mark Phillibar sent you a copy of the complete survey. The second attachment is just the "picture page" taken from that survey for the purpose of reference in this description.

During normal operation of this brine well for the past several years, we would inject fresh water down the casing of this well and produce 10# brine back up the tubing into the surface facilities. On certain time intervals, we would reverse this flow and inject down the tubing and out the casing for the purpose of melting any salt rings or deposits in either string of pipe.

At the time of the surveys, we attempted to run the survey tools down the open hole and were unsuccessful due to the tools would "sit down" on ledges within the well bore and we were unable to reach TD. We came back later and ran 3-1/2" tubing into the well to be able to run the survey to TD. As you can imagine, with this larger size of tubing that we had to

run into the well (to accommodate the survey tools), we had to drill this tubing down to the bottom. As we reached TD, we left the tubing sitting in place and did not attempt to circulate water through this tubing to produce the well. Sonarwire came in a day or two later and ran this survey. In other words, we never pumped fresh water around to wash this hole out in any way that might have altered the appearance of this survey. This survey show a washed out point at 679 to 685 that is approximately 80' wide and several other small openings that indicate a washed out area. The overall appearance of this brine cavity is that it is vertical and not much horizontal dimension is evident, but I feel it is entirely because of the fact that we were not able to see the cavern before we drilled the tubing down to TD. I have visited with Sean McCool with Sonarwire and he is in total agreement with this logic. Even the type of operation that we had utilizing one string of tubing would create some of this type of picture (where we pumped the fresh water down the casing and out the tubing). We have run another survey on a facility that we have in Snyder, Texas where we have two wells and we pump fresh water down the tubing of one well and produce out the tubing of the second well. This keeps all of the cavern growth down to the bottom of the salt section and gave a completely different type of picture than what we are seeing in the Carlsbad well. This type of set up is exactly what I am recommending to Key Energy. This would really keep the growth of the cavern down low and would not compromise the "over burden" by allowing growth at the top of the cavern. This is the same thing that we would like to do in replacing the well at Carlsbad is to drill two wells and produce through two different strings of tubing set low into the salt section and make the growth of the cavern stay as deep as possible. I would also recommend that within 6 months after drilling these two wells, that we would run cavern surveys on both wells and get a great deal better picture of the cavern surrounding the wells. There is probably no doubt in anyone's mind that after a period of time of producing like this that we would communicate back into the same area of the old Brine Well and that cavern could be surveyed more accurately than what we were able to do this time.

To discuss the wellbore sketch that is the first attachment, I wanted you to see just what that configuration looks like. We did set a bridge plug at 642 and the whipstock tools were set right above the Bridge Plug. We cut a window (top at 628 and the bottom at 635 and drilled the sidetrack hole down to a point where we entered the salt section. We then picked up our 2-7/8" tubing and drilled it one down to the bottom of the cavern and produced this way from 2003 (I think was the date) until Jan 2008 when we discovered the casing problem and began to try to squeeze. By producing this way, it is understandable that the cavern represented in the survey is actually higher than the original casing setting depth of 710' as you mentioned. AS we pumped fresh water down into that formation, wherever it found salt, it began to dissolve it and create a wash out. As you can see by the other smaller wash outs, there were other stringers of salt contacted by the fresh water as it traveled down hole.

I hope that this explains everything to your satisfaction. If you have other questions, please feel free to contact me and I can even set up conversations with Sean McCool himself and allow him to give you his expert opinion.
I look forward to hearing from you.
Loren

-----Original Message-----
From: Patterson, Bob
Sent: Wednesday, December 17, 2008 12:18 PM
To: Molleur, Loren
Cc: Alexander, Rex
Subject: FW: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

FYI

Bob Patterson | Key Energy Services, LLC | Area Manager, Trucking Division | O: 575.394.2586 | C: 575.631.7597
-----Original Message-----
From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, December 17, 2008 10:36 AM
To: Patterson, Bob
Cc: Price, Wayne, EMNRD; Guye, Gerry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Bob:

Re: BW-19 Sonar Test in Eddy County

Good morning. The OCD is aware of the BW-19 sonar test; however, the OCD had contacted Mr. Mark Perry (Key Operator) about the peculiar nature of the sonar test results from the Carlsbad brine well. He was asked to provide certain details as to the configuration of the cavern(s) displayed from the sonar test to the OCD to determine its adequacy. To date, Key Energy Services, LLC has not replied. For example, based on the casing shoe depth, historical well rework, and configuration of cavern(s) above the casing shoe, what is the explanation for this?

Consequently, the sonar test does not appear to accurately reflect the configuration of a brine cavern in proximity to and below the casing shoe. Key may either conduct another sonar, provide the explanation that the OCD requested to determine whether the sonar test is accurate so the OCD may accept the test results in consideration of closure requirements, future well drilling at the facility, etc.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Patterson, Bob [mailto:bpatterson@keyenergy.com]
Sent: Tuesday, December 16, 2008 1:47 PM
To: Price, Wayne, EMNRD; Chavez, Carl J, EMNRD; Molleur, Loren
Cc: Perry, Mark; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

BW-19 had a sonar, but was unable to get down casing on BW-9.

Bob Patterson | Key Energy Services, LLC | Area Manager, Trucking Division | O: 575.394.2586 | C: 575.631.7597

-----Original Message-----
From: Price, Wayne, EMNRD [mailto:wayne.price@state.nm.us]
Sent: Monday, December 15, 2008 10:59 AM
To: Patterson, Bob; Chavez, Carl J, EMNRD; Molleur, Loren
Cc: Perry, Mark; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Good Morning Gentlemen, I have a basic question. Do we have a sonar on these wells?

From: Patterson, Bob [mailto:bpatterson@keyenergy.com]
Sent: Saturday, December 13, 2008 11:44 AM
To: Chavez, Carl J, EMNRD; Molleur, Loren
Cc: Perry, Mark; Price, Wayne, EMNRD; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Carl,

I have BW-9 set up with Key's plugging department. They are currently working on a four well plugging package and will plug the BW-9 as soon as they complete that package, but cannot guarantee it will be before December 31. I have also contracted John West Engineering to provide a proposal for the NMOCD on subsidence monitoring for the BW-9 and BW-19.

Bob Patterson | Key Energy Services, LLC | Area Manager, Trucking Division | O: 575.394.2586 | C: 575.631.7597

-----Original Message-----
From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, December 11, 2008 9:43 AM
To: Molleur, Loren
Cc: Patterson, Bob; Perry, Mark; Price, Wayne, EMNRD; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Mr. Molleur:

Re: BW-9 and BW-19 Final C-103 Plug & Abandonment Status

Owner/Operator	Well Name	BW	API#	Location	Co.	PA Statu
KEY ENERGY SERVICES, LLC	SIMS-MCCASLAND BRINE -EUNICE (GP-Sims #2)	BW-9	30-025-25525	(UL-A)32-21S-37E	Lea	PA: 11-3 08
EY ENERGY SERVICES, LLC.	KEY TRUCKERS BRINE -CARLSBAD	BW-19	30-015-21842	(UL-H)36-22S-26E	Eddy	Awaitin final C-1(

Please find below the status of plug and abandonment (PA) on the above listed wells.

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subsidence monitoring. I have requested from other brine well operators that they seek out information on seismic monitors and to propose a seismic monitoring program to the OCD.

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Oil Conservation Division, Environmental Bureau
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Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
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Chavez, Carl J, EMNRD

From: Molleur, Loren [lmolleur@keyenergy.com]
Sent: Wednesday, December 17, 2008 4:24 PM
To: Chavez, Carl J, EMNRD
Cc: Perry, Mark; Patterson, Bob; Price, Wayne, EMNRD
Subject: FW: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)
Attachments: Carlsbad Brine Well Bore Sketch.pdf; Cavern Survey-Carlsbad Brine well.pdf

Carl,
Attached, please find the well bore sketch of the Carlsbad Brine Well and also a copy of the Sonarwire Cavern Survey performed on that well on April 2, 2008 in open hole and again on June 12, 2008 through 3-1/2" tubing. The pictures taken in both surveys were merged together to obtain a completed view of the well.
I know that Mark Phillliber sent you a copy of the complete survey. The second attachment is just the "picture page" taken from that survey for the purpose of reference in this description.

During normal operation of this brine well for the past several years, we would inject fresh water down the casing of this well and produce 10# brine back up the tubing into the surface facilities. On certain time intervals, we would reverse this flow and inject down the tubing and out the casing for the purpose of melting any salt rings or deposits in either string of pipe.

At the time of the surveys, we attempted to run the survey tools down the open hole and were unsuccessful due to the tools would "sit down" on ledges within the well bore and we were unable to reach TD. We came back later and ran 3-1/2" tubing into the well to be able to run the survey to TD. As you can imagine, with this larger size of tubing that we had to run into the well (to accommodate the survey tools), we had to drill this tubing down to the bottom. As we reached TD, we left the tubing sitting in place and did not attempt to circulate water through this tubing to produce the well. Sonarwire came in a day or two later and ran this survey. In other words, we never pumped fresh water around to wash this hole out in any way that might have altered the appearance of this survey. This survey show a washed out point at 679 to 685 that is approximately 80' wide and several other small openings that indicate a washed out area. The overall appearance of this brine cavity is that it is vertical and not much horizontal dimension is evident, but I feel it is entirely because of the fact that we were not able to see the cavern before we drilled the tubing down to TD. I have visited with Sean McCool with Sonarwire and he is in total agreement with this logic. Even the type of operation that we had utilizing one string of tubing would create some of this type of picture (where we pumped the fresh water down the casing and out the tubing). We have run another survey on a facility that we have in Snyder, Texas where we have two wells and we pump fresh water down the tubing of one well and produce out the tubing of the second well. This keeps all of the cavern growth down to the bottom of the salt section and gave a completely different type of picture than what we are seeing in the Carlsbad well. This type of set up is exactly what I am recommending to Key Energy. This would really keep the growth of the cavern down low and would not compromise the "over burden" by allowing growth at the top of the cavern. This is the same thing that we would like to do in replacing the well at Carlsbad is to drill two wells and produce through two different strings of tubing set low into the salt section and make the growth of the cavern stay as deep as possible. I would also recommend that within 6 months after drilling these two wells, that we would run cavern surveys on both wells and get a great deal better picture of the cavern surrounding the wells. There is probably no doubt in anyone's mind that after a period of time of producing like this that we would communicate back into the same area of the old Brine Well and that cavern could be surveyed more accurately than what we were able to do this time.

To discuss the wellbore sketch that is the first attachment, I wanted you to see just what that configuration looks like. We did set a bridge plug at 642 and the whipstock tools were set right above the Bridge Plug. We cut a window (top at 628 and the bottom at 635 and drilled the sidetrack hole down to a point where we entered the salt section. We then picked up our 2-7/8" tubing and drilled it one down to the bottom of the cavern and produced this way from 2003 (I think was the date) until Jan 2008 when we discovered the casing problem and began to try to squeeze. By producing this way, it is understandable that the cavern represented in the survey is actually higher than the original casing setting depth of 710' as you mentioned. AS we pumped fresh water down into that formation, wherever it found salt, it began to dissolve it and create a wash out. As you can see by the other smaller wash outs, there were other stringers of salt contacted by the fresh water as it traveled down hole.

I hope that this explains everything to your satisfaction. If you have other questions, please feel free to contact me and I can even set up conversations with Sean McCool himself and allow him to give you his expert opinion.

I look forward to hearing from you.
Loren

-----Original Message-----
From: Patterson, Bob
Sent: Wednesday, December 17, 2008 12:18 PM
To: Molleur, Loren
Cc: Alexander, Rex
Subject: FW: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

FYI

Bob Patterson | Key Energy Services, LLC | Area Manager, Trucking Division | O: 575.394.2586 | C: 575.631.7597
-----Original Message-----
From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, December 17, 2008 10:36 AM
To: Patterson, Bob
Cc: Price, Wayne, EMNRD; Guye, Gerry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Bob:

Re: BW-19 Sonar Test in Eddy County

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Website: http://www.emnrd.state.nm.us/ocd/index.htm
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From: Patterson, Bob [mailto:bpatterson@keyenergy.com]
Sent: Tuesday, December 16, 2008 1:47 PM
To: Price, Wayne, EMNRD; Chavez, Carl J, EMNRD; Molleur, Loren
Cc: Perry, Mark; Guye, Gerry, EMNRD; Hill, Larry, EMNRD

Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

BW-19 had a sonar, but was unable to get down casing on BW-9.

Bob Patterson | Key Energy Services, LLC | Area Manager, Trucking Division | O: 575.394.2586 | C: 575.631.7597

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From: Price, Wayne, EMNRD [mailto:wayne.price@state.nm.us]
Sent: Monday, December 15, 2008 10:59 AM
To: Patterson, Bob; Chavez, Carl J, EMNRD; Molleur, Loren
Cc: Perry, Mark; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

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To: Chavez, Carl J, EMNRD; Molleur, Loren
Cc: Perry, Mark; Price, Wayne, EMNRD; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

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Sent: Thursday, December 11, 2008 9:43 AM
To: Molleur, Loren
Cc: Patterson, Bob; Perry, Mark; Price, Wayne, EMNRD; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

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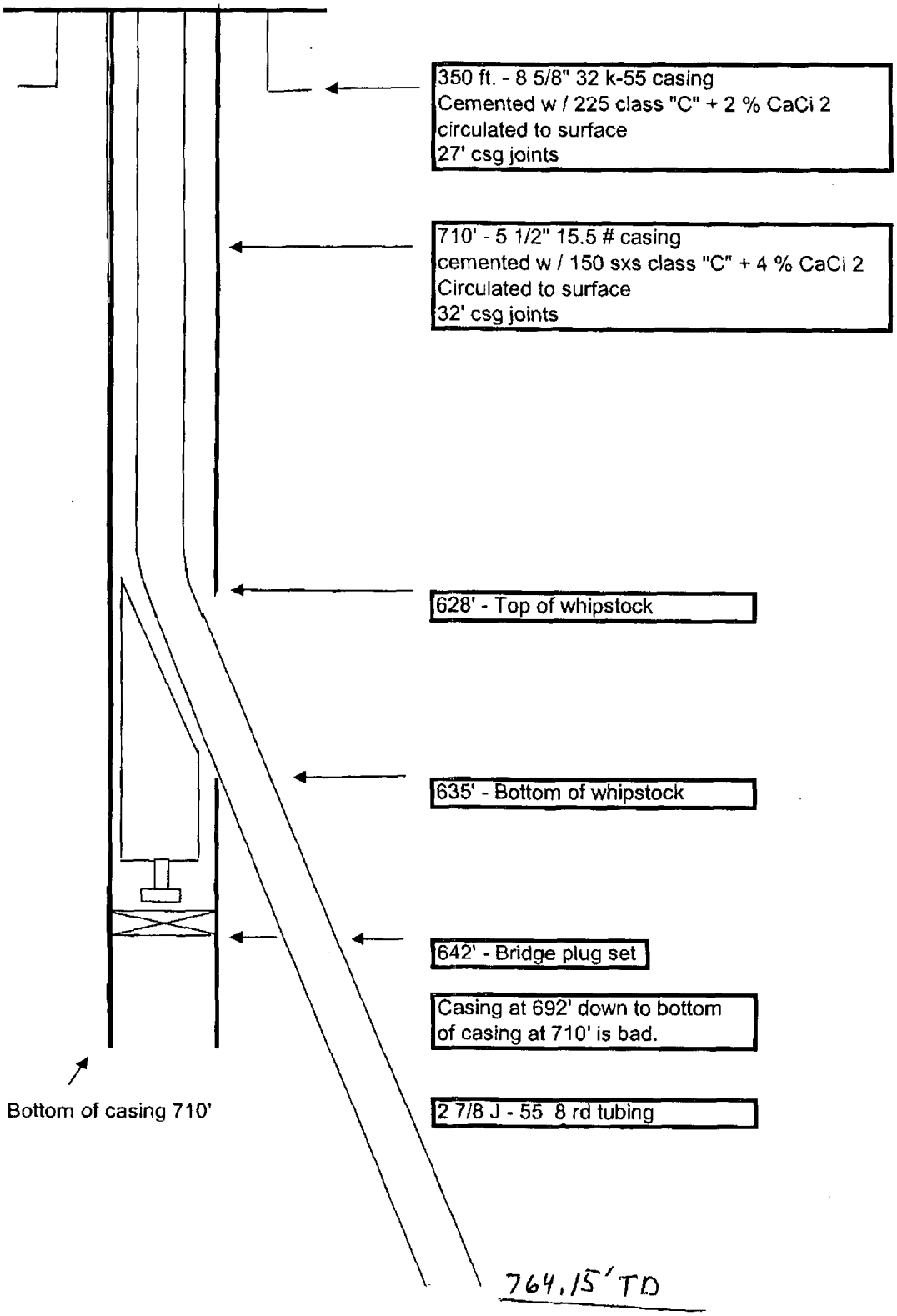
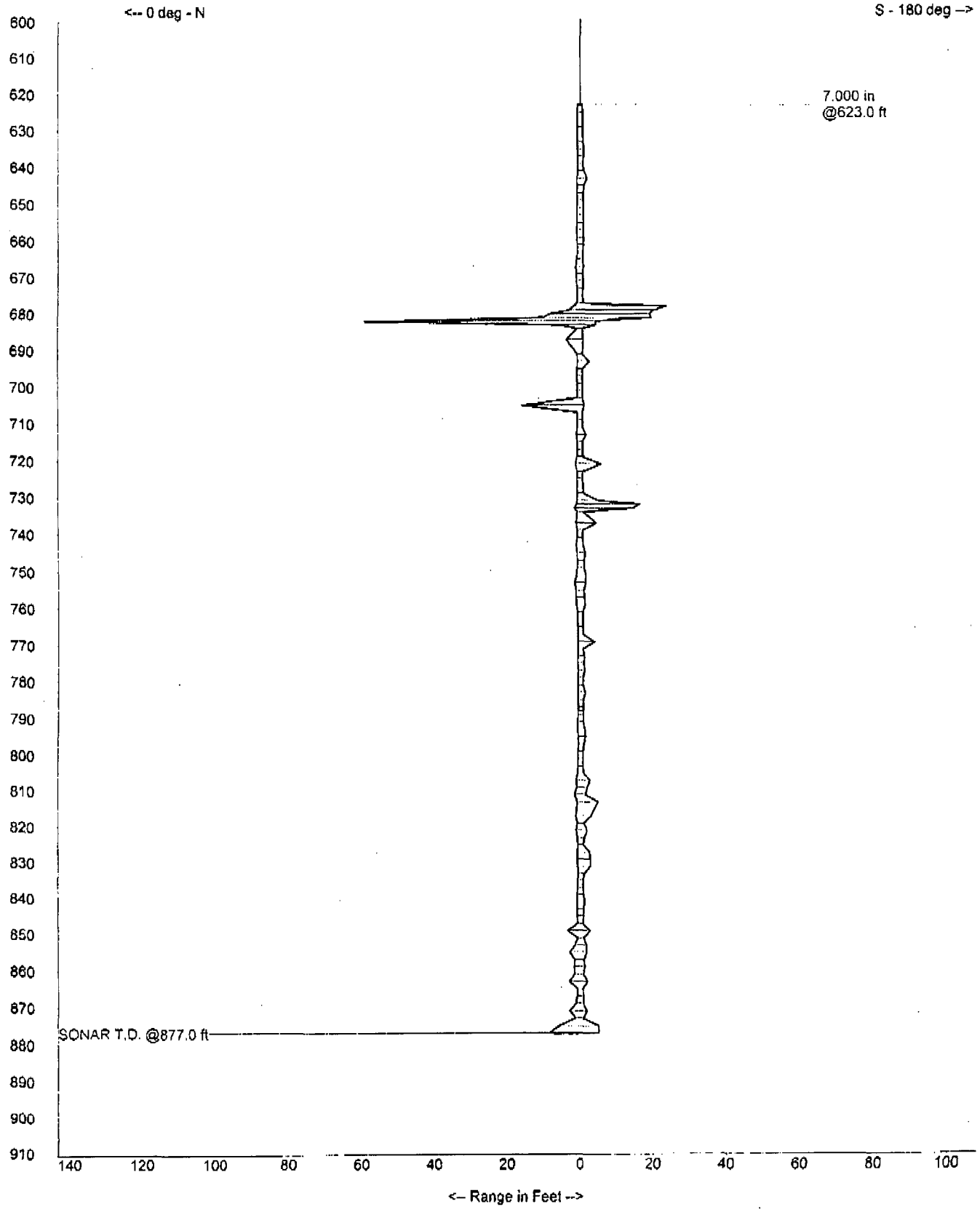

350 ft. - 8 5/8" 32 k-55 casing
Cemented w / 225 class "C" + 2 % CaCi 2
circulated to surface
27' csg joints
710' - 5 1/2" 15.5 # casing
cemented w / 150 sxs class "C" + 4 % CaCi 2
Circulated to surface
32' csg joints
628' - Top of whipstock
635' - Bottom of whipstock
642' - Bridge plug set
Casing at 692' down to bottom
of casing at 710' is bad.
Bottom of casing 710'
2 7/8 J - 55 8 rd tubing
764.15' TD

KEY ENERGY SERVICES
CARLSBAD, NM

SONARWIRE, INC
Vertical Cross Section

BRINE WELL NO. 1
Wed, Apr 2, 2008



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Sent: Wednesday, December 17, 2008 10:36 AM
To: 'Patterson, Bob'
Cc: Price, Wayne, EMNRD; Guye, Gerry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

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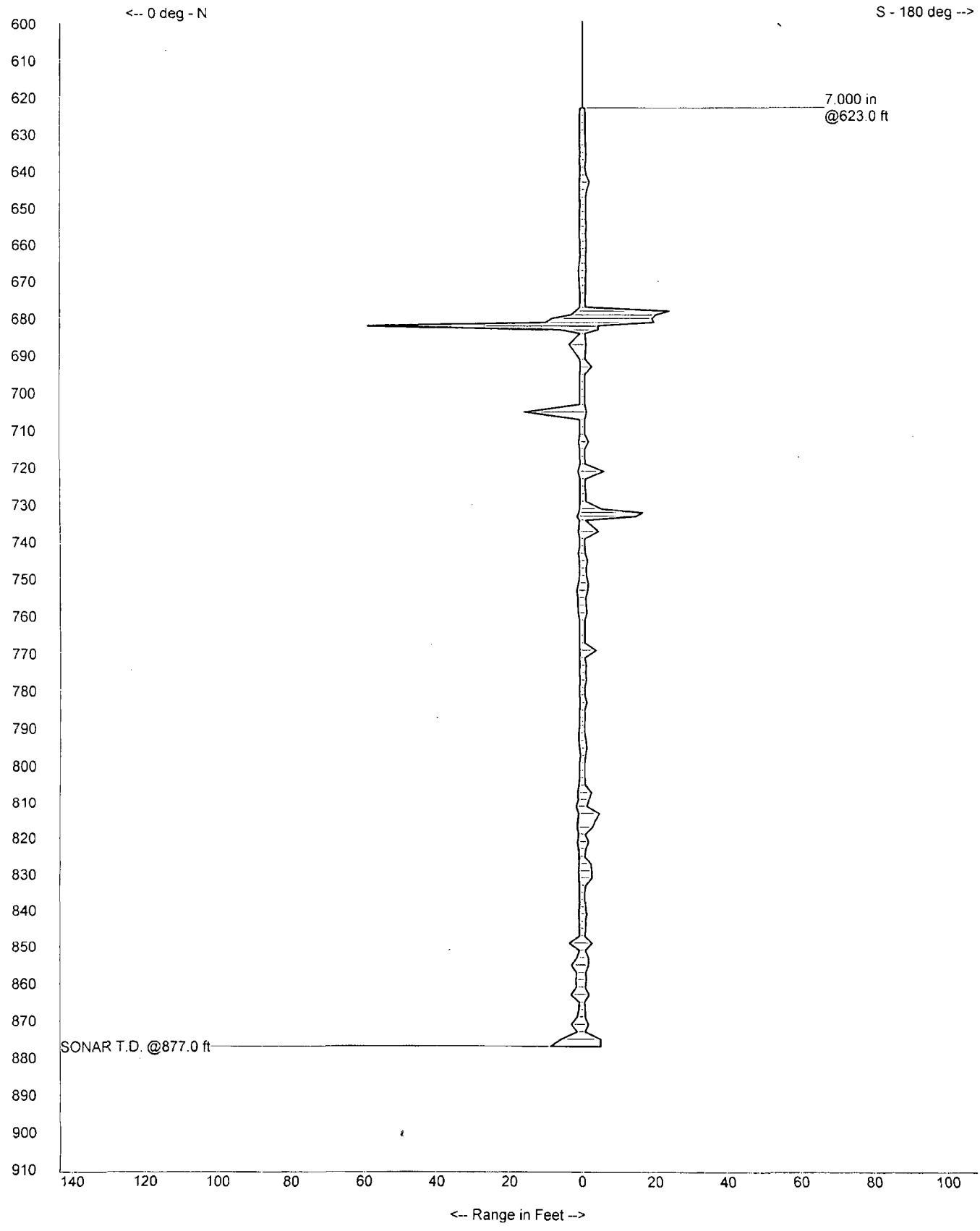
KEY ENERGY SERVICES
CARLSBAD, NM

SONARWIRE, INC
Vertical Cross Section

BRINE WELL NO. 1
Wed, Apr 2, 2008



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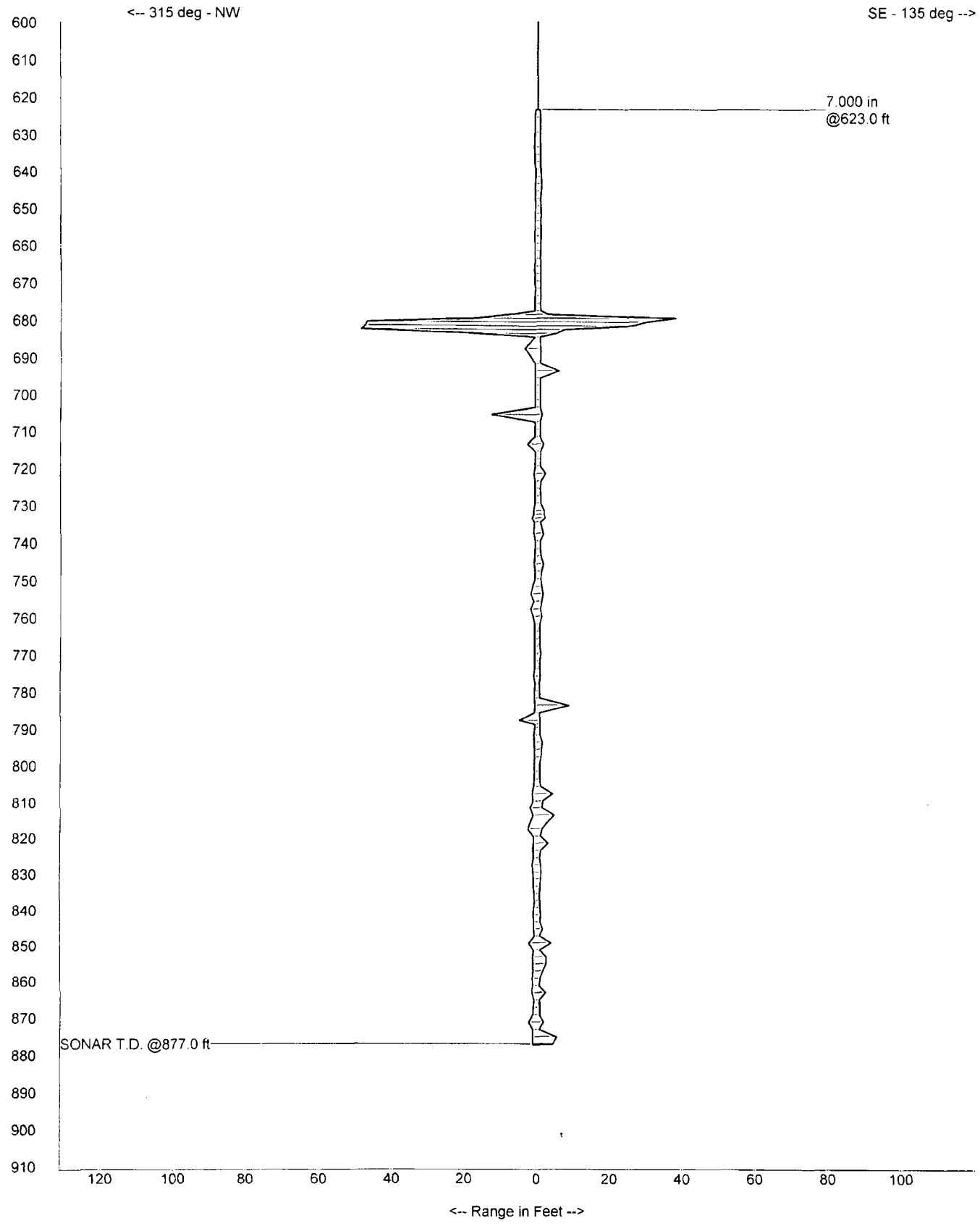

KEY ENERGY SERVICES
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Vertical Cross Section

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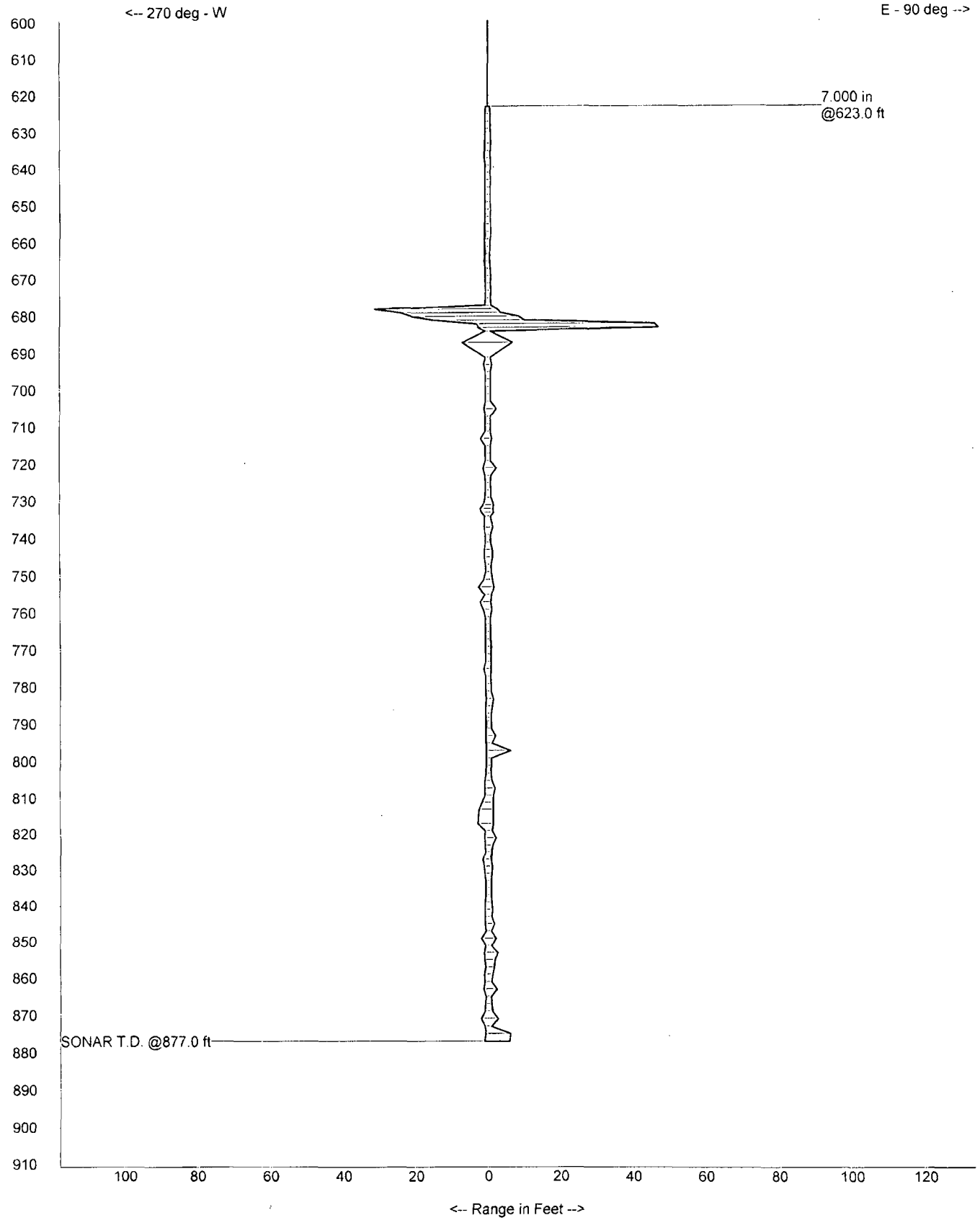

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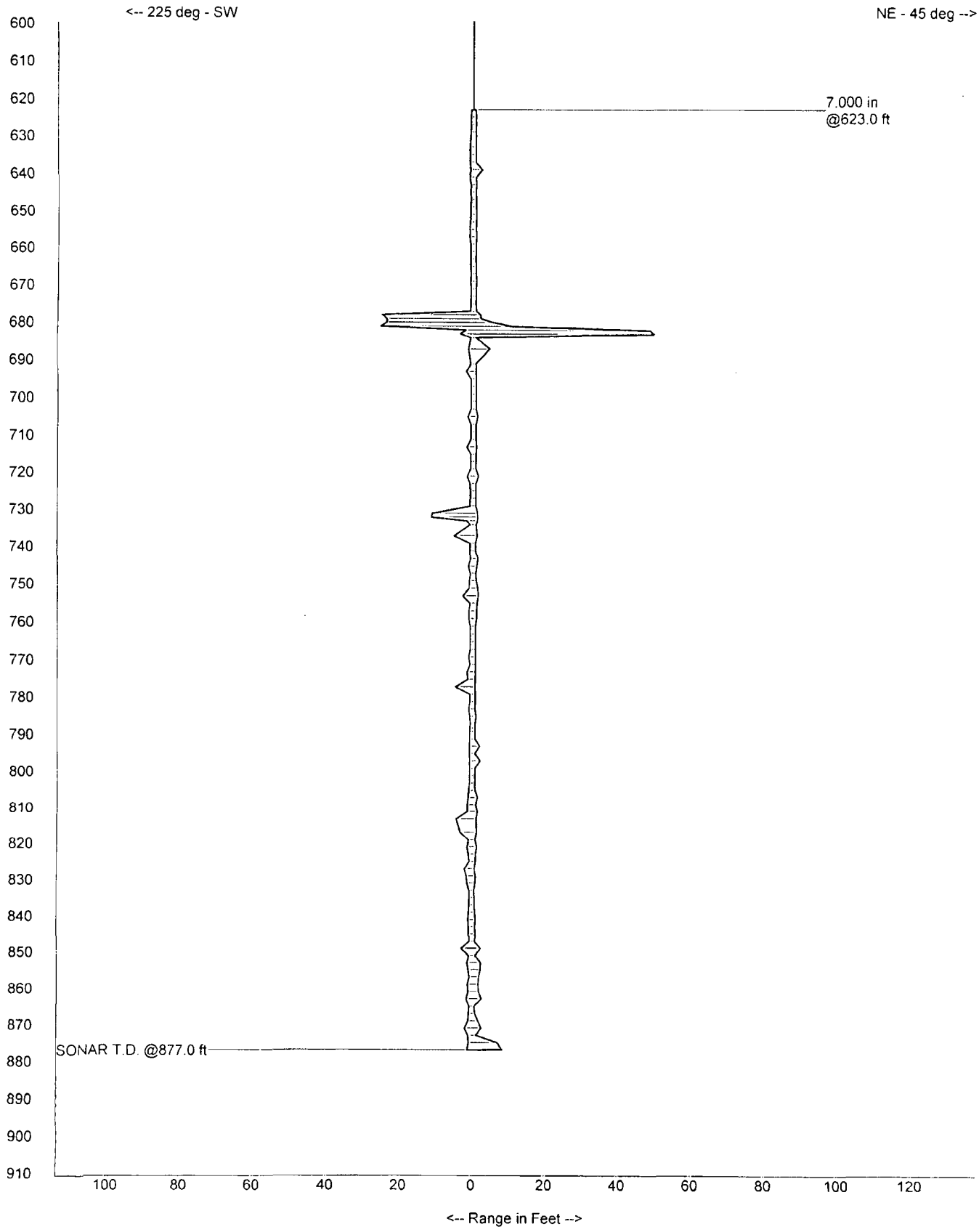
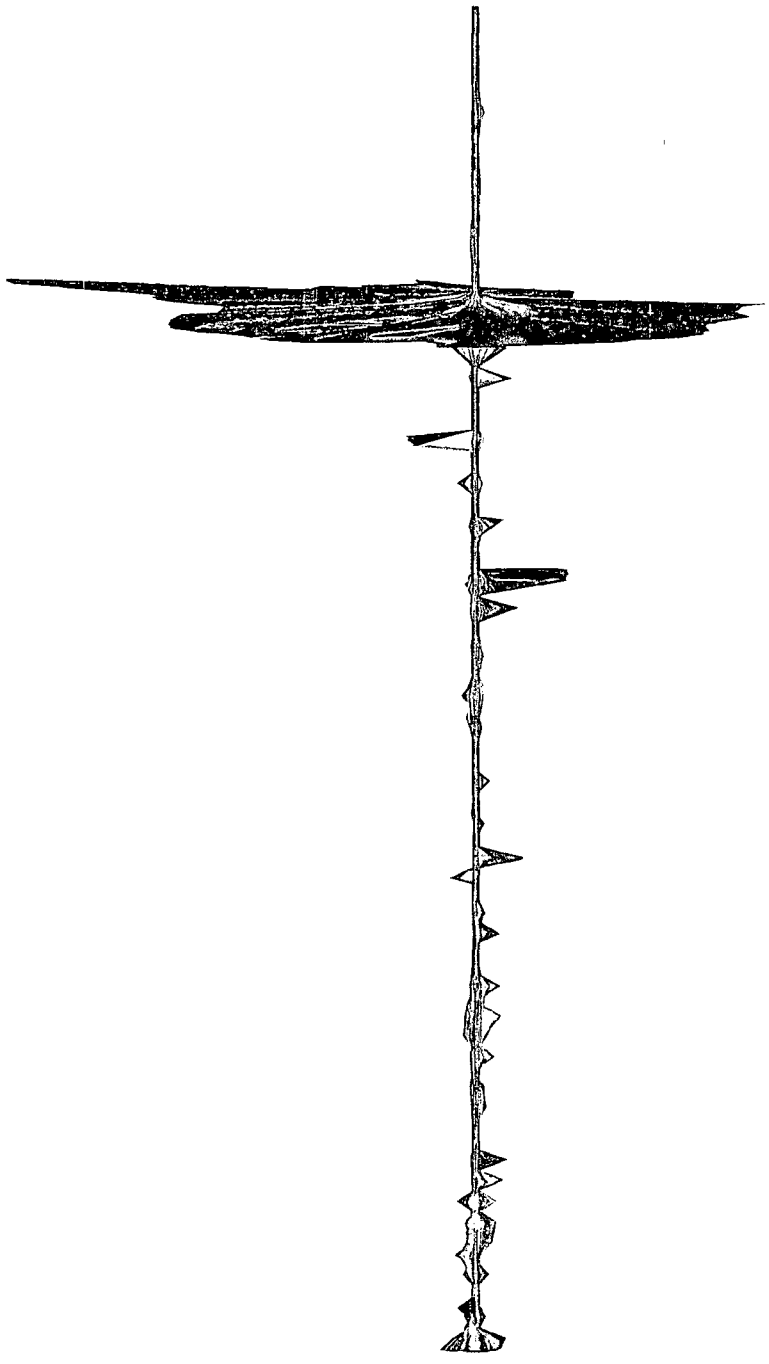


3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

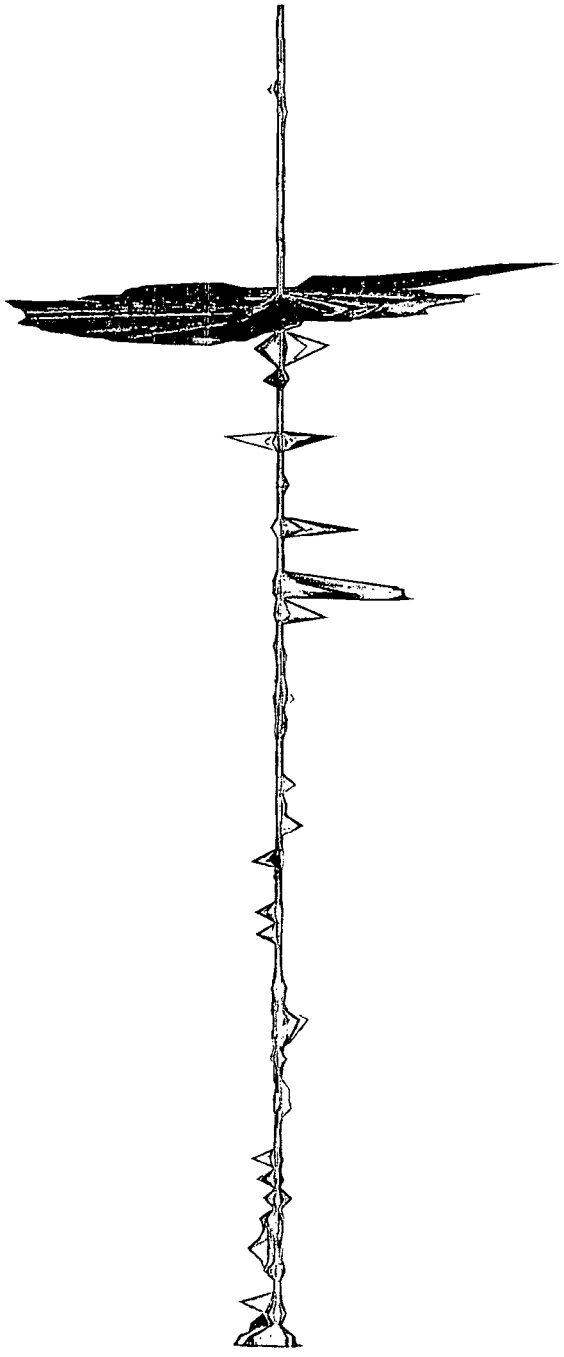
VIEWING AZIMUTH: 45
AXIS TILT: -5 DEGS



3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

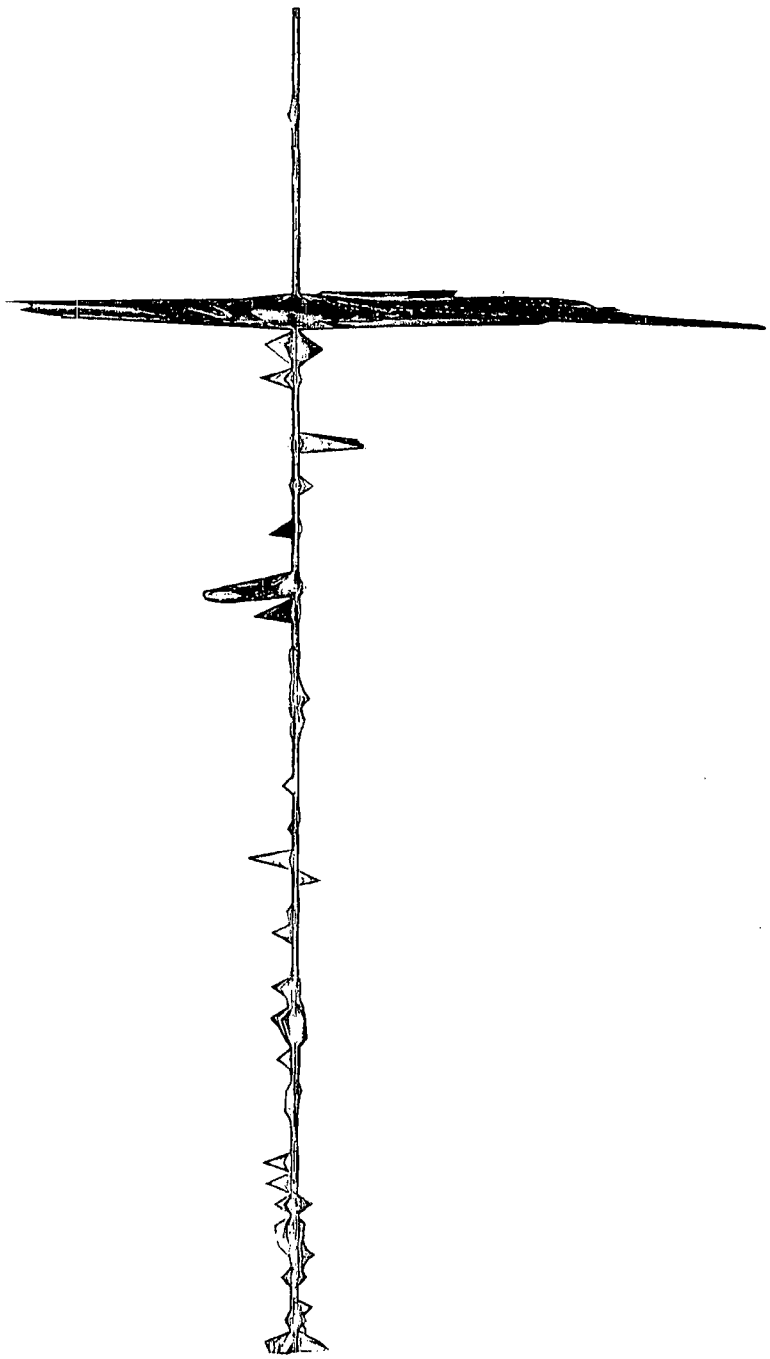
VIEWING AZIMUTH: 135
AXIS TILT: -5 DEGS



3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

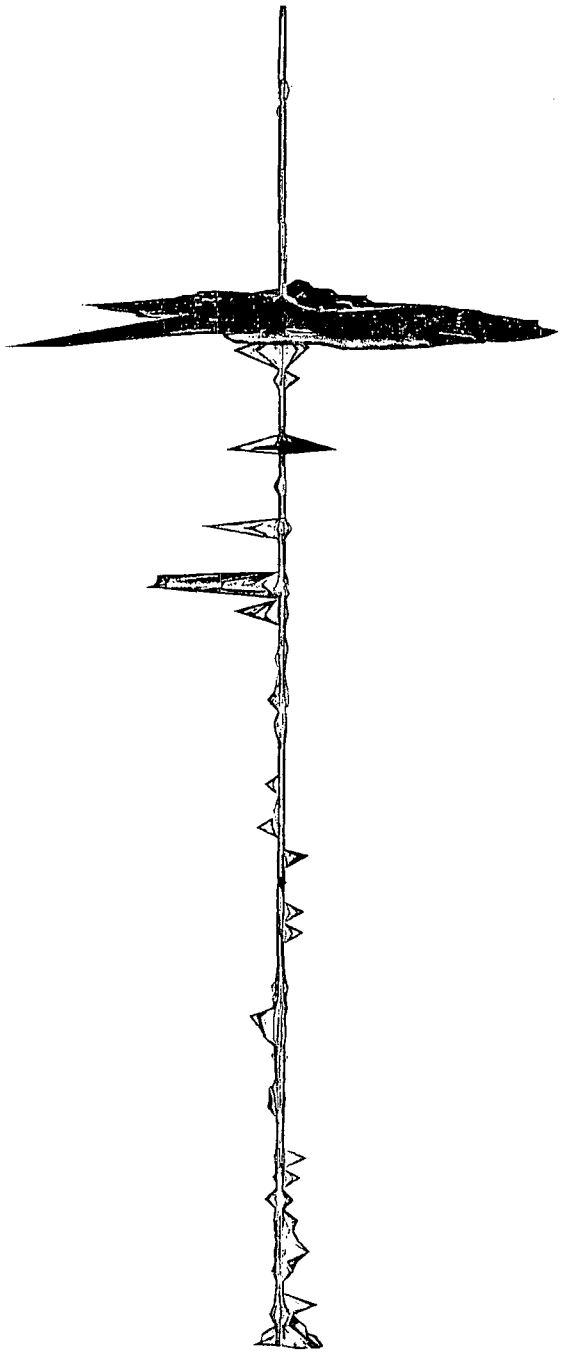
VIEWING AZIMUTH: 225
AXIS TILT: -5 DEGS



3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

VIEWING AZIMUTH: 315
AXIS TILT: -5 DEGS



Chavez, Carl J, EMNRD

From: Patterson, Bob [bpatterson@keyenergy.com]
Sent: Saturday, December 13, 2008 11:44 AM
To: Chavez, Carl J, EMNRD; Molleur, Loren
Cc: Perry, Mark; Price, Wayne, EMNRD; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: RE: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Carl,
I have BW-9 set up with Key's plugging department. They are currently working on a four well plugging package and will plug the BW-9 as soon as they complete that package, but cannot guarantee it will be before December 31. I have also contracted John West Engineering to provide a proposal for the NMOCD on subsidence monitoring for the BW-9 and BW-19.

Bob Patterson | Key Energy Services, LLC | Area Manager, Trucking Division | O: 575.394.2586 | C: 575.631.7597

-----Original Message-----
From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, December 11, 2008 9:43 AM
To: Molleur, Loren
Cc: Patterson, Bob; Perry, Mark; Price, Wayne, EMNRD; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Mr. Molleur:

Re: BW-9 and BW-19 Final C-103 Plug & Abandonment Status

Owner/Operator	Well Name	BW	API#	Location	Co.	PA Statu
KEY ENERGY SERVICES, LLC	SIMS-MCCASLAND BRINE -EUNICE (GP-Sims #2)	BW-9	30-025-25525	(UL-A)32-21S-37E	Lea	PA: 11-3 08
EY ENERGY SERVICES, LLC.	KEY TRUCKERS BRINE -CARLSBAD	BW-19	30-015-21842	(UL-H)36-22S-26E	Eddy	Awaiting final C-1C

Please find below the status of plug and abandonment (PA) on the above listed wells.

BW-9: OCD sent an e-mail dated 10/7/2008 w/ signed C-103 dated 10/7/2008 with conditions for approval of the PA to Mark Phillber of Key. On 12/4/2008, during our most recent telephone conference call, the OCD was informed that a sonar test could not be run. Under the OCD C-103 PA conditions of approval, "if a sonar test cannot be run, the OCD requires a closure plan for the facility including ground water (if applicable), seismic and subsidence monitoring for 30 years; time-frame for equipment decommissioning/site restoration; and financial assurance to ensure that the above is completed." In addition, "at least 290 sacks of Class "C" Cement from the CIBP settting depth of 1154 to surface is required." Based on the recent information provided by Key during the telephone conference call that the well could not be sonar tested, the OCD is currently waiting for the well to be PA'd before December 31, 2008 with submittal of a final C-103 addressing the OCD conditions of approval. The final C-103 is currently unapproved by the OCD until the conditions of approval are satisfied.

BW-19: According to the telephone conference call of 12/4/2008, the OCD was informed that the well had been PA'd and that the final C-103 dated 11/3/2008 was posted on the OCD website. The OCD was also informed that a sonar test could not be run. Under the OCD C-103 PA conditions of approval, "if a sonar cannot be run, then OCD will require seismic and subsidence montoring and will require additional financial assurance." Based on the recent information provided by Key during the telephone conference call that the well could not be sonar tested, the OCD is currently waiting for Key to address the OCD final C-103 conditions of approval. The final C-103 is currently unapproved by the OCD until the conditions of approval are satisfied.

My Supervisor, Mr. Wayne Price will be in the office next week. Please contact me next week to discuss any questions you may have on obtaining a final OCD signed and approved C-103 PA for the above listed wells. I have forwarded some guidance on Monument Well construction to Mr. Bob Patterson for subsidence monitoring. I have requested from other brine well operators that they seek out information on seismic monitors and to propose a seismic monitoring program to the OCD.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, December 11, 2008 9:43 AM
To: 'Molleur, Loren'
Cc: 'Patterson, Bob'; 'Perry, Mark'; Price, Wayne, EMNRD; Guye, Gerry, EMNRD; Hill, Larry, EMNRD
Subject: Key Energy Services, L.L.C. Status of Plug & Abandonment of BWs 9 API# 30-025-25525 (Lea County) & 19 API# 30-015-21842 (Eddy County)

Mr. Molleur:

Re: BW-9 and BW-19 Final C-103 Plug & Abandonment Status

Owner/Operator	Well Name	BW	API#	Location	Co.	PA Statu
KEY ENERGY SERVICES, LLC	SIMS-MCCASLAND BRINE -EUNICE (GP-Sims #2)	BW-9	30-025-25525	(UL-A)32-21S-37E	Lea	PA: 11-3 08
EY ENERGY SERVICES, LLC.	KEY TRUCKERS BRINE -CARLSBAD	BW-19	30-015-21842	(UL-H)36-22S-26E	Eddy	Awaiting final C-1C

Please find below the status of plug and abandonment (PA) on the above listed wells.

BW-9: OCD sent an e-mail dated 10/7/2008 w/ signed C-103 dated 10/7/2008 with conditions for approval of the PA to Mark Phillber of Key. On 12/4/2008, during our most recent telephone conference call, the OCD was informed that a sonar test could not be run. Under the OCD C-103 PA conditions of approval, "if a sonar test cannot be run, the OCD requires a closure plan for the facility including ground water (if applicable), seismic and subsidence monitoring for 30 years; time-frame for equipment decommissioning/site restoration; and financial assurance to ensure that the above is completed." In addition, "at least 290 sacks of Class "C" Cement from the CIBP settting depth of 1154 to surface is required." Based on the recent information provided by Key during the telephone conference call that the well could not be sonar tested, the OCD is currently waiting for the well to be PA'd before December 31, 2008 with submittal of a final C-103 addressing the OCD conditions of approval. The final C-103 is currently unapproved by the OCD until the conditions of approval are satisfied.

BW-19: According to the telephone conference call of 12/4/2008, the OCD was informed that the well had been PA'd and that the final C-103 dated 11/3/2008 was posted on the OCD website. The OCD was also informed that a sonar test could not be run. Under the OCD C-103 PA conditions of approval, "if a sonar cannot be run, then OCD will require seismic and subsidence montoring and will require additional financial assurance." Based on the recent information provided by Key during the telephone conference call that the well could not be sonar tested, the OCD is currently waiting for Key to address the OCD final C-103 conditions of approval. The final C-103 is currently unapproved by the OCD until the conditions of approval are satisfied.

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Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491

Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, October 14, 2008 10:13 AM
To: 'Patterson, Bob'
Cc: Philliber, Mark; Price, Wayne, EMNRD; Sanchez, Daniel J., EMNRD; Macquesten, Gail, EMNRD; Gum, Tim, EMNRD
Subject: FW: Key Energy Services, LLC. BW-19 C-103 PA Approval
Attachments: BW-19 PA Approval 2-19-08.tif

Bob:

The Oil Conservation Division (OCD) is writing to request the status of the plug and abandonment of BW-19 in Carlsbad, NM. OCD records indicate that Wayne Price (OCD) signed a C-103 form approving the plug and abandonment of BW-19 on February 19, 2008.

Has the well been plugged and abandoned according to the signed C-103? If so, please update the OCD on the plug and abandonment and submit the final C-103 to me by close of business October 16, 2008. If the well has not been plugged and abandoned in accordance with the signed C-103, then Key Energy Services LLC is out of compliance with the USEPA 90 day corrective action period and has 60 days from today's date to plug and abandon the well in accordance with the C-103. In addition, the OCD requires the following for BW-19:

C-103 City of Carlsbad Well No. 1 (BW-19)
API# 30-015-21842
Conditions of Approval

1) A sonar test of the salt cavern is required in advance of plugging and abandoning the well. If a Sonar cannot be run, then OCD will require seismic and subsidence monitor and will require additional financial assurance.

2) Cavern must be filled with brine water in advance of plugging and abandonment operations.

3) Cement must be pressure grouted from bottom to top or surface under adequate pressure. Class "C" Cement from CIBP Setting Depth to surface is required.

4) Install a plug and abandonment marker.

5) Final C-103 Form shall be submitted within 30 days of plug and abandonment with final construction details.

The above plug and abandonment work must be completed within 60 days of the date of this message. Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Tuesday, February 19, 2008 8:36 AM
To: 'Patterson, Bob'
Cc: Price, Wayne, EMNRD; Gum, Tim, EMNRD

BW - ____19____

GENERAL CORRESPONDENCE

YEAR(S):

2007 - Present

Subject: Key Energy Services, LLC. BW-19 C-103 PA Approval

Bob:

Please find attached OCD approval from Mr. Wayne Price (Environmental Bureau Chief) dated 2/19/2008 on Key Energy Services, LLC (Key) C-103 for Brine Well 19 (API# 30-015-21842). Please submit the final report within 30 days of completion of field work.

Also, Key will need to submit an APD to OCD Santa Fe with a copy to the OCD Artesia District Office for the new UIC Class III replacement brine well. We will need a bond in place for the new well. Perhaps a Rider to the existing $50K bond with the new API# and well name, etc. would work. Key will need an API# for the new bond or bond rider. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

BW-19

Form C-103
May 27, 2004

WELL API NO.
30-015-21842

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
City of Carlsbad

1. Type of Well: Oil Well ☐ Gas Well ☐ Other **Brine**

8. Well Number
1

2. Name of Operator
Key Energy Services, LLC

9. OGRID Number

3. Address of Operator
6 Desta Drive, Suite 4400, Midland, Texas 79705

10. Pool name or Wildcat
Brine Mining Well

4. Well Location
Unit Letter **H**, **2420** feet from the **North** line and **330** feet from the **East** line
Section **36** Township **22S** Range **26E** NMPM **Lea** County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐ **Not applicable**

Pit type_____ Depth to Groundwater_____ Distance from nearest fresh water well_____ Distance from nearest surface water_____

Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☒	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

See Attached wellbore diagram for details.
Key Energy plans to plug and abandon this well. The well is a brine well under Permit# M19264. Key Energy will drill a new brine well nearby into the same salt section at a future date. The salt section is from 710 to 930'.
In early 2008, four separate attempts to squeeze a casing leak between 95-105' were performed. The last attempt pumped 59 bbls of cement at an AIR of 0.8 bpm, AIP 1250 psi. After drilling out cement a pressure test of 300 psi bled back to 200 psi in 5 minutes. A subsequent temperature survey showed the squeeze cement to be positioned outside casing from 70-160 feet.
Proposed P&A procedure:
Set cement retainer at 600' (whipstock top at 628')
Pump 100 sx of Class C cement below retainer.
POOH to 100 feet, place cement plug from 100-600 feet. WOC. Tag top of cement plug.
Pump cement to fill casing to surface. Repeat, if necessary, until TOC remains at surface.
Cut off casing stubs, place P&A marker.

RECEIVED
2008 FEB 13 PM 3 38

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE _____ TITLE **Agent for Key Energy** DATE **2-7-2008**

Type or print name
For State Use Only

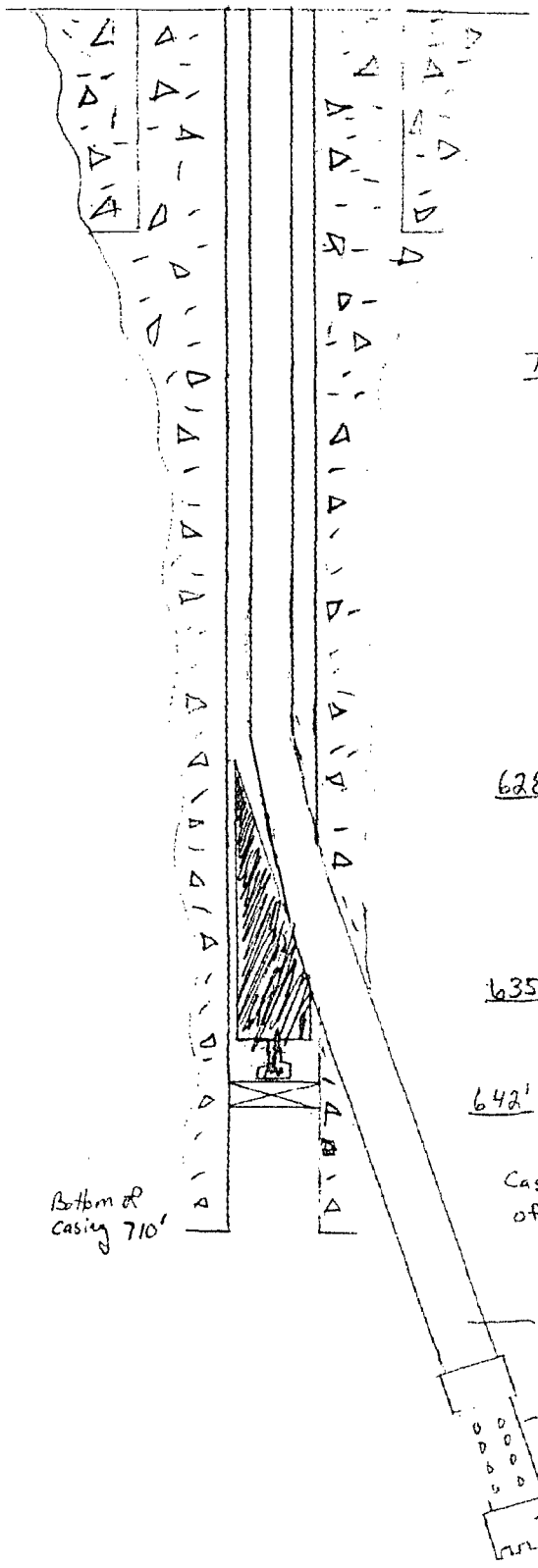
COPY

E-mail address: Telephone No.

→ORIG TO ARTESIA DISTRICT

APPROVED BY: _____ TITLE ENVT BUREAU CHIEF DATE 2/19/08
Conditions of Approval (if any):

City of Carlsbad #1
Truckers Drive
Current Wellbore Status
4-25-03



350' - 8⅝" 32# J-55 Csg
Cemented w/ 255 sxs Class "C" + 4% CaCl2
Circulated to surface
27' csg joints

710' - 5½" 15.5# Csg
Cemented w/ 150 sxs Class "C" + 4% CaCl2
Circulated to surface
32' csg joints

628' - Top of whipstock

635' - Bottom of whipstock

642' - Bridge plug set

Casing at 692' down to bottom of csg at 710' is bad

Bottom of casing 710'

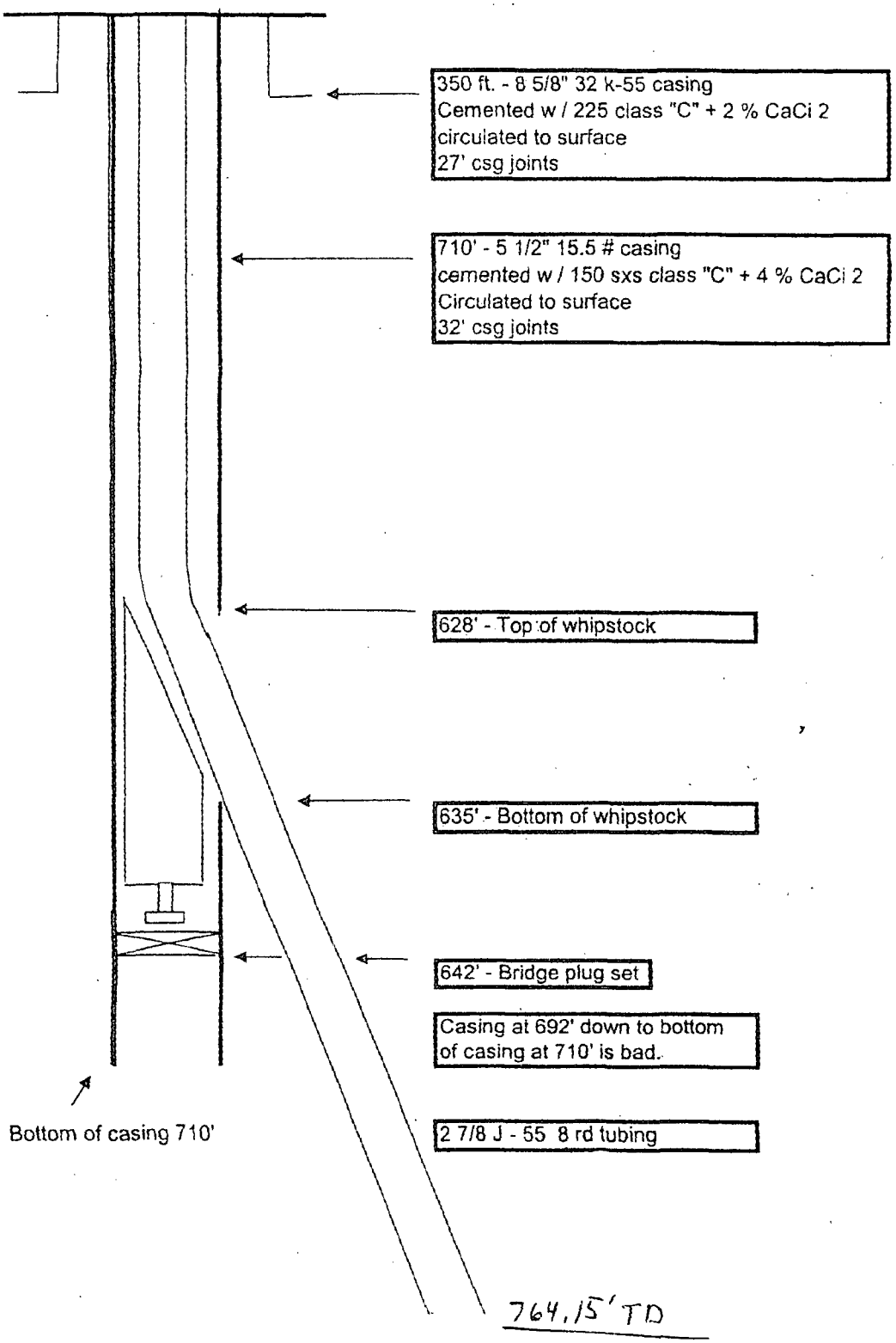
2⅞ J-55 8rd tubing

8' Perforated sub

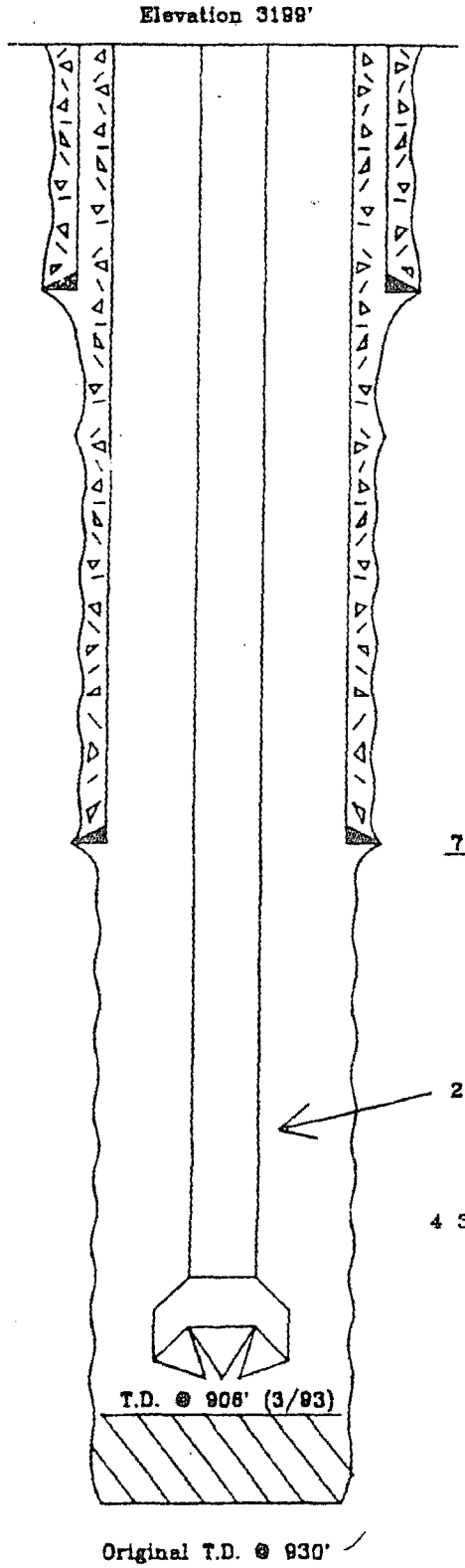
SLotted collar

764.15' TD

Key Energy Services
City of Carlsbad well #1
2420' FNL & 330' FEL
S 36 T 22S R 26E ULH
Eddy Co. New Mexico


350 ft. - 8 5/8" 32 k-55 casing
Cemented w / 225 class "C" + 2 % CaCi 2
circulated to surface
27' csg joints
710' - 5 1/2" 15.5 # casing
cemented w / 150 sxs class "C" + 4 % CaCi 2
Circulated to surface
32' csg joints
628' - Top of whipstock
635' - Bottom of whipstock
642' - Bridge plug set
Casing at 692' down to bottom
of casing at 710' is bad.
Bottom of casing 710'
2 7/8 J - 55 8 rd tubing
764.15' TD

Current Wellbore Status
3/25/93



350' – 8 5/8", 32#, K-55 Casing
Cemented w/225 sxs Class "C" + 2% CaCl2
Circulated cement to surface

710' – 5 1/2", 15.5#, Casing
Cemented w/150 sxs Class "C" + 4% CaCl2
Circulated 15 sxs to surface

2 7/8", 6.5#, 8rd tubing @ 886'
with 4 3/4" bit welded on bottom collar

4 3/4" Hole

Original T.D. @ 930'

ROWLAND TRUCKING, INC.
City of Carlsbad Well No. 1
2420' FNL & 330' FEL
Section 36, T-22S, R-26E
Eddy County, New Mexico

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, October 14, 2008 10:13 AM
To: 'Patterson, Bob'
Cc: Philliber, Mark; Price, Wayne, EMNRD; Sanchez, Daniel J., EMNRD; Macquesten, Gail, EMNRD; Gum, Tim, EMNRD
Subject: FW: Key Energy Services, LLC. BW-19 C-103 PA Approval
Attachments: BW-19 PA Approval 2-19-08.tif

Bob:

The Oil Conservation Division (OCD) is writing to request the status of the plug and abandonment of BW-19 in Carlsbad, NM. OCD records indicate that Wayne Price (OCD) signed a C-103 form approving the plug and abandonment of BW-19 on February 19, 2008.

Has the well been plugged and abandoned according to the signed C-103? If so, please update the OCD on the plug and abandonment and submit the final C-103 to me by close of business October 16, 2008. If the well has not been plugged and abandoned in accordance with the signed C-103, then Key Energy Services LLC is out of compliance with the USEPA 90 day corrective action period and has 60 days from today's date to plug and abandon the well in accordance with the C-103. In addition, the OCD requires the following for BW-19:

C-103 City of Carlsbad Well No. 1 (BW-19)
API# 30-015-21842
Conditions of Approval

1) A sonar test of the salt cavern is required in advance of plugging and abandoning the well. If a Sonar cannot be run, then OCD will require seismic and subsidence monitor and will require additional financial assurance.

2) Cavern must be filled with brine water in advance of plugging and abandonment operations.

3) Cement must be pressure grouted from bottom to top or surface under adequate pressure. Class "C" Cement from CIBP Setting Depth to surface is required.

4) Install a plug and abandonment marker.

5) Final C-103 Form shall be submitted within 30 days of plug and abandonment with final construction details.

The above plug and abandonment work must be completed within 60 days of the date of this message. Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Tuesday, February 19, 2008 8:36 AM
To: 'Patterson, Bob'
Cc: Price, Wayne, EMNRD; Gum, Tim, EMNRD

Subject: Key Energy Services, LLC. BW-19 C-103 PA Approval

Bob:

Please find attached OCD approval from Mr. Wayne Price (Environmental Bureau Chief) dated 2/19/2008 on Key Energy Services, LLC (Key) C-103 for Brine Well 19 (API# 30-015-21842). Please submit the final report within 30 days of completion of field work.

Also, Key will need to submit an APD to OCD Santa Fe with a copy to the OCD Artesia District Office for the new UIC Class III replacement brine well. We will need a bond in place for the new well. Perhaps a Rider to the existing $50K bond with the new API# and well name, etc. would work. Key will need an API# for the new bond or bond rider. Thank you.

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District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

BW-19

Form C-103
May 27, 2004

WELL API NO.
30-015-21842

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
City of Carlsbad

1. Type of Well: Oil Well ☐ Gas Well ☐ Other **Brine**

8. Well Number
1

2. Name of Operator
Key Energy Services, LLC

9. OGRID Number

3. Address of Operator
6 Desta Drive, Suite 4400, Midland, Texas 79705

10. Pool name or Wildcat
Brine Mining Well

4. Well Location
Unit Letter **H**, **2420** feet from the **North** line and **330** feet from the **East** line
Section **36** Township **22S** Range **26E** NMPM **Lea** County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐ **Not applicable**

Pit type_____ Depth to Groundwater_____ Distance from nearest fresh water well_____ Distance from nearest surface water_____

Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☒	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:	☐			OTHER:	☐		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

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Key Energy plans to plug and abandon this well. The well is a brine well under Permit# M19264. Key Energy will drill a new brine well nearby into the same salt section at a future date. The salt section is from 710 to 930'.
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POOH to 100 feet, place cement plug from 100-600 feet. WOC. Tag top of cement plug.
Pump cement to fill casing to surface. Repeat, if necessary, until TOC remains at surface.
Cut off casing stubs, place P&A marker.

RECEIVED
2008 FEB 13 PM 3 39

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SIGNATURE _____ TITLE **Agent for Key Energy** DATE **2-7-2008**

Type or print name
For State Use Only

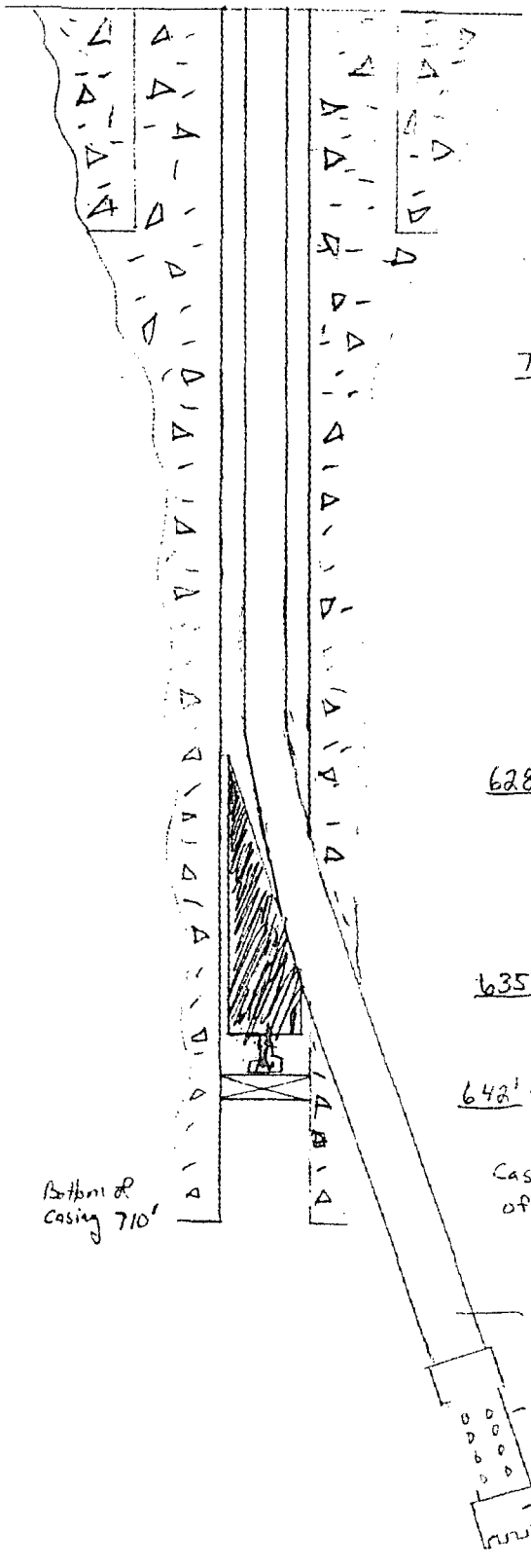
COPY

E-mail address: Telephone No.

→ORIG TO ARTESIA DISTRICT

APPROVED BY: _____ TITLE ENVT BUREAU CHIEF DATE 2/19/08
Conditions of Approval (if any):

City of Carlsbad #1
Trident's Brine Station
Current Wellbore Status
4-25-03



350' - 8⅝" 32# J-55 Csg
Cemented w/ 150 sxs Class "C" + 4% CaCl2
Circulated to surface
27' csg joints

710' - 5½" 15.5# Csg
Cemented w/ 150 sxs Class "C" + 4% CaCl2
Circulated to surface
32' csg joints

628' - Top of whipstock

635' - Bottom of whipstock

642' - Bridge plug set

Casing at 692' down to bottom of csg at 710' is bad

Bottom of casing 710'

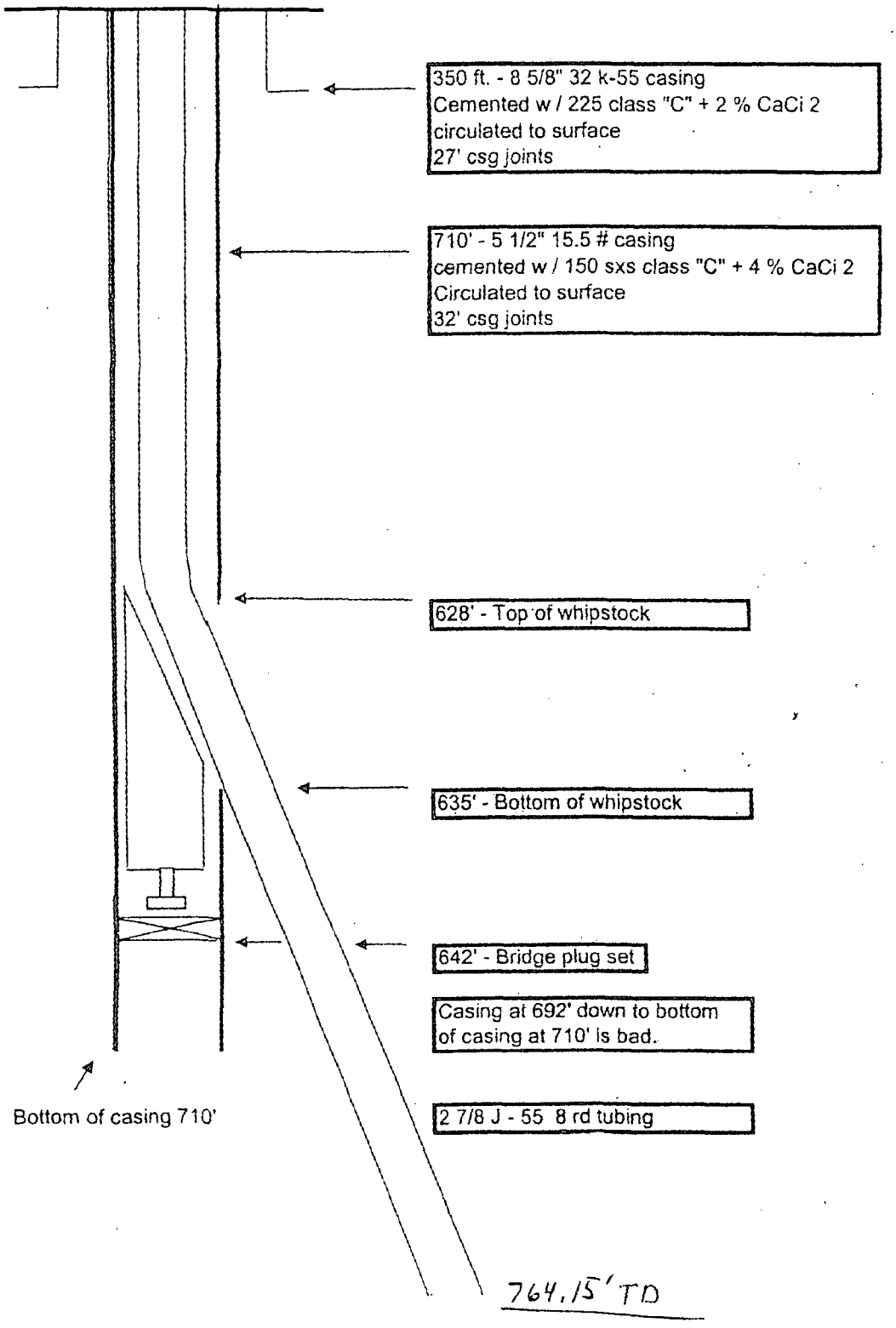
2⅞ J-55 8rd tubing

8' Perforated sub

SLotted collar

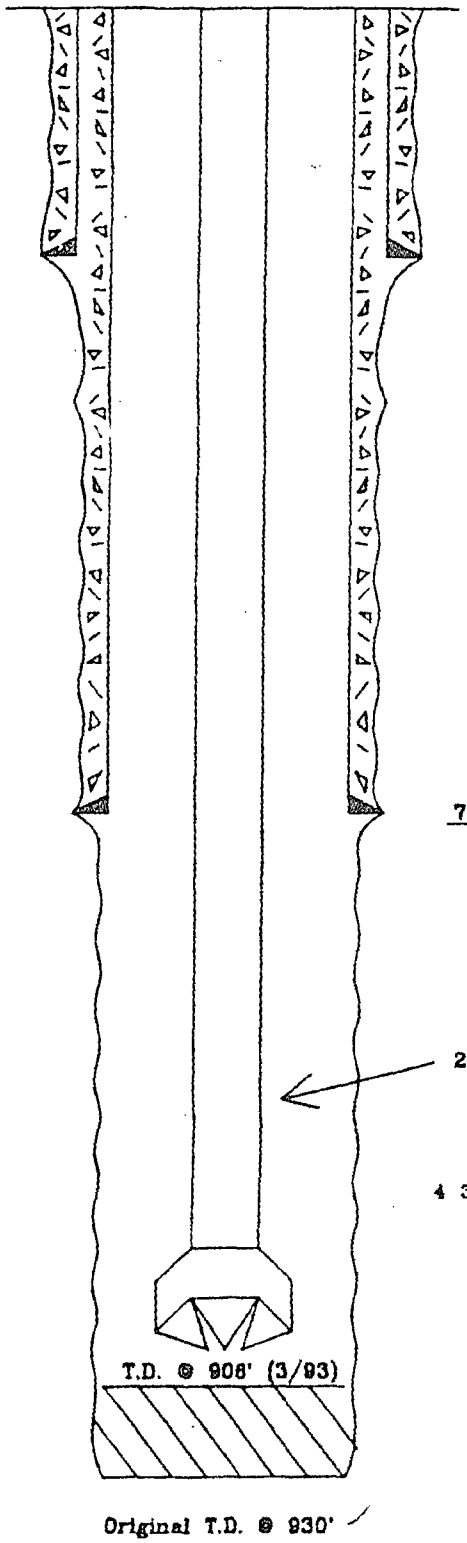
764.15' TD

Key Energy Services
City of Carlsbad well #1
2420' FNL & 330' FEL
S 36 T 22S R 26E ULH
Eddy Co. New Mexico


350 ft. - 8 5/8" 32 k-55 casing
Cemented w / 225 class "C" + 2 % CaCi 2
circulated to surface
27' csg joints
710' - 5 1/2" 15.5 # casing
cemented w / 150 sxs class "C" + 4 % CaCi 2
Circulated to surface
32' csg joints
628' - Top of whipstock
635' - Bottom of whipstock
642' - Bridge plug set
Casing at 692' down to bottom
of casing at 710' Is bad.
2 7/8 J - 55 8 rd tubing
Bottom of casing 710'
764.15' TD

Current Wellbore Status

3/25/93



350' – 8 5/8", 32#, K-55 Casing
Cemented w/225 sxs Class "C" + 2% CaCl2
Circulated cement to surface

710' – 5 1/2", 15.5#, Casing
Cemented w/150 sxs Class "C" + 4% CaCl2
Circulated 15 sxs to surface

2 7/8", 6.5#, 8rd tubing @ 886'
with 4 3/4" bit welded on bottom collar

4 3/4" Hole

ROWLAND TRUCKING, INC.
City of Carlsbad Well No. 1
2420' FNL & 330' FEL
Section 36, T-22S, R-26E
Eddy County, New Mexico

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, October 10, 2008 11:26 AM
To: 'Shelton, Jack'; Price, Wayne, EMNRD
Cc: Philliber, Mark; Gum, Tim, EMNRD
Subject: RE: Key Energy Brine well PA

Mr. Shelton:

Re:

KEY ENERGY SERVICES, LLC.	KEY TRUCKERS BRINE - CARLSBAD	BW-19	30-015-21842	N 32 20' 56.71" W 104 14' 12.93"	(UL-H) 36-22S-26E	Eddy

The OCD is also awaiting a signed C-103 for BW-19 in Carlsbad. Both BW-9 and 19 were required to be plugged and abandoned by September 4, 2008. Please provide the OCD with the status of receipt of the C-103 for BW-19 too.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Shelton, Jack [mailto:jshelton@keyenergy.com]
Sent: Monday, October 06, 2008 7:56 AM
To: Chavez, Carl J, EMNRD; Price, Wayne, EMNRD
Cc: Philliber, Mark; Hill, Larry, EMNRD
Subject: RE: Key Energy Brine well PA

Mr. Chavez, I sent the signed copies Fed Ex on Friday to you, should be delivered today.
If I need to send to OCD in Hobbs I will but I talked to Buddy Hill with OCD and he told me to send them to you.

Thanks Jack

Jack Shelton | Key Energy Services | PA Manager | Po Box 1068 Andrews, Tx 79714 | O: 432.523.5155 | F: 432.523.6230 | C: 432.638.3756

-----Original Message-----
From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]

Sent: Friday, October 03, 2008 5:13 PM
To: Price, Wayne, EMNRD
Cc: Shelton, Jack; Phillber, Mark; Hill, Larry, EMNRD
Subject: RE: Key Energy Brine well PA

Wayne:

The C-103 was not signed the Key Agent. The OCD needs a signed C-103. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Price, Wayne, EMNRD
Sent: Thursday, October 02, 2008 9:51 AM
To: Chavez, Carl J, EMNRD
Subject: FW: Key Energy Brine well PA

From: Shelton, Jack [mailto:jshelton@keyenergy.com]
Sent: Tuesday, September 30, 2008 1:01 PM
To: Price, Wayne, EMNRD
Cc: Phillber, Mark
Subject: Key Energy Brine well PA

Hello Mr. Price, I have completed the C-103 and will mail hard copies to you for approval.

G.P. Sims Well # 2
Brine well
30-025-25525

Please confirm that I've sent this to the right office.

Thank you,

Jack Shelton | Key Energy Services | PA Manager | Po Box 1068 Andrews, Tx 79714 | O: 432.523.5155 | F: 432.523.6230 | C: 432.638.3756

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
May 27, 2004

WELL API NO.
30-015-21842

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
City of Carlsbad

1. Type of Well: Oil Well ☐ Gas Well ☒ Other Brine

8. Well Number 1

2. Name of Operator
Key Energy Services LLC

NOV - 1 2008

9. OGRID Number

3. Address of Operator
6 Desta Drive, Ste 4400, Midland, Texas 79705

OCD-ARTESIA

10. Pool name or Wildcat
Brine Mining Well

4. Well Location
Unit Letter H : 2420 feet from the North line and 330 feet from the East line
Section 36 Township 22S Range 26E NMPM Lea County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type Steel Depth to Groundwater Distance from nearest fresh water well Distance from nearest surface water

Pit Liner Thickness: mil Below-Grade Tank: Volume bbls; Construction Material

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☒
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

10-20-08 Set CICR @ 600'. Sqz'd 100 sks of C cmt displacing 10' below retainer. WOC.

10-21-08 Sting into retainer & established injection rate @ 2 bpm 500 psi. Called Tim Gum w/ NMOCD & received his OK to re-sqz. Sqz'd 100 sks of cmt displacing 10' below retainer. WOC

10-22-08 Sting into retainer & pressure up on cmt. Pressure test to 680 psi recording test on 30 minute chart. Sting out of retainer. Spot 65 sks of cmt from 600'- surface.

Cut off wellhead and anchors 3' BGL. Installed dry hole marker.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.**

SIGNATURE _____ TITLE PA Manager Key Energy Services DATE 10-31-08

Type or print name Jack Shelton E-mail address: jshelton@keyenergy.com Telephone No.432-523-5155

For State Use Only Accepted for record NMOCD

APPROVED BY: _____ TITLE _____ DATE 11/3/08

Conditions of Approval (if any):

Approved for plugging of well bore only. Liability under bond is retained pending receipt of C-103 (Subsequent Report of Well Plugging) which may be found at OCD Web Page under Forms, www.emnrd.state.nm.us/ocd.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, December 04, 2008 1:09 PM
To: Chavez, Carl J, EMNRD; 'Perry, Mark'; 'Molleur, Loren'
Cc: Price, Wayne, EMNRD; 'Patterson, Bob'; 'Gibson, Dan'; Bratcher, Mike, EMNRD
Subject: RE: BW-19 Key Energy Services, LLC Carlsbad Sonar Log Inquiry

Mr. Perry:

Good afternoon. The OCD has yet to receive a response to its inquiry below requesting an explanation for the sonar profile from the most recent sonar test.

If you cannot provide an acceptable explanation, then it is apparent that the recent sonar test conducted on the well is not accurate. Please reschedule a new sonar date and time so the OCD may make arrangements to witness the new sonar test. Please contact me within 7 working days to schedule. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Monday, November 10, 2008 3:49 PM
To: 'Perry, Mark'
Cc: Price, Wayne, EMNRD; 'Patterson, Bob'
Subject: BW-19 Key Energy Services, LLC Carlsbad Sonar Log Inquiry

Mark:

Hi. In accordance with our telephone conversation earlier today. Please provide the OCD with an explanation for the sonar profile based on the existing construction of the well at the time of the sonar tests conducted by Sonar Wire Inc.

The OCD notes that the casing shoe was set at 710 feet. However, the well was whipstocked with the top of the whipstock at 628 feet. The bottom of the whipstock is at 635 feet. The bridge plug was set at 642 feet. The peculiar feature is the casing shoe setting depth at 623 feet in Sonar Wire Inc.'s well cross-section and major cavern depicted at about 675 feet. The profile is perfectly vertical. The profile appears peculiar, but perhaps Key has a good explanation?

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Submit 3 Copies To Appropriate District Office
District I
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District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
May 27, 2004

WELL API NO.
30-015-21842

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
City of Carlsbad

1. Type of Well: Oil Well ☐ Gas Well ☒ Other Brine

8. Well Number 1

2. Name of Operator
Key Energy Services LLC

NOV - 1 2008

9. OGRID Number

3. Address of Operator
6 Desta Drive, Ste 4400, Midland, Texas 79705

OCD-ARTESIA

10. Pool name or Wildcat
Brine Mining Well

4. Well Location
Unit Letter H : 2420 feet from the North line and 330 feet from the East line
Section 36 Township 22S Range 26E NMPM Lea County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type Steel Depth to Groundwater Distance from nearest fresh water well Distance from nearest surface water

Pit Liner Thickness: mil Below-Grade Tank: Volume bbls; Construction Material

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☒
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:	☐			OTHER:	☐		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

10-20-08 Set CICR @ 600'. Sqz'd 100 sks of C cmt displacing 10' below retainer. WOC.

10-21-08 Sting into retainer & established injection rate @ 2 bpm 500 psi. Called Tim Gum w/ NMOCD & received his OK to re-sqz. Sqz'd 100 sks of cmt displacing 10' below retainer. WOC

10-22-08 Sting into retainer & pressure up on cmt. Pressure test to 680 psi recording test on 30 minute chart. Sting out of retainer. Spot 65 sks of cmt from 600'- surface.

Cut off wellhead and anchors 3' BGL. Installed dry hole marker.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.**

SIGNATURE _____ TITLE PA Manager Key Energy Services DATE 10-31-08

Type or print name Jack Shelton E-mail address: jshelton@keyenergy.com Telephone No.432-523-5155

For State Use Only Accepted for record NMOCD

APPROVED BY: _____ TITLE _____ DATE 11/3/08

Conditions of Approval (if any):

Approved for plugging of well bore only. Liability under bond is retained pending receipt of C-103 (Subsequent Report of Well Plugging) which may be found at OCD Web Page under Forms, www.emnrd.state.nm.us/ocd.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, October 14, 2008 10:13 AM
To: 'Patterson, Bob'
Cc: Phillber, Mark; Price, Wayne, EMNRD; Sanchez, Daniel J., EMNRD; Macquesten, Gail, EMNRD; Gum, Tim, EMNRD
Subject: FW: Key Energy Services, LLC. BW-19 C-103 PA Approval
Attachments: BW-19 PA Approval 2-19-08.tif

Bob:

The Oil Conservation Division (OCD) is writing to request the status of the plug and abandonment of BW-19 in Carlsbad, NM. OCD records indicate that Wayne Price (OCD) signed a C-103 form approving the plug and abandonment of BW-19 on February 19, 2008.

Has the well been plugged and abandoned according to the signed C-103? If so, please update the OCD on the plug and abandonment and submit the final C-103 to me by close of business October 16, 2008. If the well has not been plugged and abandoned in accordance with the signed C-103, then Key Energy Services LLC is out of compliance with the USEPA 90 day corrective action period and has 60 days from today's date to plug and abandon the well in accordance with the C-103. In addition, the OCD requires the following for BW-19:

C-103 City of Carlsbad Well No. 1 (BW-19)
API# 30-015-21842
Conditions of Approval

1) A sonar test of the salt cavern is required in advance of plugging and abandoning the well. If a Sonar cannot be run, then OCD will require seismic and subsidence monitor and will require additional financial assurance.

2) Cavern must be filled with brine water in advance of plugging and abandonment operations.

3) Cement must be pressure grouted from bottom to top or surface under adequate pressure. Class "C" Cement from CIBP Setting Depth to surface is required.

4) Install a plug and abandonment marker.

5) Final C-103 Form shall be submitted within 30 days of plug and abandonment with final construction details.

The above plug and abandonment work must be completed within 60 days of the date of this message. Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Tuesday, February 19, 2008 8:36 AM
To: 'Patterson, Bob'
Cc: Price, Wayne, EMNRD; Gum, Tim, EMNRD

Subject: Key Energy Services, LLC. BW-19 C-103 PA Approval

Bob:

Please find attached OCD approval from Mr. Wayne Price (Environmental Bureau Chief) dated 2/19/2008 on Key Energy Services, LLC (Key) C-103 for Brine Well 19 (API# 30-015-21842). Please submit the final report within 30 days of completion of field work.

Also, Key will need to submit an APD to OCD Santa Fe with a copy to the OCD Artesia District Office for the new UIC Class III replacement brine well. We will need a bond in place for the new well. Perhaps a Rider to the existing $50K bond with the new API# and well name, etc. would work. Key will need an API# for the new bond or bond rider. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Submit 3 Copies To Appropriate District Office
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1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

BW-19

Form C-103
May 27, 2004

WELL API NO.
30-015-21842

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
City of Carlsbad

1. Type of Well: Oil Well ☐ Gas Well ☐ Other **Brine**

8. Well Number
1

2. Name of Operator
Key Energy Services, LLC

9. OGRID Number

3. Address of Operator
6 Desta Drive, Suite 4400, Midland, Texas 79705

10. Pool name or Wildcat
Brine Mining Well

4. Well Location
Unit Letter **H**, **2420** feet from the **North** line and **330** feet from the **East** line
Section **36** Township **22S** Range **26E** NMPM **Lea** County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ *or Closure* ☐ **Not applicable**

Pit type_____ Depth to Groundwater_____ Distance from nearest fresh water well_____ Distance from nearest surface water_____

Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☒	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

See Attached wellbore diagram for details.
Key Energy plans to plug and abandon this well. The well is a brine well under Permit# M19264. Key Energy will drill a new brine well nearby into the same salt section at a future date. The salt section is from 710 to 930'.
In early 2008, four separate attempts to squeeze a casing leak between 95-105' were performed. The last attempt pumped 59 bbls of cement at an AIR of 0.8 bpm, AIP 1250 psi. After drilling out cement a pressure test of 300 psi bled back to 200 psi in 5 minutes. A subsequent temperature survey showed the squeeze cement to be positioned outside casing from 70-160 feet.
Proposed P&A procedure:
Set cement retainer at 600' (whipstock top at 628')
Pump 100 sx of Class C cement below retainer.
POOH to 100 feet, place cement plug from 100-600 feet. WOC. Tag top of cement plug.
Pump cement to fill casing to surface. Repeat, if necessary, until TOC remains at surface.
Cut off casing stubs, place P&A marker.

RECEIVED
FEB 08 PM 3

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE _____ TITLE **Agent for Key Energy** DATE **2-7-2008**

Type or print name

E-mail address: Telephone No.

For State Use Only

COPY → ORIG TO ARTESIA DISTRICT

APPROVED BY: _____ TITLE ENVT BUREAU CHIEF DATE 2/19/08

Conditions of Approval (if any):

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Friday, November 14, 2008 4:38 PM

To: 'ziatransports@gmail.com'; 'jrmillett@gmail.com'; 'rharrisnm@aim.com'; 'gandy2@leaco.net'; 'seay04@leaco.net'; 'iwcarlsbad@plateautel.net'; 'Patterson, Bob'; 'Dimas Herrera'; 'gil@mull.us'; 'David Pyeatt'; 'Wayne E Roberts'; Dennis L Shearer; 'garymschubert@aol.com'; 'dgibson@keyenergy.com'; 'Clay Wilson'; 'Prather, Steve'; Ronnie D Devore

Cc: Hill, Larry, EMNRD; Gum, Tim, EMNRD; Price, Wayne, EMNRD

Subject: Brine Well Moratorium Press Release Today

Attachments: PR-OCD Brine Well Moratorium.pdf

FYI, please see the attached NM OCD Press Release issued today. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

New Mexico Energy, Minerals and Natural Resources Department

November 14, 2008

NEWS RELEASE

Contact: Jodi McGinnis Porter,
Public Information Officer 505.476.3226

Energy, Minerals and Natural Resources Cabinet Secretary Prukop Orders a Six Month Moratorium on New Brine Wells

Oil Conservation Division to Investigate Brine Well Collapses and Provide Recommendations

SANTA FE, NM – Secretary Joanna Prukop today ordered the Oil Conservation Division to place a six month moratorium on any new brine well applications located in geologically sensitive areas. Secretary Prukop's action comes following the second brine well collapse in less than four months in southeastern New Mexico. The Secretary has also directed the Oil Conservation Division to work with the Environmental Protection Agency, other states, technical experts and oil and gas industry representatives to examine the causes of recent collapses, and provide a report with recommendations to the Oil Conservation Commission for a safe path forward. The report should be completed by May 1, 2009.

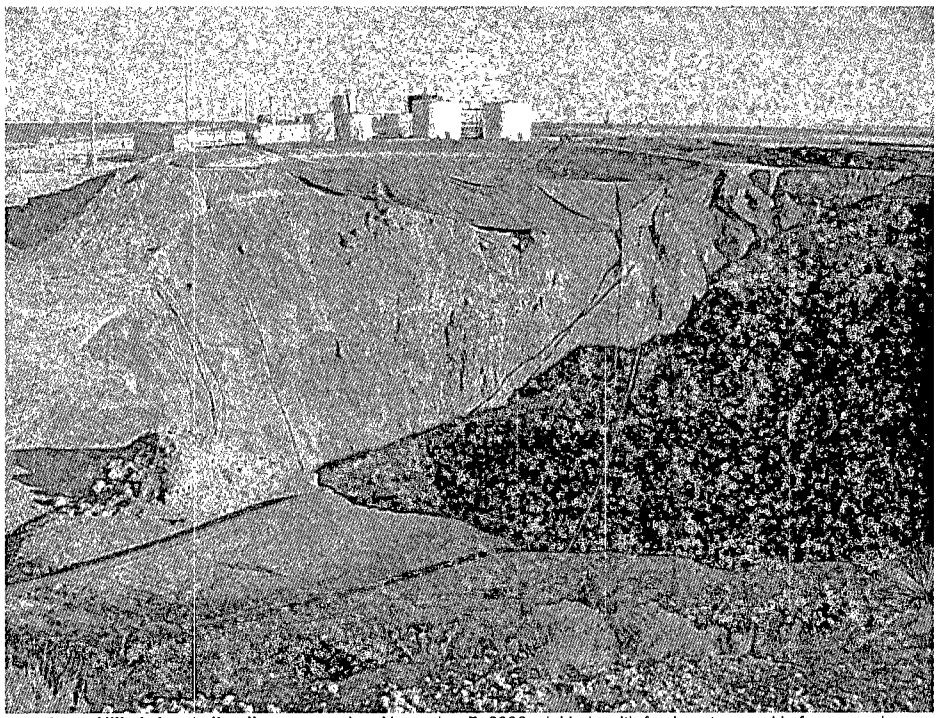
"I am deeply concerned by these two serious incidents and we are taking action to ensure the safety of our citizens and to protect the environment," stated Secretary Prukop.

Brine wells are an essential part of the oil and gas drilling industry, particularly in the southeastern part of the state. Oil and gas operators use brine water in the drilling process. Brine is saturated salt water which can be more salty than sea water. Brine is created by injecting fresh water into salt formations, allowing the water to absorb the salt and then pumping it out of the well. This method creates an underground cavity.

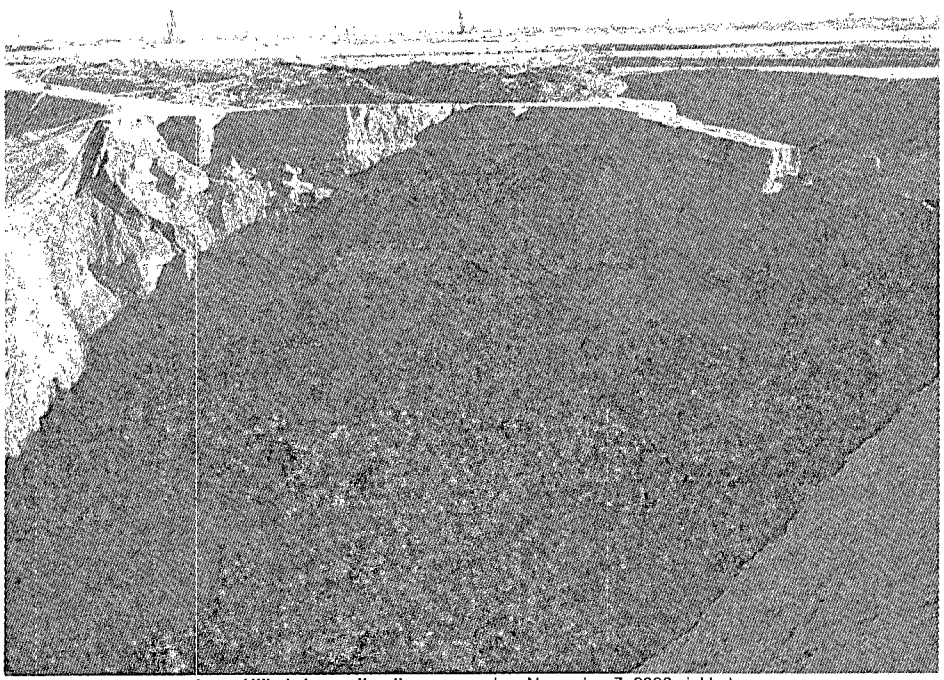
"The moratorium will provide time to properly evaluate the causes of the recent collapses and to discuss the development of new rules or guidelines to ensure the safety and stability of brine well systems," added Secretary Prukop.

The moratorium will only affect new wells and will not impact existing wells and facilities.

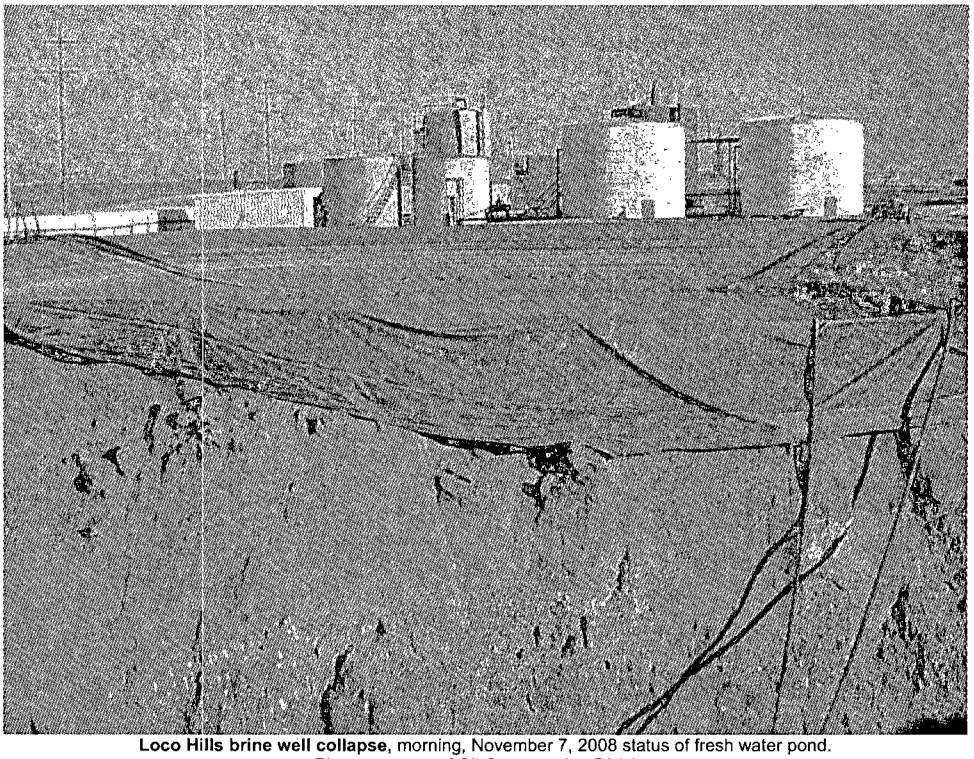
Below are photographs of the two recent collapses:



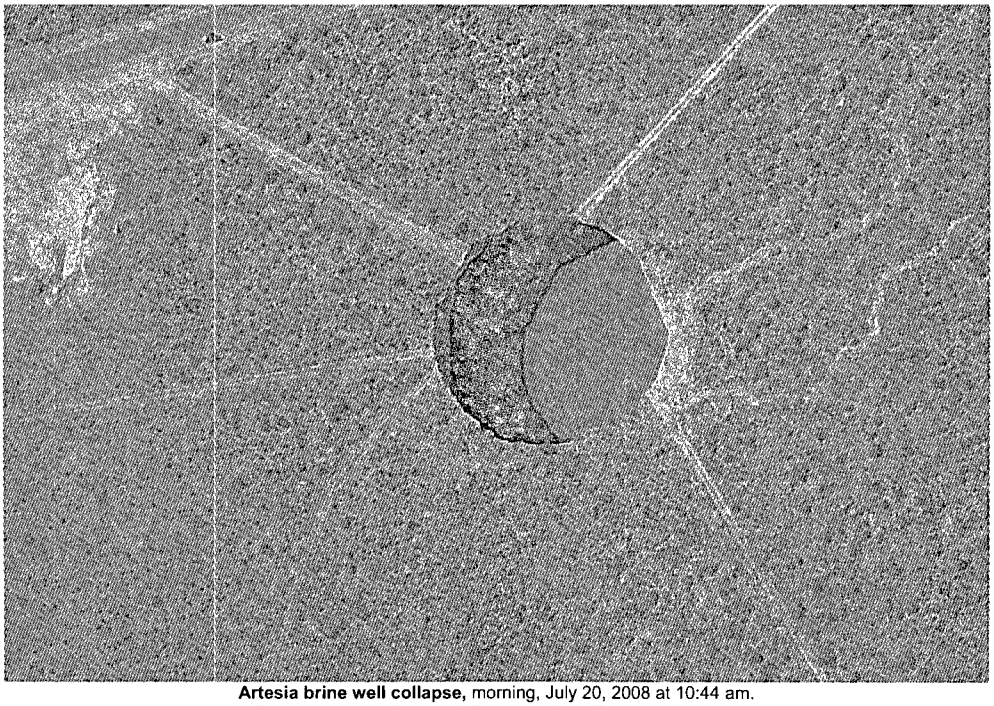
Loco Hills brine well collapse, morning, November 7, 2008, sinkhole with fresh water pond in foreground.
Photo courtesy of Oil Conservation Division



Loco Hills brine well collapse, morning, November 7, 2008 sinkhole.
Photo courtesy of Oil Conservation Division



Loco Hills brine well collapse, morning, November 7, 2008 status of fresh water pond.
Photo courtesy of Oil Conservation Division



Artesia brine well collapse, morning, July 20, 2008 at 10:44 am.
Photo courtesy of National Cave and Karst Research Institute

Artesia brine well collapse morning, July 22, 2008
Photo courtesy of National Cave and Karst Research Institute

#30#

The Energy, Minerals and Natural Resources Department provides resource protection and renewable energy resource development services to the public and other state agencies.

Oil Conservation Division
1220 South St. Francis Drive ▪ Santa Fe, New Mexico 87505
Phone (505) 476-3440 ▪ Fax (505) 476-3462 ▪ www.emnrd.state.nm.us/OCD

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Monday, November 10, 2008 3:49 PM
To: 'Perry, Mark'
Cc: Price, Wayne, EMNRD; 'Patterson, Bob'
Subject: BW-19 Key Energy Services, LLC Carlsbad Sonar Log Inquiry

Mark:

Hi. In accordance with our telephone conversation earlier today. Please provide the OCD with an explanation for the sonar profile based on the existing construction of the well at the time of the sonar tests conducted by Sonar Wire Inc.

The OCD notes that the casing shoe was set at 710 feet. However, the well was whipstocked with the top of the whipstock at 628 feet. The bottom of the whipstock is at 635 feet. The bridge plug was set at 642 feet. The peculiar feature is the casing shoe setting depth at 623 feet in Sonar Wire Inc.'s well cross-section and major cavern depicted at about 675 feet. The profile is perfectly vertical. The profile appears peculiar, but perhaps Key has a good explanation?

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Wednesday, November 12, 2008 11:50 AM

To: 'ziatransports@gmail.com'; 'jrmillett@gmail.com'; 'Patterson, Bob'; Philliber, Mark; 'rharrisnm@aim.com'; 'gandy2@leaco.net'; 'David Pyeatt'; 'garymschubert@aol.com'

Cc: Price, Wayne, EMNRD; Sanchez, Daniel J., EMNRD; Hill, Larry, EMNRD; Gum, Tim, EMNRD

Subject: Brine Well Sonar Testing Requirement with this season's upcoming MIT Schedule 2009

Gentlemen:

Re: MITs and OCD Sonar Test Requirement

Good morning. It is that time of season when the OCD requests your proposed MIT schedule. The OCD is requiring a sonar test in addition to the MIT this season. The OCD objective is to complete the MITs on or before July 31, 2009. If circumstances require it, the deadline for MITs may be extended to on or before October 31, 2009. Please contact me within 30 days to schedule your MIT and sonar test with date and time that you prefer. Note that brine well operators scheduled for the annual OCD 4-hr. formation MIT may conduct the EPA 5-Yr. 30 minute MIT (+/- 10% to pass) at 300 – 500 psig on casing in lieu of the OCD annual formation MIT this season.

After reviewing the site files and your responses to the recent OCD questionnaire following the Jims Water Service (BW-5) brine well collapse SE of Artesia in Eddy County on 7/16/2008, and the more recent collapse at Loco Hills (BW-21) in Eddy County on 11/3/2008, the OCD is requiring Sonar Testing along with your MIT this season to assess the configuration of your brine well cavern and any threats to public health and safety in your areas. The OCD is focused on the maturity of brine wells and the "Calculation" from the recent questionnaire attempts to assess brine well maturity by comparing the total brine production relative to the depth of the brine well casing shoe. This is one of the reasons why fresh water and brine well production record reporting to the OCD is so critical. Any operators that are planning to plug and abandon their brine wells are required by the OCD to conduct a sonar test of the well in advance of plugging and abandonment. Also, the OCD requires that the brine cavern be filled with brine fluid as this adds structural stability to the cavern and well. This will be required in a C-103 approved with conditions by the OCD. Currently, 3 brine well operators have been required by the OCD to conduct sonar testing within 30 days due to the maturity issue mentioned above. The OCD is continuing to assess its EPA Class III Brine Well program and will keep you updated on improvements and/or changes as needed.

If you feel that your brine well is too new to require sonar testing or a sonar was recently completed at your brine well, please provide the basis for requesting an exemption to this OCD sonar test requirement ASAP for OCD approval.

Please contact me if you have questions. Thanks in advance for your cooperation in this matter.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
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(Pollution Prevention Guidance is under "Publications")

SONARWIRE, INC.
P.O. BOX 576
ABITA SPRINGS, LA 70420
Office: 985-893-9221
Toll Free: 888-211-6037
Fax: 985-893-4798
Email: sean@sonarwire.com

Survey conducted by: Sean McCool

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1 (BW-019)
APRIL 2, 2008 & JUNE 12, 2008
SONAR THRU PIPE SURVEY

Survey from 623 ft. to 877 ft.
Sonar T.D. at 877 ft.
7 inch cemented casing at 623 ft.
3 1/2 tubing at 877 ft.
Zero sonar tool at CHF
Site personnel: Mr. Rex Alexander

Note: This survey was conducted on separate days. The first survey (4/2/08) was conducted with no tubing in the well from depths 623 to 805. The second survey (6/12/08) was conducted through tubing. The surveys were merged together to obtain a completed view of the well.

SONARWIRE INC.
Depth versus Volume

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
624	1.3	1.3	0.2	0.2
625	1.5	2.7	0.3	0.5
626	1.7	4.4	0.3	0.8
627	1.7	6.2	0.3	1.1
628	1.7	7.9	0.3	1.4
629	1.7	9.6	0.3	1.7
630	1.7	11.3	0.3	2.0
631	1.8	13.1	0.3	2.3
632	1.9	15.0	0.3	2.7
633	2.0	17.1	0.4	3.0
634	2.2	19.3	0.4	3.4
635	2.1	21.4	0.4	3.8
636	2.0	23.4	0.4	4.2
637	2.1	25.5	0.4	4.5
638	2.1	27.6	0.4	4.9
639	2.3	29.9	0.4	5.3
640	2.9	32.8	0.5	5.8
641	2.3	35.1	0.4	6.3
642	2.2	37.3	0.4	6.6
643	2.5	39.9	0.5	7.1
644	3.0	42.9	0.5	7.6
645	2.6	45.5	0.5	8.1
646	2.2	47.6	0.4	8.5
647	2.0	49.6	0.4	8.8
648	1.9	51.5	0.3	9.2
649	1.9	53.4	0.3	9.5
650	1.9	55.3	0.3	9.8
651	2.0	57.3	0.4	10.2
652	2.2	59.5	0.4	10.6
653	2.1	61.7	0.4	11.0
654	2.1	63.7	0.4	11.3
655	2.2	66.0	0.4	11.7
656	2.4	68.4	0.4	12.2
657	2.5	70.9	0.4	12.6
658	2.6	73.5	0.5	13.1
659	2.3	75.9	0.4	13.5
660	2.1	78.0	0.4	13.9
661	2.0	80.0	0.4	14.2
662	2.0	82.0	0.4	14.6
663	1.9	83.9	0.3	14.9
664	1.7	85.6	0.3	15.2
665	1.9	87.5	0.3	15.6
666	2.1	89.6	0.4	16.0
667	2.2	91.8	0.4	16.4
668	2.3	94.1	0.4	16.8
669	2.3	96.4	0.4	17.2

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
670	2.3	98.7	0.4	17.6
671	2.1	100.8	0.4	18.0
672	1.8	102.7	0.3	18.3
673	1.9	104.5	0.3	18.6
674	1.9	106.4	0.3	19.0
675	1.8	108.2	0.3	19.3
676	1.7	109.9	0.3	19.6
677	2.0	111.9	0.3	19.9
678	2.2	114.1	0.4	20.3
679	955.4	1069.5	170.2	190.5
680	2657.6	3727.1	473.3	663.8
681	2506.9	6234.0	446.5	1110.3
682	3072.7	9306.7	547.3	1657.6
683	4277.2	13583.9	761.8	2419.4
684	1788.9	15372.8	318.6	2738.0
685	1.7	15374.6	0.3	2738.3
686	10.3	15384.9	1.8	2740.2
687	27.9	15412.8	5.0	2745.1
688	54.6	15467.4	9.7	2754.9
689	33.7	15501.1	6.0	2760.9
690	18.0	15519.1	3.2	2764.1
691	7.3	15526.4	1.3	2765.4
692	1.7	15528.1	0.3	2765.7
693	8.5	15536.6	1.5	2767.2
694	23.0	15559.5	4.1	2771.3
695	8.5	15568.0	1.5	2772.8
696	1.7	15569.7	0.3	2773.1
697	1.7	15571.4	0.3	2773.4
698	1.7	15573.1	0.3	2773.7
699	1.7	15574.8	0.3	2774.0
700	1.7	15576.5	0.3	2774.3
701	1.7	15578.2	0.3	2774.6
702	1.7	15580.0	0.3	2774.9
703	1.7	15581.7	0.3	2775.2
704	1.7	15583.4	0.3	2775.5
705	44.6	15627.9	7.9	2783.5
706	155.4	15783.3	27.7	2811.1
707	44.6	15827.9	7.9	2819.1
708	1.7	15829.6	0.3	2819.4
709	1.7	15831.3	0.3	2819.7
710	1.7	15833.0	0.3	2820.0
711	1.7	15834.7	0.3	2820.3
712	1.7	15836.4	0.3	2820.6
713	4.7	15841.1	0.8	2821.4
714	9.5	15850.5	1.7	2823.1
715	4.7	15855.2	0.8	2823.9
716	1.7	15857.0	0.3	2824.2
717	1.7	15858.7	0.3	2824.6

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
718	1.7	15860.4	0.3	2824.9
719	1.7	15862.1	0.3	2825.2
720	1.7	15863.8	0.3	2825.5
721	15.0	15878.8	2.7	2828.1
722	46.4	15925.2	8.3	2836.4
723	15.6	15940.7	2.8	2839.2
724	2.2	15943.0	0.4	2839.6
725	1.9	15944.9	0.3	2839.9
726	1.7	15946.6	0.3	2840.2
727	1.9	15948.5	0.3	2840.6
728	2.2	15950.7	0.4	2840.9
729	2.2	15952.8	0.4	2841.3
730	2.2	15955.0	0.4	2841.7
731	49.1	16004.1	8.7	2850.5
732	173.5	16177.6	30.9	2881.4
733	195.7	16373.4	34.9	2916.2
734	205.2	16578.6	36.5	2952.8
735	2.2	16580.8	0.4	2953.2
736	7.1	16587.9	1.3	2954.4
737	16.8	16604.7	3.0	2957.4
738	31.3	16636.0	5.6	2963.0
739	10.8	16646.8	1.9	2964.9
740	1.7	16648.5	0.3	2965.2
741	1.7	16650.2	0.3	2965.5
742	1.7	16652.0	0.3	2965.8
743	2.4	16654.3	0.4	2966.3
744	3.2	16657.5	0.6	2966.8
745	3.8	16661.4	0.7	2967.5
746	4.7	16666.1	0.8	2968.4
747	3.5	16669.6	0.6	2969.0
748	2.4	16672.0	0.4	2969.4
749	2.4	16674.4	0.4	2969.8
750	2.5	16676.9	0.4	2970.3
751	3.9	16680.8	0.7	2971.0
752	5.7	16686.6	1.0	2972.0
753	8.1	16694.7	1.4	2973.5
754	11.4	16706.1	2.0	2975.5
755	6.6	16712.7	1.2	2976.7
756	3.3	16716.0	0.6	2977.3
757	4.2	16720.2	0.7	2978.0
758	5.5	16725.7	1.0	2979.0
759	4.7	16730.4	0.8	2979.8
760	4.2	16734.5	0.7	2980.5
761	2.8	16737.3	0.5	2981.0
762	1.7	16739.0	0.3	2981.4
763	1.7	16740.8	0.3	2981.7
764	1.7	16742.5	0.3	2982.0
765	1.7	16744.2	0.3	2982.3

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
766	1.7	16745.9	0.3	2982.6
767	1.7	16747.6	0.3	2982.9
768	1.7	16749.3	0.3	2983.2
769	3.4	16752.7	0.6	2983.8
770	6.5	16759.2	1.2	2984.9
771	3.4	16762.6	0.6	2985.5
772	1.7	16764.3	0.3	2985.8
773	2.1	16766.4	0.4	2986.2
774	2.6	16768.9	0.5	2986.7
775	2.9	16771.8	0.5	2987.2
776	3.3	16775.1	0.6	2987.8
777	4.9	16780.0	0.9	2988.7
778	8.4	16788.4	1.5	2990.1
779	3.9	16792.3	0.7	2990.8
780	1.7	16794.0	0.3	2991.1
781	1.7	16795.7	0.3	2991.4
782	1.7	16797.4	0.3	2991.7
783	10.4	16807.8	1.9	2993.6
784	31.6	16839.4	5.6	2999.2
785	10.7	16850.2	1.9	3001.1
786	2.0	16852.2	0.4	3001.5
787	3.8	16856.0	0.7	3002.2
788	7.6	16863.6	1.4	3003.5
789	1.7	16865.4	0.3	3003.8
790	1.7	16867.1	0.3	3004.2
791	1.8	16868.9	0.3	3004.5
792	2.0	16870.9	0.4	3004.8
793	4.2	16875.1	0.7	3005.6
794	8.0	16883.1	1.4	3007.0
795	4.6	16887.7	0.8	3007.8
796	2.6	16890.3	0.5	3008.3
797	5.6	16895.9	1.0	3009.3
798	11.9	16907.8	2.1	3011.4
799	5.0	16912.8	0.9	3012.3
800	1.7	16914.5	0.3	3012.6
801	1.7	16916.2	0.3	3012.9
802	1.7	16917.9	0.3	3013.2
803	1.7	16919.7	0.3	3013.5
804	1.7	16921.4	0.3	3013.8
805	2.3	16923.7	0.4	3014.2
806	3.0	16926.6	0.5	3014.8
807	7.3	16933.9	1.3	3016.1
808	14.6	16948.6	2.6	3018.7
809	9.4	16958.0	1.7	3020.3
810	5.9	16963.9	1.0	3021.4
811	6.6	16970.4	1.2	3022.6
812	7.6	16978.1	1.4	3023.9
813	15.6	16993.7	2.8	3026.7

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
814	30.4	17024.0	5.4	3032.1
815	25.3	17049.3	4.5	3036.6
816	21.0	17070.3	3.7	3040.4
817	17.6	17087.9	3.1	3043.5
818	14.9	17102.8	2.7	3046.1
819	7.7	17110.6	1.4	3047.5
820	3.1	17113.7	0.6	3048.1
821	5.8	17119.5	1.0	3049.1
822	10.0	17129.5	1.8	3050.9
823	6.0	17135.5	1.1	3052.0
824	3.3	17138.8	0.6	3052.6
825	2.8	17141.6	0.5	3053.0
826	2.3	17143.9	0.4	3053.5
827	3.8	17147.7	0.7	3054.1
828	6.2	17153.8	1.1	3055.2
829	5.8	17159.7	1.0	3056.3
830	5.7	17165.4	1.0	3057.3
831	5.3	17170.7	0.9	3058.2
832	4.9	17175.6	0.9	3059.1
833	3.3	17178.9	0.6	3059.7
834	2.1	17181.0	0.4	3060.1
835	1.9	17182.9	0.3	3060.4
836	1.7	17184.6	0.3	3060.7
837	1.7	17186.3	0.3	3061.0
838	1.7	17187.9	0.3	3061.3
839	2.1	17190.0	0.4	3061.7
840	2.4	17192.4	0.4	3062.1
841	4.4	17196.9	0.8	3062.9
842	8.1	17205.0	1.4	3064.3
843	4.4	17209.4	0.8	3065.1
844	2.4	17211.8	0.4	3065.6
845	4.8	17216.6	0.9	3066.4
846	9.1	17225.8	1.6	3068.0
847	4.3	17230.1	0.8	3068.8
848	1.7	17231.8	0.3	3069.1
849	9.5	17241.3	1.7	3070.8
850	24.0	17265.3	4.3	3075.1
851	10.3	17275.7	1.8	3076.9
852	2.4	17278.1	0.4	3077.4
853	6.8	17284.8	1.2	3078.6
854	13.8	17298.7	2.5	3081.0
855	12.7	17311.4	2.3	3083.3
856	11.9	17323.3	2.1	3085.4
857	9.8	17333.1	1.7	3087.2
858	8.1	17341.3	1.4	3088.6
859	10.6	17351.9	1.9	3090.5
860	14.9	17366.8	2.7	3093.2
861	9.8	17376.6	1.7	3094.9

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

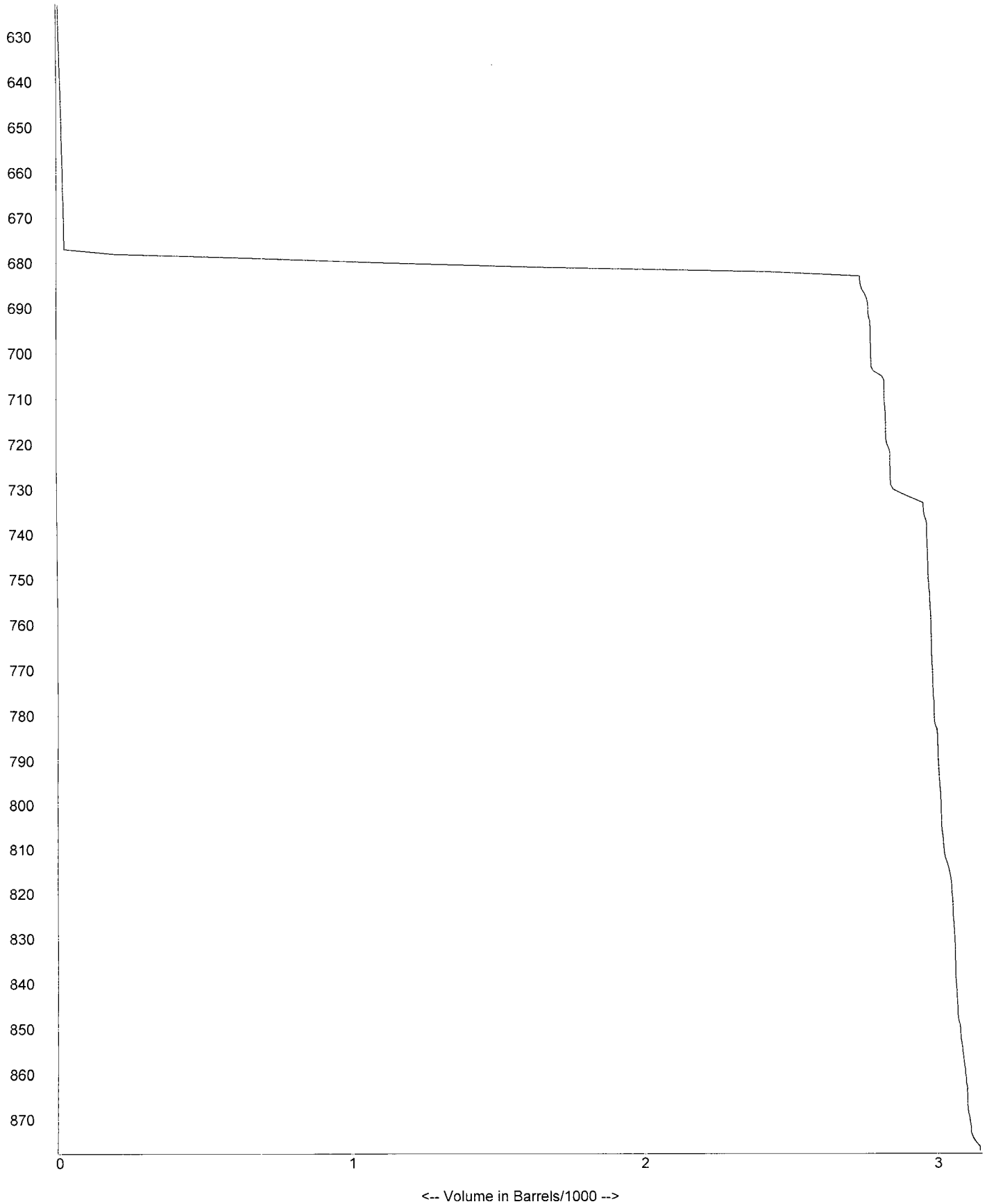
Depth	Cubic ft. per ft.	Cubic ft. total	Barrels per ft.	Barrels total
862	6.0	17382.6	1.1	3096.0
863	9.1	17391.7	1.6	3097.6
864	14.0	17405.8	2.5	3100.1
865	6.3	17412.1	1.1	3101.2
866	1.7	17413.8	0.3	3101.5
867	2.1	17415.8	0.4	3101.9
868	2.4	17418.3	0.4	3102.3
869	7.1	17425.3	1.3	3103.6
870	17.2	17442.6	3.1	3106.7
871	14.2	17456.7	2.5	3109.2
872	15.7	17472.4	2.8	3112.0
873	9.6	17482.0	1.7	3113.7
874	6.1	17488.2	1.1	3114.8
875	24.0	17512.1	4.3	3119.0
876	61.7	17573.8	11.0	3130.0
877	73.8	17647.6	13.1	3143.2

KEY ENERGY SERVICES
CARLSBAD, NM

SONARWIRE, INC

Depth -vs- Volume

BRINE WELL NO. 1
Wed, Apr 2, 2008



SONARWIRE INC.
Max Radius & Depth vs Bearing

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

This table lists the maximum radius (in feet) found at each of the 128 bearings at which soundings were taken. Also listed after each radius, (separated by ':'), is the depth (in feet) at which that maximum radius was found. Bearings are shown, (in degrees), for each row of four 'radius : depth' pairs.

Bearing	+0.0		+2.8		+5.6		+8.4	
0.0	59.1:	682	59.6:	682	59.6:	682	59.1:	682
11.3	59.1:	682	60.1:	681	60.1:	681	57.5:	681
22.5	53.8:	682	52.7:	682	51.2:	682	50.6:	681
33.8	50.1:	681	50.1:	683	50.6:	683	50.6:	683
45.0	49.6:	683	49.0:	683	47.5:	682	46.9:	682
56.3	46.9:	683	47.5:	683	46.9:	683	46.9:	683
67.5	46.9:	683	45.9:	683	45.9:	683	46.4:	683
78.8	46.9:	683	46.9:	683	46.4:	683	45.9:	682
90.0	46.9:	683	48.5:	683	48.5:	683	48.5:	683
101.3	48.5:	683	48.0:	683	48.5:	683	48.5:	683
112.5	46.9:	683	48.5:	681	48.0:	681	46.4:	681
123.8	49.0:	680	53.3:	681	51.7:	679	57.0:	679
135.0	38.0:	679	35.9:	679	33.2:	679	30.6:	679
146.3	28.5:	679	22.1:	679	21.6:	679	21.6:	679
157.5	21.1:	679	20.0:	679	20.9:	678	21.6:	679
168.8	22.8:	678	23.1:	678	23.1:	678	23.4:	678
180.0	23.7:	678	25.9:	733	28.1:	732	28.1:	731
191.3	28.7:	731	28.9:	733	29.5:	733	28.7:	733
202.5	24.7:	731	23.4:	732	20.9:	678	21.6:	681
213.8	22.7:	681	23.2:	681	24.3:	681	24.8:	681
225.0	25.3:	681	26.4:	681	29.0:	679	30.6:	679
236.3	36.4:	679	36.7:	678	40.2:	678	32.3:	678
247.5	32.3:	678	32.6:	678	32.3:	678	32.0:	678
258.8	33.9:	678	34.5:	678	34.8:	678	31.6:	678
270.0	31.3:	678	39.9:	678	39.2:	678	38.6:	678
281.3	38.0:	678	104.4:	679	101.8:	679	97.6:	679
292.5	82.8:	679	73.3:	679	66.4:	679	62.8:	679
303.8	63.3:	679	61.7:	679	61.2:	679	49.6:	681
315.0	48.5:	682	48.5:	682	48.5:	681	49.0:	681
326.3	60.1:	682	60.1:	682	61.2:	682	61.2:	682
337.5	60.6:	682	60.1:	682	60.1:	682	58.0:	682
348.8	57.5:	682	57.0:	682	57.5:	682	58.5:	682

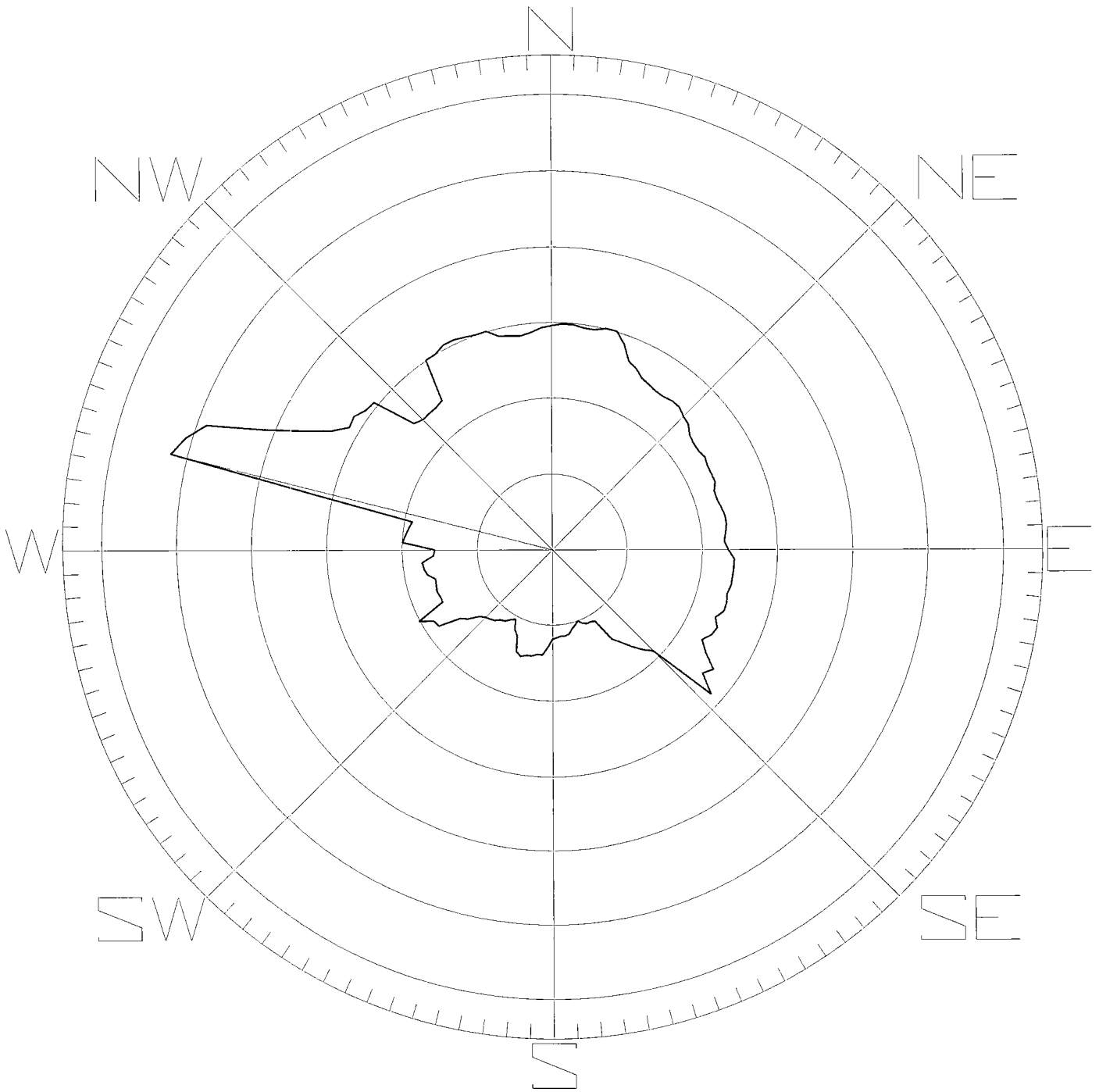
Between 623 and 877 foot depths, maximum radius
was 104.4 feet at bearing 284.1 at 679.0 foot depth

KEY ENERGY SERVICES
BRINE WELL NO. 1
CARLSBAD, NM

SONARWIRE, INC

Max Range vs Bearing

Max Radius=104.4 ft @ 284.1 deg
Depth= 679 ft. Wed, Apr 2, 2008



1 inch = 40.0 ft.

120 100 80 60 40 20 0 20 40 60 80 100 120

SONARWIRE INC.
Average Wall Range versus Depth (ft.)

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Avg Rad ft.	Min Rad ft @ Az	Max Rad ft @ Az	Min Dia ft @ Az	Max Dia ft @ Az
623	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
625	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
627	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
629	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
633	1	1 @ 36.6	1 @ 185.7	2 @ 0.1-180.1	2 @ 5.7-185.7
635	1	1 @ 0.1	1 @ 180.1	2 @ 98.5-278.5	2 @ 28.2-208.2
637	1	1 @ 0.1	1 @ 180.1	2 @ 59.1-239.1	2 @ 0.1-180.1
639	1	1 @ 0.1	3 @ 47.9	2 @ 0.1-180.1	4 @ 47.9-227.9
641	1	1 @ 0.1	2 @ 182.9	2 @ 67.5-247.6	2 @ 2.9-182.9
643	1	1 @ 0.1	3 @ 168.8	2 @ 36.6-216.6	3 @ 168.8-348.8
645	1	1 @ 25.4	2 @ 180.1	2 @ 47.9-227.9	3 @ 0.1-180.1
647	1	1 @ 31.0	1 @ 180.1	2 @ 31.0-211.0	2 @ 0.1-180.1
649	1	1 @ 0.1	1 @ 180.1	2 @ 61.9-241.9	2 @ 5.7-185.7
651	1	1 @ 0.1	1 @ 180.1	2 @ 28.2-208.2	2 @ 0.1-180.1
653	1	1 @ 0.1	1 @ 180.1	2 @ 84.4-264.4	2 @ 0.1-180.1
655	1	1 @ 0.1	2 @ 180.1	2 @ 90.0-270.1	2 @ 0.1-180.1
657	1	1 @ 0.1	2 @ 194.1	2 @ 90.0-270.1	2 @ 14.1-194.1
659	1	1 @ 0.1	1 @ 180.1	2 @ 36.6-216.6	2 @ 0.1-180.1
661	1	1 @ 0.1	1 @ 180.1	2 @ 78.8-258.8	2 @ 0.1-180.1
663	1	1 @ 0.1	1 @ 180.1	2 @ 64.7-244.7	2 @ 149.1-329.1
665	1	1 @ 73.2	2 @ 317.9	2 @ 73.2-253.2	2 @ 0.1-180.1
667	1	1 @ 33.8	2 @ 343.2	2 @ 45.0-225.1	3 @ 0.1-180.1
669	1	1 @ 239.1	2 @ 346.0	2 @ 112.6-292.6	3 @ 11.3-191.3
671	1	1 @ 278.5	1 @ 0.1	2 @ 98.5-278.5	2 @ 0.1-180.1
673	1	1 @ 250.4	1 @ 180.1	2 @ 31.0-211.0	2 @ 5.7-185.7
675	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
677	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
678	13	2 @ 0.1	41 @ 241.9	6 @ 160.4-340.4	44 @ 92.9-272.9
679	21	3 @ 22.6	105 @ 284.1	22 @ 25.4-205.4	115 @ 104.1-284.1
680	24	5 @ 22.6	59 @ 331.9	24 @ 19.7-199.7	100 @ 129.4-309.4
681	26	8 @ 56.3	61 @ 14.1	20 @ 53.5-233.5	102 @ 126.6-306.6
682	29	3 @ 219.4	62 @ 331.9	48 @ 73.2-253.2	95 @ 126.6-306.6
683	16	3 @ 239.1	51 @ 39.4	8 @ 31.0-211.0	61 @ 118.2-298.2
684	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
687	4	1 @ 123.8	11 @ 247.6	3 @ 137.9-317.9	16 @ 81.6-261.6
691	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
693	2	1 @ 0.1	8 @ 121.0	3 @ 25.4-205.4	9 @ 121.0-301.0
695	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
697	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
699	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
701	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
703	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
705	5	2 @ 219.4	18 @ 275.7	3 @ 36.6-216.6	19 @ 95.7-275.7
707	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
709	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
711	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
713	2	1 @ 11.3	4 @ 301.0	3 @ 11.3-191.3	6 @ 121.0-301.0

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
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Depth	Avg Rad ft.	Min Rad ft @ Az	Max Rad ft @ Az	Min Dia ft @ Az	Max Dia ft @ Az
715	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
717	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
719	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
721	3	2 @ 309.4	17 @ 205.4	3 @ 149.1-329.1	18 @ 25.4-205.4
723	1	1 @ 11.3	1 @ 188.5	2 @ 22.6-202.6	2 @ 67.5-247.6
725	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
727	1	1 @ 0.1	1 @ 180.1	2 @ 67.5-247.6	2 @ 0.1-180.1
729	1	1 @ 0.1	1 @ 180.1	2 @ 8.5-188.5	2 @ 95.7-275.7
731	4	1 @ 0.1	29 @ 191.3	3 @ 81.6-261.6	30 @ 11.3-191.3
732	5	2 @ 0.1	29 @ 191.3	3 @ 126.6-306.6	30 @ 11.3-191.3
733	5	2 @ 45.0	30 @ 196.9	3 @ 45.0-225.1	32 @ 16.9-196.9
734	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
737	3	1 @ 272.9	13 @ 182.9	3 @ 73.2-253.2	14 @ 2.9-182.9
739	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
741	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
743	1	1 @ 213.8	2 @ 2.9	2 @ 140.7-320.7	3 @ 84.4-264.4
745	2	1 @ 0.1	2 @ 104.1	3 @ 25.4-205.4	3 @ 104.1-284.1
747	1	1 @ 28.2	2 @ 126.6	2 @ 56.3-236.3	3 @ 121.0-301.0
749	1	1 @ 289.7	2 @ 180.1	2 @ 109.7-289.7	2 @ 53.5-233.5
751	2	2 @ 140.7	2 @ 188.5	3 @ 143.5-323.5	4 @ 106.9-286.9
753	2	2 @ 22.6	4 @ 281.3	3 @ 22.6-202.6	5 @ 101.3-281.3
755	2	1 @ 208.2	2 @ 137.9	2 @ 59.1-239.1	3 @ 154.7-334.7
757	2	1 @ 50.7	3 @ 264.4	3 @ 28.2-208.2	3 @ 84.4-264.4
759	2	1 @ 25.4	2 @ 247.6	3 @ 25.4-205.4	3 @ 73.2-253.2
761	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
763	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
765	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
767	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
769	2	1 @ 0.1	5 @ 182.9	2 @ 50.7-230.7	5 @ 2.9-182.9
771	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
773	1	1 @ 0.1	2 @ 219.4	2 @ 87.2-267.2	3 @ 39.4-219.4
775	1	1 @ 39.4	2 @ 247.6	2 @ 2.9-182.9	3 @ 67.5-247.6
777	2	1 @ 0.1	5 @ 219.4	2 @ 95.7-275.7	6 @ 39.4-219.4
779	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
781	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
783	2	1 @ 0.1	11 @ 104.1	2 @ 47.9-227.9	12 @ 104.1-284.1
785	1	1 @ 180.1	2 @ 61.9	2 @ 0.1-180.1	2 @ 61.9-241.9
787	2	1 @ 258.8	6 @ 317.9	2 @ 78.8-258.8	6 @ 137.9-317.9
788	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
789	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
791	1	1 @ 180.1	2 @ 331.9	2 @ 36.6-216.6	2 @ 151.9-331.9
793	2	1 @ 295.4	5 @ 67.5	2 @ 2.9-182.9	6 @ 67.5-247.6
795	1	1 @ 0.1	2 @ 180.1	2 @ 56.3-236.3	3 @ 0.1-180.1
797	2	1 @ 0.1	7 @ 95.7	2 @ 2.9-182.9	7 @ 95.7-275.7
799	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
801	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
803	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
805	1	1 @ 292.6	2 @ 50.7	2 @ 112.6-292.6	3 @ 56.3-236.3
807	2	2 @ 239.1	5 @ 118.2	3 @ 33.8-213.8	7 @ 118.2-298.2
809	2	2 @ 36.6	2 @ 180.1	3 @ 53.5-233.5	3 @ 0.1-180.1

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Avg Rad ft.	Min Rad ft @ Az	Max Rad ft @ Az	Min Dia ft @ Az	Max Dia ft @ Az
811	2	2 @ 194.1	2 @ 306.6	3 @ 25.4-205.4	4 @ 126.6-306.6
813	3	1 @ 8.5	7 @ 205.4	4 @ 123.8-303.8	8 @ 25.4-205.4
817	3	2 @ 28.2	4 @ 219.4	3 @ 149.1-329.1	5 @ 22.6-202.6
819	1	1 @ 73.2	2 @ 227.9	2 @ 61.9-241.9	3 @ 22.6-202.6
821	2	2 @ 309.4	4 @ 151.9	3 @ 31.0-211.0	5 @ 151.9-331.9
823	2	2 @ 180.1	2 @ 0.1	3 @ 0.1-180.1	3 @ 0.1-180.1
825	1	1 @ 180.1	2 @ 2.9	2 @ 0.1-180.1	2 @ 42.2-222.2
827	2	1 @ 25.4	3 @ 185.7	3 @ 146.3-326.3	4 @ 5.7-185.7
829	2	2 @ 0.1	3 @ 180.1	3 @ 98.5-278.5	4 @ 0.1-180.1
831	2	1 @ 84.4	4 @ 185.7	2 @ 101.3-281.3	5 @ 5.7-185.7
833	1	1 @ 42.2	2 @ 180.1	2 @ 42.2-222.2	2 @ 143.5-323.5
835	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
837	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
839	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
841	2	2 @ 0.1	7 @ 143.5	3 @ 2.9-182.9	8 @ 143.5-323.5
843	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
845	2	1 @ 180.1	6 @ 146.3	2 @ 0.1-180.1	7 @ 146.3-326.3
847	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
849	3	3 @ 78.8	4 @ 129.4	5 @ 87.2-267.2	7 @ 157.6-337.6
851	1	1 @ 0.1	1 @ 180.1	2 @ 0.1-180.1	2 @ 2.9-182.9
853	2	2 @ 247.6	5 @ 16.9	4 @ 171.6-351.6	6 @ 16.9-196.9
855	2	1 @ 227.9	4 @ 151.9	3 @ 76.0-256.0	6 @ 151.9-331.9
857	2	1 @ 256.0	5 @ 16.9	3 @ 92.9-272.9	6 @ 16.9-196.9
859	2	2 @ 95.7	7 @ 8.5	3 @ 95.7-275.7	8 @ 8.5-188.5
861	2	1 @ 126.6	5 @ 14.1	2 @ 126.6-306.6	5 @ 14.1-194.1
863	3	2 @ 247.6	4 @ 2.9	4 @ 73.2-253.2	6 @ 2.9-182.9
865	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
867	1	1 @ 180.1	1 @ 0.1	2 @ 0.1-180.1	2 @ 0.1-180.1
869	2	1 @ 180.1	8 @ 22.6	2 @ 104.1-284.1	9 @ 22.6-202.6
871	3	2 @ 180.1	3 @ 0.1	4 @ 166.0-346.0	5 @ 2.9-182.9
873	2	1 @ 61.9	6 @ 22.6	2 @ 61.9-241.9	7 @ 22.6-202.6
875	4	1 @ 233.5	8 @ 45.0	7 @ 64.7-244.7	12 @ 166.0-346.0
877	5	2 @ 230.7	9 @ 8.5	6 @ 109.7-289.7	15 @ 14.1-194.1

SONARWIRE INC.
Wall Ranges versus Depth (ft.)

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
623	0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
625	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
627	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
629	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
633	0	0.7	0.7	0.8	0.8	0.8	0.9	0.8	0.8
635	0	0.6	0.7	0.7	0.8	0.9	0.9	0.8	0.7
637	0	0.7	0.7	0.8	0.8	0.9	0.9	0.8	0.7
639	0	0.6	2.5	0.9	0.8	0.7	0.7	0.6	0.6
641	0	0.6	0.6	0.7	0.9	1.1	1.1	0.7	0.6
643	0	0.7	0.7	0.8	1.1	1.9	0.7	0.7	0.7
645	0	0.7	0.6	0.7	0.9	1.3	0.8	0.7	0.7
647	0	0.7	0.7	0.7	0.7	0.9	0.7	0.7	0.7
649	0	0.6	0.7	0.7	0.8	0.9	0.8	0.7	0.6
651	0	0.7	0.8	0.8	0.9	0.9	0.8	0.7	0.7
653	0	0.7	0.7	0.7	0.8	0.9	0.9	0.7	0.7
655	0	0.7	0.7	0.8	0.9	1.1	1.1	0.8	0.7
657	0	0.8	0.8	0.8	0.9	0.9	1.1	0.8	0.8
659	0	0.7	0.7	0.7	0.8	0.9	0.8	0.8	0.7
661	0	0.7	0.7	0.7	0.8	0.9	0.8	0.7	0.7
663	0	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.7
665	0	0.9	0.7	0.6	0.7	0.8	0.8	0.8	0.9
667	0	1.2	0.7	0.7	0.7	0.9	0.7	0.7	0.8
669	0	1.1	0.8	0.8	0.7	0.8	0.8	0.7	0.8
671	0	0.9	0.7	0.7	0.7	0.8	0.7	0.7	0.6
673	0	0.7	0.7	0.8	0.8	0.8	0.7	0.6	0.7
675	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
677	0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
678	0	1.9	1.9	2.5	2.8	23.7	25.0	31.3	7.6
679	0	3.2	2.1	3.7	38.0	20.0	23.7	24.3	16.9
680	0	8.4	5.3	8.4	30.1	19.0	23.7	21.1	46.9
681	0	10.0	10.5	10.0	26.4	19.5	25.3	14.2	47.5
682	0	59.1	48.5	45.9	7.4	4.2	2.1	3.2	48.5
683	0	6.3	49.6	46.9	5.3	4.2	3.7	2.6	16.9
684	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
687	0	3.7	4.5	6.8	0.8	0.9	1.4	7.1	3.5
691	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
693	0	0.6	0.6	1.2	5.9	2.5	2.0	1.2	0.7
695	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
697	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
699	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
701	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
703	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
705	0	16.0	1.2	2.3	1.3	1.2	1.6	1.2	12.7
707	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
709	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
711	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
713	0	1.1	0.8	1.2	1.6	1.7	1.8	2.0	2.8

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
715	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
717	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
719	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
721	0	1.3	1.5	2.3	2.2	5.8	1.7	1.4	1.1
723	0	0.7	0.7	0.8	0.9	0.8	0.9	0.8	0.7
725	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
727	0	0.7	0.7	0.8	0.9	0.9	0.8	0.7	0.7
729	0	0.7	0.7	0.8	0.9	0.9	0.8	0.8	0.7
731	0	0.8	1.3	1.7	1.9	5.3	11.2	1.3	1.1
732	0	1.1	1.3	1.5	1.9	16.5	11.4	2.1	1.1
733	0	1.5	1.3	1.7	2.1	14.8	1.7	1.7	1.5
734	0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
737	0	1.2	1.2	1.4	1.7	4.4	5.2	1.1	1.1
739	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
741	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
743	0	1.2	1.3	1.3	0.9	0.8	0.7	0.9	0.8
745	0	0.8	0.9	1.3	1.7	1.4	1.4	1.1	0.9
747	0	0.8	0.7	0.8	1.2	1.1	0.8	0.7	0.7
749	0	0.8	0.8	0.9	0.9	1.1	1.1	0.7	0.7
751	0	1.2	1.3	1.3	1.3	1.6	1.2	1.3	1.4
753	0	1.6	1.5	1.6	1.6	1.5	2.8	2.7	1.8
755	0	1.3	1.1	1.1	1.3	0.9	0.8	0.8	0.9
757	0	1.3	0.9	0.8	0.8	1.1	1.2	2.1	1.9
759	0	1.2	0.9	1.2	1.3	1.3	1.2	1.3	1.2
761	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
763	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
765	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
767	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
769	0	0.7	0.7	0.8	1.1	3.8	1.2	0.7	0.7
771	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
773	0	0.7	0.7	0.7	0.7	1.1	1.6	0.7	0.7
775	0	0.8	0.7	0.7	0.8	0.9	1.4	1.3	0.9
777	0	0.6	0.6	0.6	0.6	1.2	4.7	0.7	0.6
779	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
781	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
783	0	0.6	0.6	1.4	8.9	1.3	1.1	0.6	0.6
785	0	0.7	0.9	1.1	0.7	0.7	0.7	0.7	0.7
787	0	0.7	0.7	0.7	0.7	0.8	0.6	0.8	5.0
788	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
789	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
791	0	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.9
793	0	0.9	2.0	1.9	1.5	1.1	0.8	0.8	0.8
795	0	0.7	0.7	0.9	1.3	1.3	0.8	0.7	0.7
797	0	0.5	2.2	6.0	1.2	0.9	0.7	0.7	0.7
799	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
801	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
803	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
805	0	0.9	0.9	0.9	1.0	0.9	0.9	1.0	0.9
807	0	1.3	1.5	1.8	4.4	2.5	1.2	1.0	1.3
809	0	1.2	1.1	1.4	1.7	1.8	1.4	1.1	1.1

KEY ENERGY SERVICES
CARLSBAD, NM

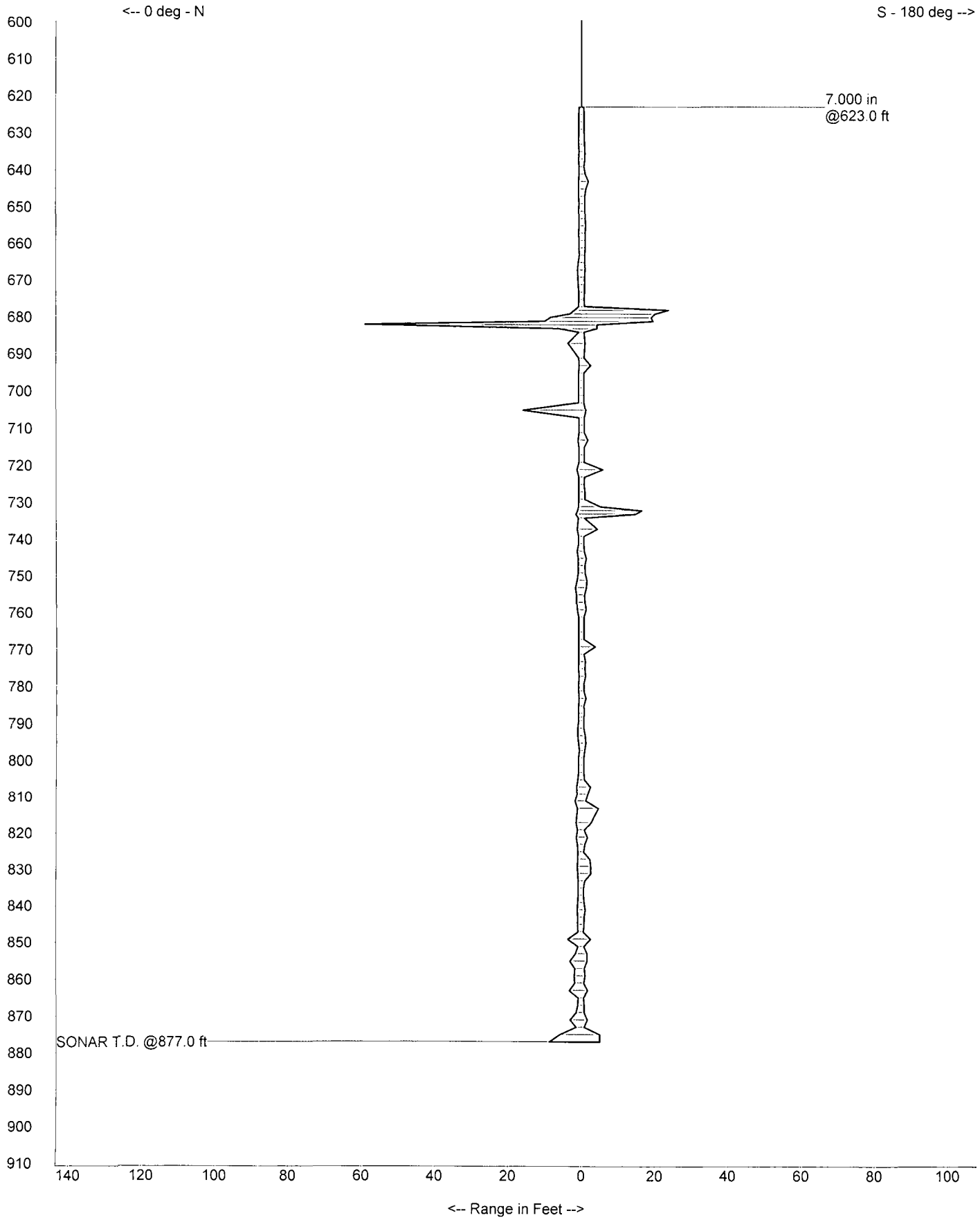
BRINE WELL NO. 1
Wed, Apr 2, 2008

Depth	Tilt	N	NE	E	SE	S	SW	W	NW
811	0	1.7	1.5	1.3	1.5	1.3	1.3	1.9	1.9
813	0	1.0	1.2	1.3	4.7	4.7	4.4	2.7	1.2
817	0	1.4	1.3	1.3	1.4	2.7	3.3	3.0	2.5
819	0	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0
821	0	1.3	1.3	2.1	3.1	1.8	1.3	1.2	1.0
823	0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
825	0	0.9	1.0	0.7	0.7	0.7	0.7	0.9	0.9
827	0	0.9	0.6	0.7	1.0	2.4	2.1	1.6	1.4
829	0	1.0	1.0	1.0	1.2	2.6	1.5	1.2	1.0
831	0	0.9	0.9	0.9	1.0	2.6	1.3	1.0	0.9
833	0	0.7	0.6	0.7	0.9	1.0	0.7	0.7	0.9
835	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
837	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
839	0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
841	0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0
843	0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
845	0	0.9	1.0	1.6	1.6	0.9	0.9	0.9	0.9
847	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
849	0	3.5	2.4	2.1	4.0	2.6	2.9	2.1	2.2
851	0	0.7	0.9	0.9	0.9	0.9	0.9	0.7	0.9
853	0	1.5	2.5	2.6	2.6	1.8	1.3	1.2	1.2
855	0	2.9	2.4	1.8	2.6	1.8	1.0	1.0	1.0
857	0	1.6	1.9	1.6	1.8	1.0	0.7	0.7	0.9
859	0	1.8	1.8	1.2	1.0	1.2	1.2	1.2	1.2
861	0	1.6	1.9	0.9	0.7	0.9	1.0	1.0	1.0
863	0	3.1	2.6	2.4	2.5	1.9	1.5	1.3	1.3
865	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
867	0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
869	0	1.3	1.8	1.0	0.9	0.9	1.0	1.0	1.0
871	0	2.9	2.6	2.6	1.9	1.8	1.9	2.1	2.2
873	0	1.3	1.2	0.7	0.7	0.9	1.0	1.0	1.0
875	0	5.7	7.2	6.2	5.6	5.1	0.9	0.7	1.0
877	0	8.7	8.5	5.9	4.6	5.1	1.2	1.0	1.0

KEY ENERGY SERVICES
CARLSBAD, NM

SONARWIRE, INC
Vertical Cross Section

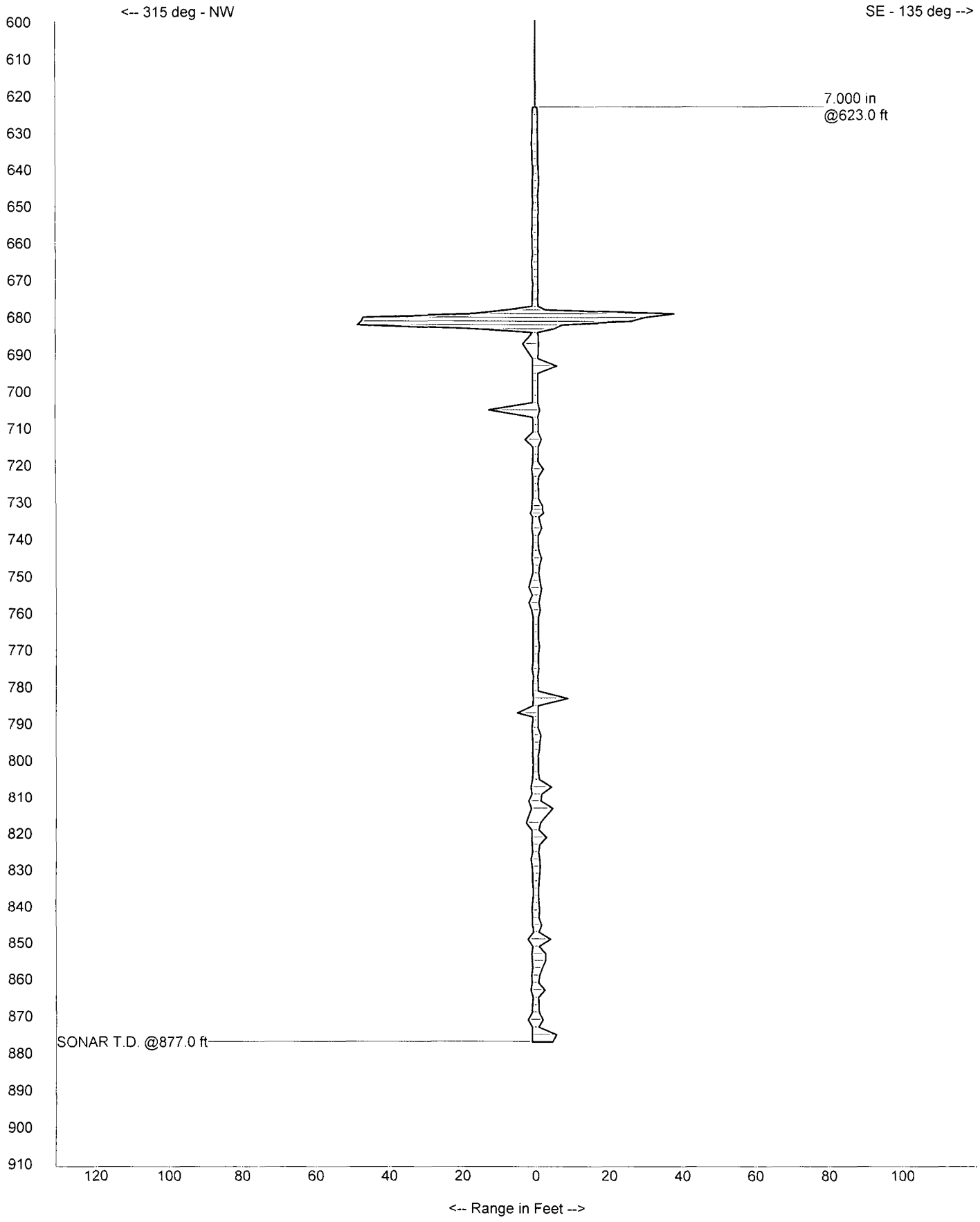
BRINE WELL NO. 1
Wed, Apr 2, 2008



KEY ENERGY SERVICES
CARLSBAD, NM

SONARWIRE, INC
Vertical Cross Section

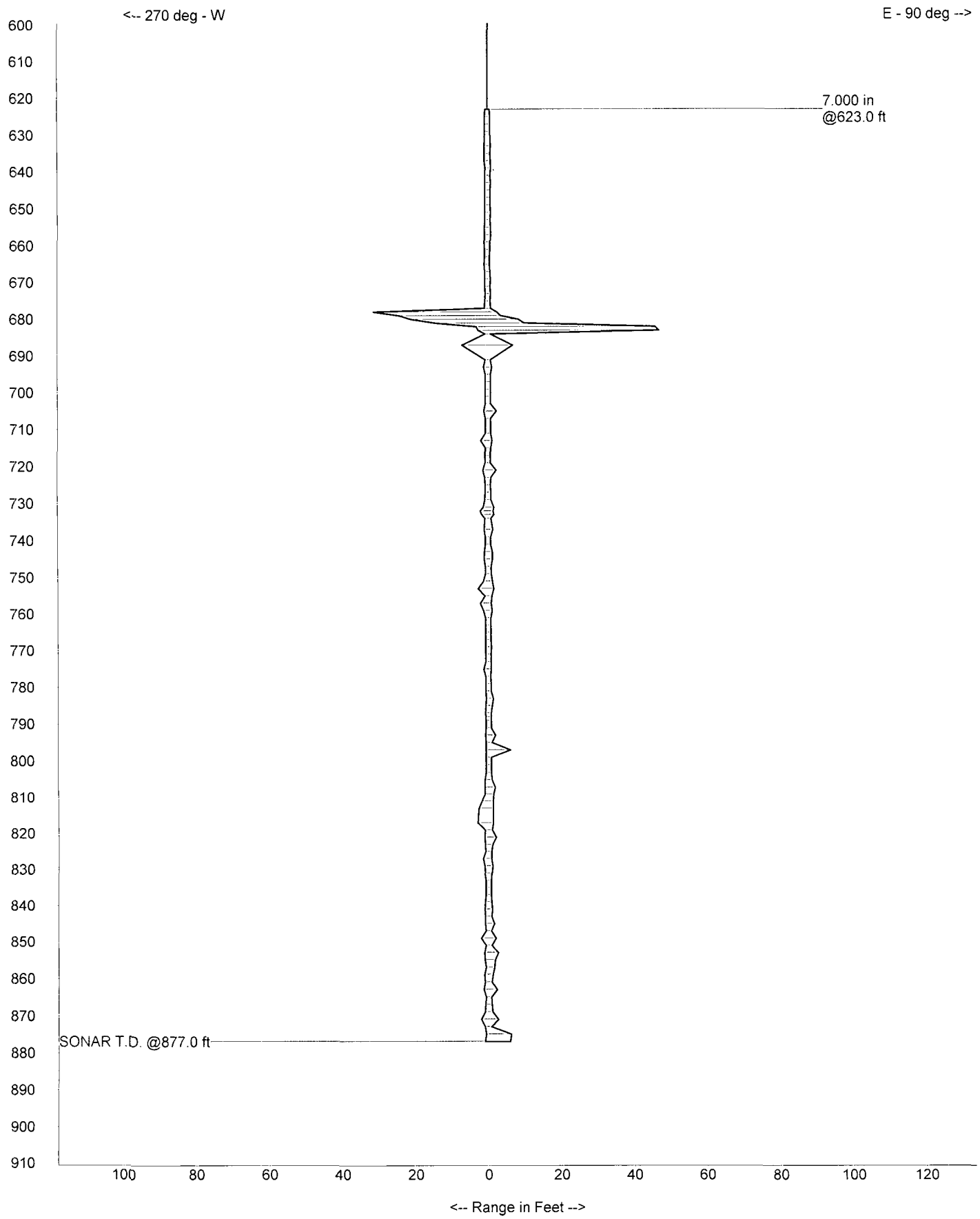
BRINE WELL NO. 1
Wed, Apr 2, 2008



KEY ENERGY SERVICES
CARLSBAD, NM

SONARWIRE, INC
Vertical Cross Section

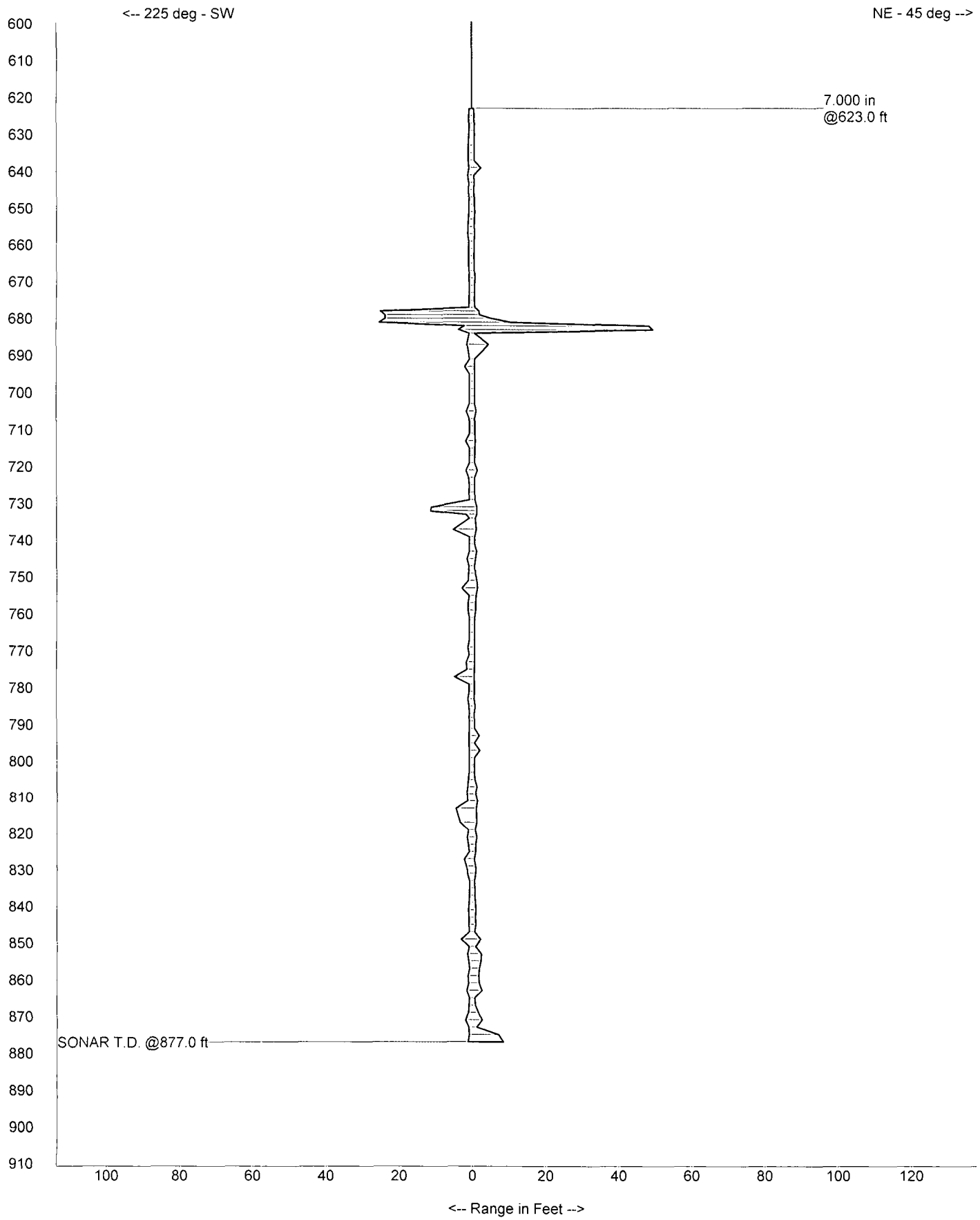
BRINE WELL NO. 1
Wed, Apr 2, 2008



KEY ENERGY SERVICES
CARLSBAD, NM

SONARWIRE, INC
Vertical Cross Section

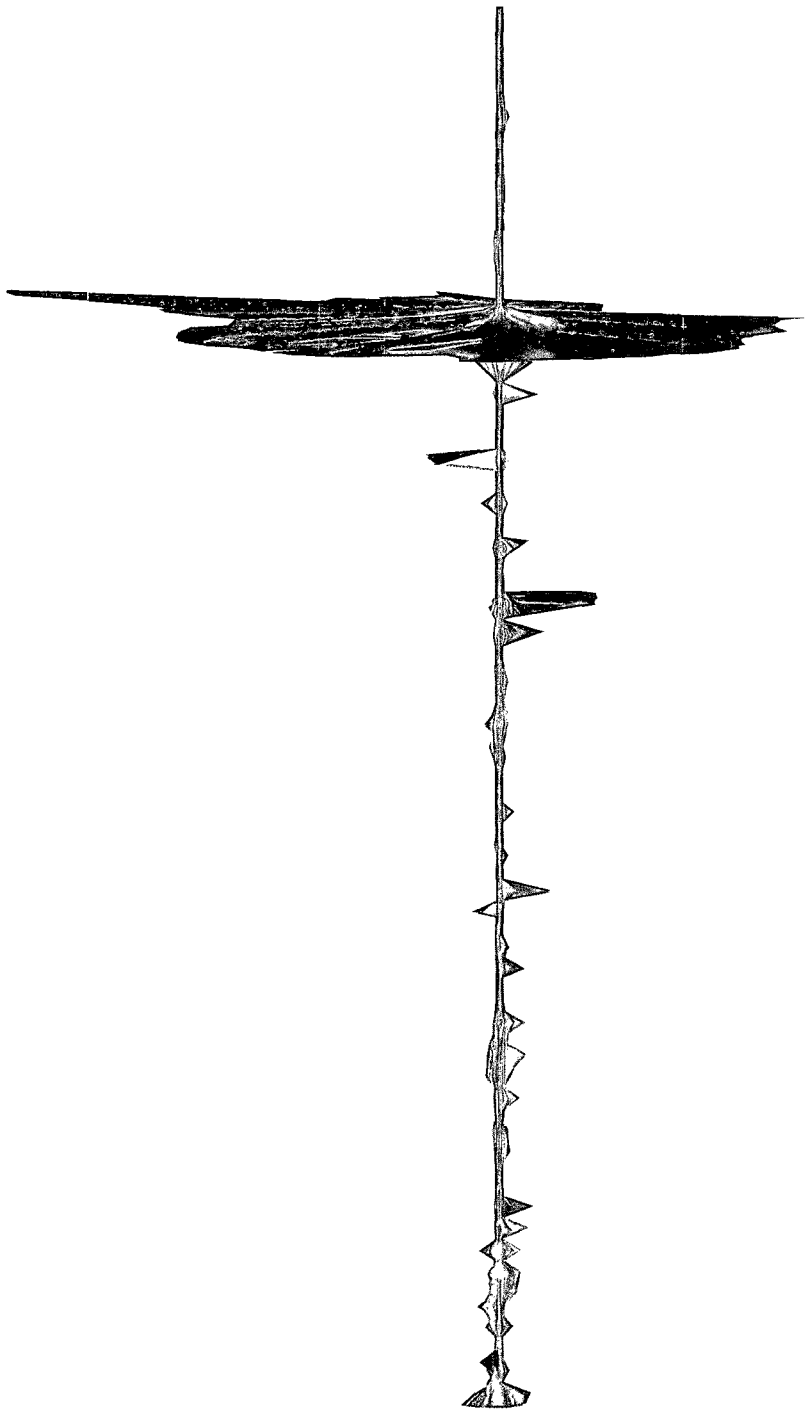
BRINE WELL NO. 1
Wed, Apr 2, 2008



3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

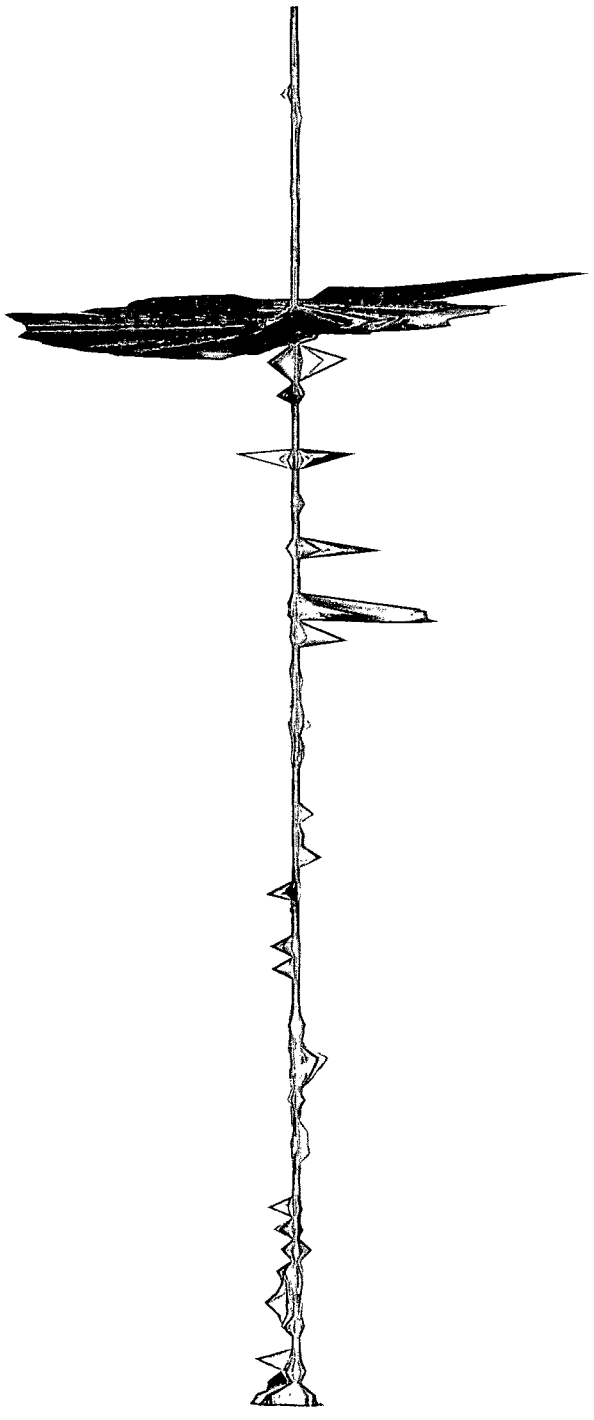
VIEWING AZIMUTH: 45
AXIS TILT: -5 DEGS



3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

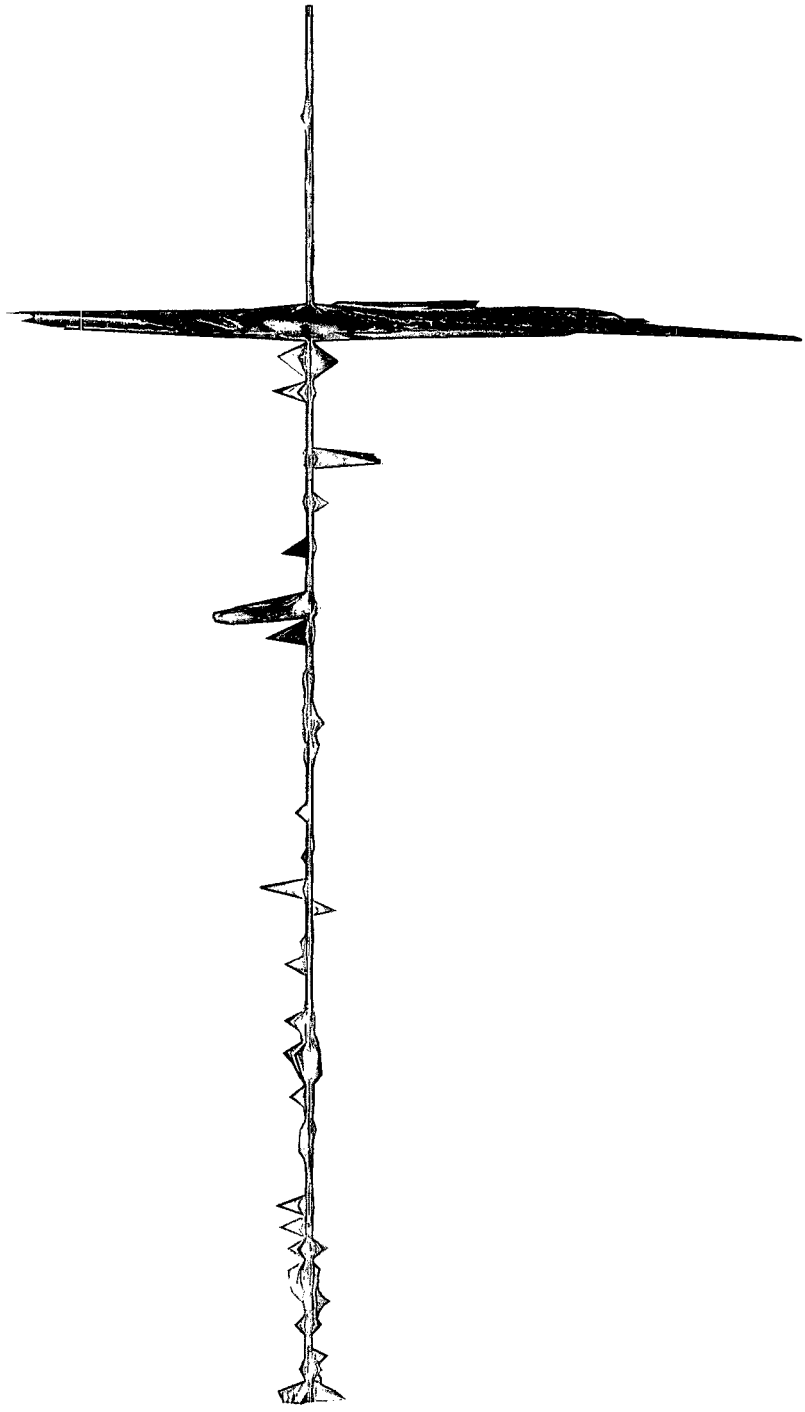
VIEWING AZIMUTH: 135
AXIS TILT: -5 DEGS



3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

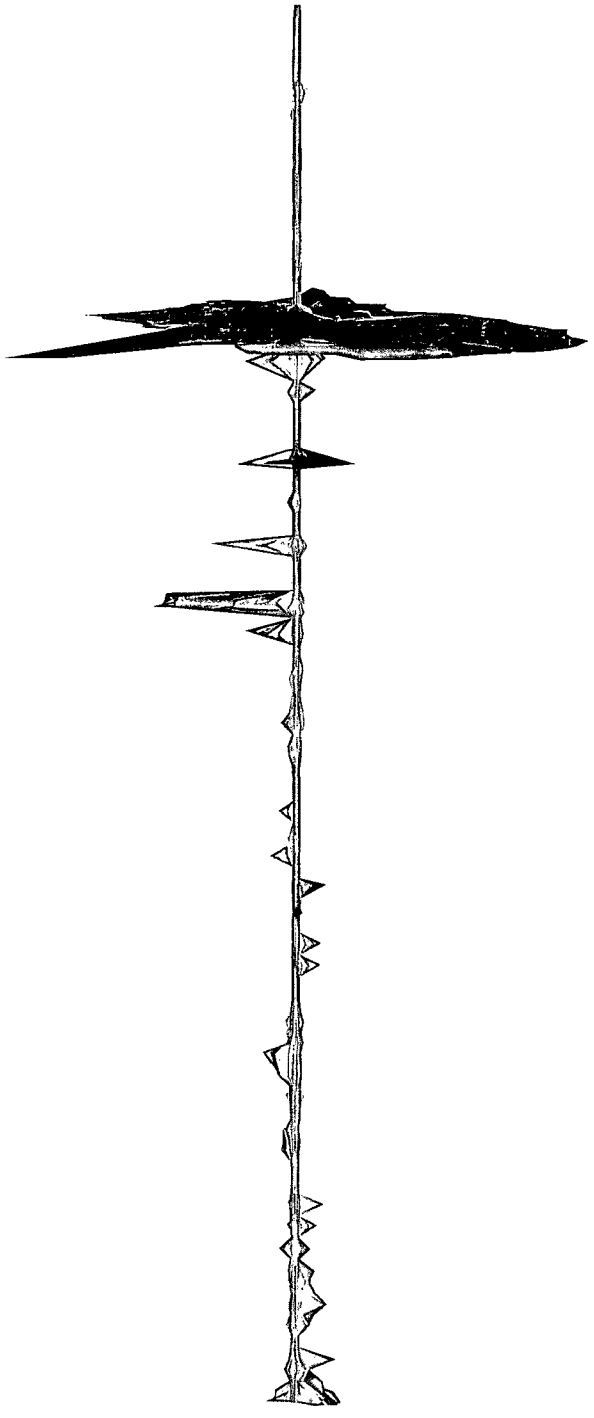
VIEWING AZIMUTH: 225
AXIS TILT: -5 DEGS



3D SHADE PLOT

KEY ENERGY SERVICES
CARLSBAD, NM
WELL NO. 1
APRIL 2, 2008

VIEWING AZIMUTH: 315
AXIS TILT: -5 DEGS



SONARWIRE INC.
Wall Ranges versus Depth (ft.)

KEY ENERGY SERVICES
CARLSBAD, NM

BRINE WELL NO. 1
Wed, Apr 2, 2008

DEPTH: 623 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
90.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
112.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
135.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
157.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
180.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
202.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
225.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
247.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
270.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
292.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
315.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
337.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH: 625 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 627 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 629 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 633 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
315.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 635 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6

DEPTH: 637 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 639 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8
22.5	0.9	1.1	1.2	1.4	1.4	1.7	1.6	2.3
45.0	2.5	2.8	2.4	2.2	2.0	1.7	1.2	1.1
67.5	1.1	1.1	1.1	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
270.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
292.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
315.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
337.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH: 641 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.8
112.5	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	1.1	1.1	1.1	1.1
157.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
180.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
202.5	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1
225.0	1.1	1.1	1.1	0.9	0.9	0.9	0.9	0.9
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
292.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
315.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
337.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH: 643 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
90.0	0.8	0.8	0.8	0.8	0.9	1.1	1.1	1.1
112.5	0.9	0.9	0.9	0.9	0.9	1.1	1.1	1.1
135.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.5
157.5	1.5	1.6	1.9	2.0	2.2	2.2	2.1	2.1
180.0	1.9	1.7	1.6	1.5	1.4	1.4	1.3	1.2
202.5	1.1	1.1	1.1	0.9	0.8	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 645 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.9	0.9	0.9	0.9	0.9	1.1	1.1	1.1
157.5	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.3
180.0	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2
202.5	1.2	1.2	1.1	0.9	0.9	0.9	0.8	0.8
225.0	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 647 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 649 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
315.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
337.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH: 651 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
45.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 653 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 655 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
202.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
225.0	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 657 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	1.1	1.1	1.1
202.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
225.0	1.1	1.1	1.1	1.1	1.1	0.9	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
315.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
337.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

DEPTH: 659 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 661 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 663 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
90.0	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6

DEPTH: 665 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6
90.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
112.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
315.0	0.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1
337.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.9

DEPTH: 667 TILT: 0 RANGE: 25.0 VOS: 5776

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.2	1.2	1.1	1.1	1.1	1.1	1.1	0.9
22.5	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.8	0.8	0.9	0.9	0.9	1.1	1.2	1.2
337.5	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2

DEPTH: 669 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.1	1.1	1.1	1.1	1.1	1.1	0.9	0.9
22.5	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
315.0	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.1
337.5	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2

DEPTH: 671 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
22.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
292.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
315.0	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
337.5	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9

DEPTH: 673 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
270.0	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 675 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH:	677	TILT:	0	RANGE:	25.0	VOS:	5946		
Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
315.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
337.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

DEPTH:	678	TILT:	0	RANGE:	75.0	VOS:	5946		
Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
22.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
45.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5	1.9	1.9	2.2	2.2	2.2	2.2	2.2	2.5
90.0	2.5	3.8	3.8	4.1	4.4	4.4	4.1	4.1
112.5	4.1	3.8	3.5	3.2	3.2	3.2	3.2	3.2
135.0	2.8	2.8	2.8	3.2	3.2	3.2	3.2	3.2
157.5	4.1	3.2	20.9	21.5	22.8	23.1	23.1	23.4
180.0	23.7	20.6	20.9	21.2	21.2	21.8	21.8	21.5
202.5	21.5	21.5	20.9	21.2	21.5	22.2	23.1	24.0
225.0	25.0	26.3	28.2	29.7	32.9	36.7	40.2	32.3
247.5	32.3	32.6	32.3	32.0	33.9	34.5	34.8	31.6
270.0	31.3	39.9	39.2	38.6	38.0	37.0	37.0	15.2
292.5	12.7	11.7	10.4	9.8	9.2	8.9	8.5	8.2
315.0	7.6	6.0	4.1	3.8	3.5	3.5	3.5	3.2
337.5	2.8	2.5	2.5	2.2	2.2	2.2	2.2	1.9

DEPTH:	679	TILT:	0	RANGE:	125.0	VOS:	5946		
Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	3.2	3.2	3.2	3.2	2.6	2.6	2.6	2.6
22.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
45.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
67.5	2.1	2.1	2.1	2.1	2.1	2.6	3.2	3.7
90.0	3.7	4.2	4.7	5.3	6.3	10.5	11.6	11.6
112.5	11.6	11.6	12.1	13.2	14.2	36.9	51.7	57.0
135.0	38.0	35.9	33.2	30.6	28.5	22.1	21.6	21.6
157.5	21.1	20.0	20.6	21.6	21.1	20.0	19.5	19.5
180.0	20.0	20.0	20.0	20.0	20.6	20.6	20.6	20.6
202.5	20.6	19.5	19.5	20.0	19.5	20.0	20.6	21.6
225.0	23.7	25.3	29.0	30.6	36.4	36.4	31.1	31.1
247.5	31.6	31.1	30.6	30.6	29.5	29.0	31.6	24.3
270.0	24.3	23.2	22.7	22.1	22.1	104.4	101.8	97.6
292.5	82.8	73.3	66.4	62.8	63.3	61.7	61.2	18.5
315.0	16.9	15.3	14.8	13.7	13.2	12.7	12.1	11.6
337.5	11.1	10.5	10.0	10.0	4.7	3.7	3.2	3.2

DEPTH: 680 TILT: 0 RANGE: 125.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	8.4	7.9	7.4	6.9	6.3	5.8	5.3	4.7
22.5	4.2	4.7	4.7	5.3	5.3	5.3	5.3	5.3
45.0	5.3	5.8	5.8	5.8	6.3	6.3	6.9	6.9
67.5	6.9	6.9	6.9	6.9	7.4	7.9	7.9	8.4
90.0	8.4	9.0	9.5	10.0	11.1	11.1	11.6	12.1
112.5	12.7	13.2	36.9	37.4	49.0	49.6	50.6	36.9
135.0	30.1	28.5	25.8	23.2	21.1	19.0	17.9	17.4
157.5	16.9	16.3	15.8	15.8	16.3	16.9	17.9	18.5
180.0	19.0	19.0	19.0	19.0	19.0	19.0	18.5	18.5
202.5	19.0	20.0	20.0	20.0	20.6	20.6	20.6	21.6
225.0	23.7	25.3	28.0	28.0	28.5	28.5	29.0	29.0
247.5	29.5	29.5	30.1	30.1	29.5	28.5	26.4	21.6
270.0	21.1	21.1	20.6	20.6	20.6	20.6	21.6	45.9
292.5	45.9	46.4	46.4	46.9	47.5	48.0	48.5	48.0
315.0	46.9	46.9	46.9	46.9	57.5	57.5	58.0	57.5
337.5	57.0	56.4	55.9	52.7	52.2	50.1	11.1	9.0

DEPTH: 681 TILT: 0 RANGE: 125.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	10.0	9.0	8.4	7.9	7.9	60.1	60.1	57.5
22.5	53.8	52.2	50.6	50.6	50.1	49.6	49.6	10.5
45.0	10.5	9.5	8.4	7.9	7.4	7.9	8.4	8.4
67.5	8.4	9.0	8.4	8.4	9.0	9.5	10.0	10.0
90.0	10.0	10.5	11.1	11.6	12.7	13.7	15.8	17.4
112.5	21.1	48.5	48.0	46.4	48.0	53.3	50.1	28.5
135.0	26.4	25.8	21.1	21.1	15.3	15.3	14.8	14.2
157.5	14.2	14.2	14.2	14.2	13.2	13.2	13.7	14.8
180.0	19.5	18.5	17.4	17.4	16.9	16.3	15.8	15.8
202.5	15.8	15.8	20.6	21.6	22.7	23.2	24.3	24.8
225.0	25.3	26.4	28.5	11.6	12.1	12.1	13.7	15.8
247.5	16.9	17.4	17.9	20.0	21.1	21.6	22.1	22.1
270.0	14.2	13.7	12.7	12.1	11.6	10.5	10.0	10.0
292.5	10.5	10.5	10.5	46.4	47.5	48.0	49.6	49.6
315.0	47.5	47.5	48.5	49.0	59.6	59.6	58.5	59.1
337.5	58.0	59.6	60.1	51.7	51.2	51.7	53.8	54.3

DEPTH: 682 TILT: 0 RANGE: 125.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	59.1	59.6	59.6	59.1	59.1	58.5	58.0	56.4
22.5	53.8	52.7	51.2	50.1	49.6	49.0	49.0	49.0
45.0	48.5	48.0	47.5	46.9	46.4	45.9	45.4	44.8
67.5	44.3	44.3	44.3	44.8	45.9	45.9	45.9	45.9
90.0	45.9	46.9	47.5	48.0	47.5	46.9	46.4	46.4
112.5	46.4	45.9	45.4	45.4	46.9	46.9	10.0	9.5
135.0	7.4	6.9	6.3	5.3	5.3	4.2	4.2	4.2
157.5	4.2	4.2	4.2	3.7	3.7	3.7	3.7	3.7
180.0	4.2	4.2	4.2	4.2	4.2	4.7	4.7	4.7
202.5	4.7	4.7	4.2	3.7	3.2	2.6	2.1	2.1
225.0	2.1	2.6	3.2	3.2	3.2	3.7	3.7	3.7
247.5	3.7	3.7	3.2	3.2	3.2	3.2	3.2	3.2
270.0	3.2	3.7	4.2	4.2	4.2	4.7	5.3	5.8
292.5	6.3	6.3	6.9	7.9	46.9	47.5	48.0	48.5
315.0	48.5	48.5	48.0	48.5	60.1	60.1	61.2	61.2
337.5	60.6	60.1	60.1	58.0	57.5	57.0	57.5	58.5

DEPTH: 683 TILT: 0 RANGE: 125.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	6.3	5.8	5.8	5.8	5.8	5.8	5.3	5.3
22.5	5.3	4.7	4.7	4.2	4.2	50.1	50.6	50.6
45.0	49.6	49.0	47.5	46.9	46.9	47.5	46.9	46.9
67.5	46.9	45.9	45.9	46.4	46.9	46.9	46.4	45.9
90.0	46.9	48.5	48.5	48.5	48.5	48.0	48.5	48.5
112.5	46.9	46.4	46.9	7.4	6.9	6.3	5.8	5.3
135.0	5.3	5.3	4.7	4.2	4.2	4.2	4.2	4.2
157.5	4.2	4.2	3.7	3.7	4.2	4.2	4.2	4.2
180.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
202.5	4.2	3.7	3.2	3.2	3.2	3.2	3.2	3.7
225.0	3.7	3.2	3.2	2.6	2.6	2.1	2.1	2.1
247.5	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.6
270.0	2.6	2.6	2.6	2.6	2.6	8.4	8.4	9.0
292.5	9.0	10.5	13.2	13.2	18.5	19.0	18.5	17.9
315.0	16.9	15.8	15.3	6.3	6.3	6.3	6.3	6.3
337.5	5.8	6.3	6.3	6.3	6.3	6.3	6.3	6.3

DEPTH: 684 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 687 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	3.7	3.6	3.5	3.5	3.3	3.2	3.2	3.3
22.5	3.1	3.1	3.1	3.2	3.2	4.2	4.3	4.4
45.0	4.5	4.6	4.5	4.4	4.3	4.3	4.3	4.2
67.5	4.1	4.1	4.1	4.1	4.1	6.5	6.6	6.7
90.0	6.8	7.2	7.4	7.7	1.5	1.2	1.1	0.9
112.5	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.9	0.9	1.1	1.1	1.1	1.4	1.4	1.4
202.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
225.0	1.4	4.8	5.0	5.1	5.4	5.5	5.4	5.8
247.5	10.4	10.4	10.3	10.0	9.0	8.6	8.2	7.2
270.0	7.1	7.1	6.8	6.0	5.6	5.4	5.2	5.1
292.5	4.3	4.0	3.6	3.6	3.6	3.7	3.7	3.7
315.0	3.5	1.6	1.6	1.7	1.7	1.8	1.9	2.0
337.5	2.0	2.2	2.3	2.4	2.6	2.7	2.9	3.7

DEPTH: 691 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 693 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.1
90.0	1.2	1.3	1.5	2.9	6.5	6.6	6.7	6.6
112.5	6.3	6.1	6.7	7.4	7.1	6.4	6.1	6.1
135.0	5.9	5.6	5.2	5.3	5.0	4.1	4.2	4.4
157.5	3.1	2.6	2.6	2.5	2.5	2.5	2.5	2.5
180.0	2.5	2.4	2.2	2.1	2.0	2.0	1.9	1.9
202.5	1.7	1.6	1.6	1.8	1.9	1.9	1.9	2.0
225.0	2.0	1.9	1.8	1.7	1.6	1.6	1.7	1.7
247.5	1.7	1.7	1.8	1.9	1.9	1.9	2.0	2.0
270.0	1.2	0.9	0.9	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6

DEPTH: 695 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 697 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 699 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 701 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 703 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 705 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	16.0	1.7	1.4	1.3	1.6	2.0	1.9	1.5
22.5	1.5	1.3	2.1	1.3	1.2	1.2	1.3	1.2
45.0	1.2	1.1	1.2	1.3	2.7	1.5	1.3	2.1
67.5	2.7	2.1	1.2	2.0	2.0	2.0	1.4	1.9
90.0	2.3	2.4	1.2	1.2	1.2	1.2	1.2	1.3
112.5	1.5	1.5	1.3	1.2	2.2	1.2	1.1	1.5
135.0	1.3	1.4	1.2	1.2	1.3	1.3	1.5	1.3
157.5	1.5	1.5	1.5	1.3	1.4	1.5	1.5	1.3
180.0	1.2	1.2	1.9	1.8	1.4	1.6	2.1	1.8
202.5	1.3	2.4	1.7	1.8	1.6	1.2	1.1	1.2
225.0	1.6	1.6	1.7	1.3	1.5	1.4	2.0	1.2
247.5	1.6	1.9	1.9	2.0	3.9	1.7	2.8	2.6
270.0	1.2	2.2	17.5	16.5	15.7	15.1	14.6	14.3
292.5	14.2	13.9	13.7	13.5	13.4	13.2	13.1	12.9
315.0	12.7	12.5	12.4	12.4	12.5	12.6	12.7	12.9
337.5	13.1	13.2	13.5	13.6	13.7	14.2	15.9	16.0

DEPTH: 707 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 709 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 711 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 713 TILT: 0 RANGE: 25.0 VOS: 5946

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.1	1.1	0.9	0.9	0.8	0.8	0.8	0.8
22.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
67.5	0.8	0.9	1.1	1.1	1.1	1.2	1.2	1.2
90.0	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4
112.5	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6
135.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
157.5	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7
180.0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
202.5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
225.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
247.5	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.9
270.0	2.0	2.0	2.1	2.2	2.2	2.3	2.5	2.6
292.5	2.8	2.9	3.2	3.6	3.5	3.3	2.9	2.8
315.0	2.8	2.7	2.5	2.4	2.3	2.3	2.3	2.1
337.5	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2

DEPTH: 715 TILT: 0 RANGE: 25.1 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 717 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 719 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 721 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4
22.5	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5
45.0	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1
67.5	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2
90.0	2.3	2.4	2.5	2.6	2.8	2.8	2.8	2.7
112.5	2.7	2.6	2.6	2.4	2.3	2.3	2.3	2.2
135.0	2.2	2.1	2.0	1.9	1.8	1.7	1.7	1.7
157.5	1.7	1.6	1.5	1.4	1.4	1.5	2.7	3.3
180.0	5.8	5.8	5.9	6.1	6.7	7.0	9.3	11.5
202.5	12.6	16.2	16.2	16.0	9.0	6.1	6.0	1.8
225.0	1.7	1.6	1.6	1.5	1.5	1.6	1.6	1.5
247.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3
270.0	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3
292.5	1.3	1.3	1.3	1.3	1.3	1.2	1.1	1.1
315.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2
337.5	1.2	1.2	1.3	1.4	1.4	1.4	1.4	1.3

DEPTH: 723 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8
180.0	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
202.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 725 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 727 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 729 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 731 TILT: 0 RANGE: 50.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.5	0.8	1.1	1.1	1.1	1.3	1.3	1.3	1.3
45.0	1.3	1.3	1.5	1.5	1.5	1.5	1.5	1.5
67.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
90.0	1.7	1.7	1.7	1.7	1.7	1.9	1.9	1.9
112.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
135.0	1.9	1.9	2.1	2.1	2.1	2.1	2.3	2.3
157.5	2.3	2.3	2.3	2.3	2.3	2.5	2.7	5.1
180.0	5.3	5.5	27.6	28.1	28.7	27.8	25.9	25.3
202.5	24.7	22.6	11.8	11.8	11.4	11.4	11.6	11.4
225.0	11.2	10.5	5.1	4.9	4.4	4.0	4.0	4.2
247.5	3.0	2.7	1.9	1.7	1.5	1.3	1.3	1.3
270.0	1.3	1.3	1.3	1.3	1.3	1.3	1.1	1.1
292.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
315.0	1.1	1.1	0.8	0.8	0.8	0.8	0.8	0.8
337.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

DEPTH: 732 TILT: 0 RANGE: 50.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
22.5	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3
45.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
90.0	1.5	1.5	1.5	1.5	1.5	1.7	1.7	1.7
112.5	1.7	1.7	1.7	1.9	1.9	1.9	1.9	1.9
135.0	1.9	1.9	2.1	2.5	2.5	2.5	2.5	2.5
157.5	2.5	2.5	2.7	2.7	3.2	3.8	4.2	16.0
180.0	16.5	25.5	28.1	28.1	28.3	28.1	24.0	23.2
202.5	23.0	23.4	11.4	11.2	11.4	11.6	11.6	11.4
225.0	11.4	11.6	3.6	3.4	3.4	3.2	3.2	3.0
247.5	3.0	2.7	2.5	2.5	2.5	2.3	2.3	2.1
270.0	2.1	2.3	2.5	2.5	2.3	2.1	2.1	1.9
292.5	1.9	1.5	1.5	1.3	1.3	1.1	1.1	1.1
315.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
337.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

DEPTH: 733 TILT: 0 RANGE: 50.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
22.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
45.0	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
67.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
90.0	1.7	1.9	1.9	1.9	1.9	1.9	1.9	1.9
112.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
135.0	2.1	2.1	2.1	2.3	2.5	2.7	3.2	3.4
157.5	3.6	3.8	4.0	4.4	10.3	10.5	11.0	12.7
180.0	14.8	25.9	26.6	27.8	28.3	28.9	29.5	28.7
202.5	24.0	23.0	17.7	15.4	10.8	2.5	2.3	2.1
225.0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
247.5	1.7	1.9	1.9	1.7	1.7	1.7	1.7	1.7
270.0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
292.5	1.7	1.7	1.7	1.7	1.5	1.5	1.5	1.5
315.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
337.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

DEPTH: 734 TILT: 0 RANGE: 50.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
315.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
337.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

DEPTH: 737 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3
22.5	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2
45.0	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3
67.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
112.5	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.7
135.0	1.7	1.7	1.8	1.8	1.8	2.0	2.1	2.2
157.5	2.5	2.6	3.0	3.1	3.5	3.5	3.6	4.0
180.0	4.4	12.4	12.2	10.5	10.0	8.6	7.3	6.5
202.5	6.0	5.8	5.8	5.7	5.6	5.5	5.4	5.3
225.0	5.2	3.5	3.4	2.8	2.5	1.8	1.6	1.5
247.5	1.4	1.3	1.1	1.1	1.2	1.2	1.2	1.1
270.0	1.1	0.9	1.1	1.1	1.1	1.1	1.1	1.2
292.5	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1
315.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
337.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

DEPTH: 739 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 741 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 743 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3
22.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
45.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90.0	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2
112.5	1.1	1.1	1.1	1.1	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
202.5	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
270.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
315.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
337.5	0.9	0.9	0.9	0.9	1.1	1.2	1.2	1.2

DEPTH: 745 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
45.0	0.9	0.9	0.9	0.9	0.9	0.9	1.1	1.1
67.5	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
90.0	1.3	1.4	1.5	1.5	1.6	1.7	1.7	1.7
112.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
135.0	1.7	1.6	1.6	1.5	1.4	1.4	1.5	1.5
157.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4
180.0	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.4
202.5	1.4	1.2	1.3	1.4	1.5	1.5	1.5	1.4
225.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3
247.5	1.3	1.3	1.2	1.1	0.9	0.9	0.9	0.9
270.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

DEPTH: 747 TILT: 0 RANGE: 25.0 VOS: 5978

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.5	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
90.0	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
112.5	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
135.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
157.5	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1
180.0	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.9	0.8	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8

DEPTH: 749 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
45.0	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
202.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
225.0	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6
292.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8

DEPTH: 751 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
22.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
45.0	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4
67.5	1.4	1.5	1.5	1.5	1.4	1.3	1.3	1.3
90.0	1.3	1.4	1.4	1.4	1.5	1.6	1.7	1.7
112.5	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.4
135.0	1.3	1.3	1.1	1.1	1.2	1.3	1.3	1.3
157.5	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.5
180.0	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.6
202.5	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.3
225.0	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
247.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
270.0	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
292.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
315.0	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.2
337.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

DEPTH: 753 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.6	1.6	1.7	1.7	1.6	1.6	1.4	1.4
22.5	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5
45.0	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4
67.5	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.6
90.0	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.6
112.5	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.6
135.0	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5
157.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.5
180.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
202.5	1.4	1.4	2.1	3.0	3.0	2.8	2.7	2.7
225.0	2.8	2.8	2.7	2.5	2.5	2.5	2.4	2.4
247.5	2.3	2.4	2.5	2.6	2.6	2.6	2.6	2.6
270.0	2.7	2.8	3.0	3.0	3.2	3.2	3.2	3.1
292.5	1.7	1.6	1.6	1.7	1.8	1.9	1.9	1.9
315.0	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7
337.5	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6

DEPTH: 755 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.3	1.2	1.2	1.2	1.2	1.1	1.1
22.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
45.0	1.1	1.1	1.1	0.9	0.9	0.8	0.8	0.8
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.1
90.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
112.5	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2
135.0	1.3	1.4	1.4	1.3	1.3	1.3	1.3	1.3
157.5	1.2	1.2	1.1	1.1	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	1.1	1.1	1.1	1.2	1.2	1.3
337.5	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.3

DEPTH: 757 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2
22.5	1.1	1.1	1.1	1.1	1.1	0.9	0.9	0.9
45.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.1
180.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
202.5	1.1	1.1	0.9	0.9	0.9	1.1	1.1	1.2
225.0	1.2	1.3	1.3	1.4	1.5	1.6	1.6	1.7
247.5	1.7	1.7	1.7	1.8	1.9	2.0	2.1	2.1
270.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0
292.5	2.0	1.9	1.9	1.8	1.8	1.8	1.9	1.9
315.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.7
337.5	1.7	1.7	1.6	1.4	1.3	1.3	1.3	1.3

DEPTH: 759 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1
22.5	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9
45.0	0.9	0.9	0.9	0.9	1.1	1.1	1.1	1.1
67.5	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2
90.0	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
112.5	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
135.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
157.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
180.0	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1
202.5	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
225.0	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4
247.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.3
270.0	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2
292.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
315.0	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1
337.5	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2

DEPTH: 761 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 763 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 765 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 767 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 769 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
90.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.9	1.1	1.1	1.1
135.0	1.1	1.1	1.1	1.1	1.1	1.2	1.3	1.2
157.5	1.3	1.4	1.5	1.6	1.8	2.0	2.4	3.0
180.0	3.8	4.2	4.2	4.1	3.9	3.8	3.7	3.5
202.5	3.4	3.3	3.0	1.7	1.6	1.5	1.4	1.3
225.0	1.2	0.9	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 771 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 773 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.8	0.8	0.9	0.9	0.9	1.1	0.9	0.9
180.0	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3
202.5	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.6
225.0	1.6	1.5	1.4	1.3	1.2	1.2	1.2	1.1
247.5	1.1	0.9	0.9	0.9	0.8	0.8	0.8	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 775 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
112.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
135.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
157.5	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	1.1	1.2	1.2	1.2	1.2	1.3	1.4	1.4
225.0	1.4	1.5	1.5	1.5	1.6	1.7	1.7	1.7
247.5	1.8	1.8	1.7	1.6	1.5	1.4	1.4	1.4
270.0	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2
292.5	1.2	1.2	1.2	1.1	1.1	1.1	1.1	0.9
315.0	0.9	0.9	0.9	1.1	1.1	1.1	1.1	0.9
337.5	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8

DEPTH: 777 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
90.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
112.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
135.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
157.5	0.7	0.7	0.7	0.7	0.8	0.8	0.9	1.1
180.0	1.2	1.2	1.3	1.4	1.6	2.1	2.7	3.8
202.5	4.0	4.2	4.4	4.4	4.5	4.6	4.7	4.7
225.0	4.7	4.5	4.6	3.5	3.0	2.3	1.8	1.6
247.5	1.5	1.3	1.1	0.9	0.8	0.8	0.8	0.8
270.0	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6
292.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
315.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
337.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH: 779 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 781 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 783 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
22.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.9
67.5	0.9	0.9	0.9	1.1	1.1	1.2	1.2	1.3
90.0	1.4	1.7	2.1	3.9	3.9	11.0	10.0	9.7
112.5	9.5	9.3	9.4	9.6	9.3	9.2	8.9	8.9
135.0	8.9	8.8	3.5	1.4	1.3	1.3	1.2	1.1
157.5	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3
180.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2
202.5	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
225.0	1.1	0.9	0.9	0.9	0.8	0.8	0.8	0.7
247.5	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
270.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
292.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
315.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
337.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH: 785 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9
45.0	0.9	0.9	0.9	0.9	0.9	0.9	1.1	1.1
67.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
90.0	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 787 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
180.0	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6
225.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
247.5	0.6	0.6	0.6	0.6	0.5	0.5	0.7	0.7
270.0	0.8	0.8	0.8	0.8	0.8	0.9	1.2	1.4
292.5	1.4	1.5	1.7	1.7	1.7	1.7	4.9	4.9
315.0	5.0	5.1	5.1	5.1	5.1	4.7	3.4	3.2
337.5	2.8	2.5	0.9	0.9	0.8	0.8	0.8	0.7

DEPTH: 788 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 789 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 791 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8
22.5	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
292.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
315.0	0.9	0.9	0.9	0.9	0.9	0.9	1.1	1.1
337.5	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 793 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	1.1	1.2	1.3
22.5	1.4	1.6	1.7	1.8	1.8	1.8	1.9	1.9
45.0	2.0	3.1	3.1	3.6	3.7	4.7	4.7	4.9
67.5	5.0	2.3	2.3	2.2	2.0	2.0	1.9	1.9
90.0	1.9	1.8	1.7	1.6	1.6	1.6	1.6	1.6
112.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
135.0	1.5	1.5	1.4	1.5	1.5	1.6	1.6	1.6
157.5	1.6	1.5	1.5	1.4	1.3	1.2	1.2	1.1
180.0	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
247.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
270.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
292.5	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8
315.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 795 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
90.0	0.9	1.1	1.1	1.2	1.2	1.2	1.2	1.2
112.5	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3
135.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
157.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
180.0	1.3	1.2	1.1	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8
225.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 797 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.7
22.5	0.8	0.9	1.1	1.2	1.6	1.8	1.9	2.1
45.0	2.2	2.3	2.3	2.3	2.3	2.4	2.5	3.6
67.5	4.9	5.0	5.1	5.2	5.3	5.5	5.6	5.7
90.0	6.0	6.0	6.1	3.6	1.4	1.3	1.2	1.2
112.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
135.0	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
157.5	1.1	1.1	1.1	1.1	1.1	0.9	0.9	0.9
180.0	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.5	0.5	0.5	0.5	0.5
337.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH: 799 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 801 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 803 TILT: 0 RANGE: 25.0 VOS: 5983

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 805 TILT: 0 RANGE: 24.9 VOS: 5952

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
45.0	0.9	0.9	1.0	1.0	1.0	1.0	0.9	0.9
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	1.0	0.9	1.0	1.0	1.0
135.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
157.5	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9
292.5	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 807 TILT: 0 RANGE: 24.9 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
22.5	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.5
45.0	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7
67.5	1.7	1.7	1.7	1.8	1.7	1.7	1.8	1.8
90.0	1.8	1.9	1.9	2.0	2.1	2.2	2.3	2.4
112.5	2.7	2.5	4.9	4.8	4.7	4.6	4.6	4.6
135.0	4.4	4.4	4.3	4.4	4.2	4.1	4.0	3.8
157.5	3.8	3.6	3.4	3.4	3.4	3.0	2.8	2.7
180.0	2.5	2.3	2.3	2.2	2.1	2.1	1.9	1.7
202.5	1.6	1.5	1.4	1.3	1.2	1.3	1.2	1.3
225.0	1.2	1.2	1.2	1.2	1.2	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2
292.5	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
315.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
337.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

DEPTH: 809 TILT: 0 RANGE: 24.9 VOS: 5949

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2
22.5	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2
45.0	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3
67.5	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
90.0	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5
112.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7
135.0	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8
157.5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
180.0	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7
202.5	1.7	1.8	1.8	1.8	1.8	1.7	1.6	1.5
225.0	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.2
247.5	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1
270.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
292.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
315.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
337.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

DEPTH: 811 TILT: 0 RANGE: 24.9 VOS: 5950

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6
22.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
45.0	1.5	1.6	1.6	1.6	1.5	1.4	1.4	1.4
67.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90.0	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4
112.5	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5
135.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
157.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3
180.0	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.2
202.5	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.3
225.0	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.6
247.5	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9
270.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
292.5	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9
315.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
337.5	1.9	1.8	1.9	1.8	1.8	1.8	1.8	1.7

DEPTH: 813 TILT: 0 RANGE: 24.9 VOS: 5952

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.0	1.0	1.0	0.9	1.0	1.0	0.9	1.0
22.5	1.0	1.2	1.0	1.0	1.2	1.0	1.2	1.2
45.0	1.2	1.2	1.2	1.2	1.0	1.2	1.2	1.2
67.5	1.2	1.2	1.4	1.2	1.3	1.2	1.2	1.3
90.0	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4
112.5	1.3	1.4	1.4	1.4	1.5	3.4	4.6	4.7
135.0	4.7	4.7	4.8	4.8	4.9	4.8	4.6	4.5
157.5	4.5	4.5	4.5	4.6	4.6	4.7	4.6	4.8
180.0	4.7	4.9	4.9	4.9	4.9	5.1	5.4	5.7
202.5	6.1	6.4	6.4	4.6	4.5	4.5	4.5	4.5
225.0	4.4	4.3	4.3	4.2	4.2	4.2	4.2	4.1
247.5	4.1	4.0	3.6	3.5	3.4	3.1	2.9	2.8
270.0	2.7	2.6	2.6	2.5	2.5	2.5	2.6	2.5
292.5	2.5	2.4	2.3	1.8	1.6	1.4	1.3	1.2
315.0	1.2	1.2	1.3	1.2	1.2	1.2	1.0	1.0
337.5	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.5

DEPTH: 817 TILT: 0 RANGE: 24.9 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.4
22.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3
45.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
112.5	1.4	1.3	1.4	1.3	1.4	1.4	1.4	1.4
135.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5
157.5	1.5	1.8	2.1	2.4	2.5	2.6	2.6	2.7
180.0	2.7	2.8	2.8	2.8	2.9	2.9	2.9	3.0
202.5	3.1	3.1	3.1	3.1	3.1	3.1	3.3	3.3
225.0	3.3	3.3	3.3	3.1	3.1	3.0	3.0	2.9
247.5	3.0	2.9	2.9	3.0	3.0	3.0	3.0	3.0
270.0	3.0	3.0	3.0	2.9	2.8	2.7	2.7	2.6
292.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
315.0	2.5	2.3	2.3	2.0	1.8	1.5	1.5	1.5
337.5	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5

DEPTH: 819 TILT: 0 RANGE: 24.9 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22.5	1.0	1.0	0.9	1.0	1.0	0.9	1.0	0.9
45.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0
225.0	1.0	1.2	1.0	1.0	1.0	1.0	0.9	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
337.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

DEPTH: 821 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2
22.5	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3
45.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.5
67.5	1.5	1.5	1.6	1.6	1.9	1.9	2.1	2.1
90.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
112.5	2.1	2.2	2.2	2.2	2.4	2.5	2.6	3.1
135.0	3.1	3.2	3.2	3.2	3.5	3.7	3.8	3.8
157.5	3.8	3.8	3.8	2.5	2.1	1.9	1.8	1.8
180.0	1.8	1.6	1.6	1.6	1.5	1.6	1.5	1.5
202.5	1.5	1.5	1.5	1.3	1.3	1.3	1.3	1.3
225.0	1.3	1.3	1.3	1.3	1.2	1.3	1.2	1.2
247.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
270.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
292.5	1.2	1.2	1.2	1.2	1.2	1.2	1.0	1.2
315.0	1.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2
337.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

DEPTH: 823 TILT: 0 RANGE: 34.8 VOS: 5950

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
45.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
67.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
112.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
135.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
157.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
180.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
202.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
225.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
337.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

DEPTH: 825 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
45.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
67.5	0.9	0.9	0.9	0.7	0.7	0.7	0.9	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9
225.0	0.7	0.9	0.9	0.9	1.0	1.0	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
270.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 827 TILT: 0 RANGE: 24.9 VOS: 5950

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.7
22.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2
157.5	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.7
180.0	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.4
202.5	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.1
225.0	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8
247.5	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6
270.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
292.5	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4
315.0	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2
337.5	1.2	1.2	1.0	1.0	1.0	0.9	0.9	0.9

DEPTH: 829 TILT: 0 RANGE: 34.8 VOS: 5952

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
45.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
67.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
112.5	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2
135.0	1.2	1.3	1.3	1.3	1.3	1.5	1.5	1.6
157.5	1.6	1.6	1.6	1.8	1.9	2.1	2.2	2.4
180.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5
202.5	2.1	1.8	1.6	1.6	1.6	1.5	1.5	1.5
225.0	1.5	1.5	1.3	1.3	1.3	1.3	1.2	1.2
247.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
270.0	1.2	1.2	1.2	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
337.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

DEPTH: 831 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
45.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	1.0	0.9	1.0	1.0	1.0	1.0
135.0	1.0	1.2	1.2	1.2	1.2	1.2	1.3	1.3
157.5	1.3	1.5	1.6	1.8	1.8	2.1	2.2	2.4
180.0	2.6	3.1	3.2	3.1	3.2	2.1	1.9	1.9
202.5	1.9	1.9	1.6	1.5	1.5	1.5	1.3	1.3
225.0	1.3	1.3	1.2	1.2	1.2	1.2	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 833 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6
45.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.9
90.0	0.7	0.6	0.7	0.6	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9
135.0	0.9	0.9	0.9	1.0	0.9	0.9	0.9	1.0
157.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
180.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.7

DEPTH: 835 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 837 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 839 TILT: 0 RANGE: 34.8 VOS: 5954

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
45.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
270.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 841 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
45.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6	5.1
67.5	5.9	5.7	1.6	1.5	1.3	1.2	1.2	1.0
90.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
112.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
135.0	1.0	1.8	1.8	6.3	6.3	2.2	2.2	1.8
157.5	1.6	1.6	1.5	1.3	1.2	1.2	1.2	1.2
180.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0
202.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
225.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
337.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

DEPTH: 843 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
45.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
270.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 845 TILT: 0 RANGE: 34.8 VOS: 5950

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0
45.0	1.0	1.0	1.0	1.9	2.4	2.5	2.8	2.9
67.5	3.2	4.6	4.7	4.6	4.1	3.7	3.7	2.1
90.0	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
112.5	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5
135.0	1.6	1.8	1.8	1.9	5.6	5.6	4.7	2.5
157.5	2.5	1.8	1.6	1.2	1.0	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
270.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 847 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 849 TILT: 0 RANGE: 34.8 VOS: 5954

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	3.5	3.5	3.5	3.4	3.4	3.2	3.1	2.9
22.5	2.9	2.8	2.6	2.5	2.5	2.4	2.4	2.4
45.0	2.4	2.4	2.4	2.2	2.2	2.2	2.2	2.2
67.5	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1
90.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.4
112.5	2.4	2.5	2.6	2.9	3.2	3.7	4.0	4.0
135.0	4.0	4.0	3.8	3.8	3.7	3.5	3.1	2.9
157.5	2.8	2.8	2.6	2.6	2.6	2.6	2.6	2.6
180.0	2.6	2.6	2.8	2.8	2.9	2.8	2.8	2.8
202.5	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9
225.0	2.9	2.8	2.8	2.6	2.6	2.5	2.5	2.5
247.5	2.5	2.4	2.4	2.4	2.2	2.2	2.2	2.1
270.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2
292.5	2.2	2.4	2.2	2.2	2.2	2.2	2.4	2.4
315.0	2.2	2.4	2.4	2.5	2.6	2.8	2.8	3.2
337.5	4.0	4.0	4.0	3.8	3.8	3.8	3.7	3.5

DEPTH:	851	TILT:	0	RANGE:	34.8	VOS:	5951		
Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7	
0.0	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
45.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.7	
270.0	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	

DEPTH:	853	TILT:	0	RANGE:	34.8	VOS:	5951		
Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7	
0.0	1.5	1.6	1.9	2.4	4.0	4.0	4.1	4.0	
22.5	3.5	3.2	3.1	2.8	2.8	2.6	2.5	2.5	
45.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
67.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	
90.0	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	
112.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	
135.0	2.6	2.6	3.7	3.8	4.0	3.7	2.8	2.5	
157.5	2.2	2.1	2.1	1.9	1.9	1.8	1.8	1.8	
180.0	1.8	1.8	1.8	1.6	1.6	1.6	1.6	1.5	
202.5	1.5	1.5	1.5	1.5	1.5	1.5	1.3	1.3	
225.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
247.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
270.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
292.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
315.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
337.5	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	

DEPTH:	855	TILT:	0	RANGE:	34.8	VOS:	5954		
Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7	
0.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	
22.5	2.9	2.9	2.9	2.8	2.8	2.6	2.5	2.5	
45.0	2.4	2.2	2.1	1.9	1.9	1.9	1.9	1.9	
67.5	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	
90.0	1.8	1.8	1.9	1.9	1.9	1.9	2.1	2.1	
112.5	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.5	
135.0	2.6	2.6	2.9	3.1	3.7	3.7	3.8	3.7	
157.5	2.8	2.5	2.4	2.2	2.1	1.9	1.9	1.8	
180.0	1.8	1.6	1.5	1.5	1.3	1.3	1.2	1.2	
202.5	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
225.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
247.5	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
315.0	1.0	1.0	1.2	1.2	1.2	1.3	1.3	1.3	
337.5	1.3	1.5	1.5	1.8	1.8	1.9	1.9	2.6	

DEPTH: 857 TILT: 0 RANGE: 34.9 VOS: 5934

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.6	1.6	1.8	2.2	2.9	4.0	4.3	4.1
22.5	3.5	3.1	2.4	2.2	2.1	1.9	1.9	1.9
45.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8
67.5	1.8	1.8	1.8	1.6	1.6	1.6	1.6	1.6
90.0	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
112.5	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.8
135.0	1.8	1.9	2.1	2.4	3.2	3.1	2.9	2.6
157.5	2.2	2.1	1.8	1.6	1.3	1.2	1.2	1.0
180.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.9	0.9	0.9	0.9
315.0	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.2
337.5	1.2	1.2	1.2	1.3	1.3	1.3	1.5	1.5

DEPTH: 859 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.8	1.9	6.5	6.6	6.6	6.6	6.6	6.3
22.5	6.2	6.0	5.7	5.4	5.3	2.1	1.8	1.8
45.0	1.8	1.8	1.8	1.8	1.6	1.6	1.6	1.5
67.5	1.5	1.3	1.3	1.3	1.2	1.2	1.2	1.2
90.0	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0
112.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
135.0	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.2
157.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
180.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
202.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
225.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
247.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
270.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
292.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
315.0	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
337.5	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.6

DEPTH: 861 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.6	1.6	1.9	1.9	2.6	4.1	4.0	3.8
22.5	3.4	3.2	3.2	3.1	2.8	1.9	1.9	1.9
45.0	1.9	1.8	1.8	1.8	1.6	1.3	1.2	1.0
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.9	0.7	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0
202.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
225.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2
337.5	1.2	1.2	1.2	1.2	1.2	1.3	1.5	1.5

DEPTH: 863 TILT: 0 RANGE: 34.8 VOS: 5954

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	3.1	3.2	3.2	2.9	2.8	2.8	2.8	2.6
22.5	2.6	2.6	2.6	2.6	2.8	2.8	2.8	2.6
45.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5
67.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4
90.0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
112.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5
135.0	2.5	2.6	2.6	2.6	2.5	2.5	2.5	2.4
157.5	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1
180.0	1.9	1.9	1.8	1.8	1.6	1.6	1.6	1.6
202.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5
225.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
247.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
270.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
292.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
315.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
337.5	1.3	1.5	1.8	1.8	3.1	3.1	3.1	3.1

DEPTH: 865 TILT: 0 RANGE: 34.8 VOS: 5954

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
22.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
45.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
157.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
180.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
202.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
225.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
315.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
337.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH: 867 TILT: 0 RANGE: 34.8 VOS: 5954

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
22.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
45.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
90.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
225.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
247.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
270.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
292.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
315.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
337.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

DEPTH: 869 TILT: 0 RANGE: 34.9 VOS: 5934

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.3	1.5	1.5	2.4	7.2	7.4	7.5
22.5	7.6	7.6	7.6	7.6	7.6	7.5	7.4	1.9
45.0	1.8	1.6	1.5	1.3	1.3	1.3	1.3	1.3
67.5	1.3	1.2	1.2	1.2	1.0	1.0	1.0	1.0
90.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9
112.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
135.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
157.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
202.5	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0
225.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2
337.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3

DEPTH: 871 TILT: 0 RANGE: 34.8 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8
22.5	2.8	2.8	2.8	2.8	2.8	2.8	2.6	2.6
45.0	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
67.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6
90.0	2.6	2.5	2.5	2.4	2.2	2.1	2.1	2.1
112.5	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9
135.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
157.5	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8
180.0	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
202.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
225.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
247.5	1.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1
270.0	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.4
292.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4
315.0	2.2	2.2	2.2	2.2	1.9	1.9	1.9	1.9
337.5	1.9	1.9	1.9	1.9	2.4	2.5	2.8	2.9

DEPTH: 873 TILT: 0 RANGE: 34.8 VOS: 5954

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	1.3	1.5	1.6	1.9	1.9	1.9	1.9	5.4
22.5	5.6	5.4	5.3	1.8	1.8	1.3	1.3	1.2
45.0	1.2	1.0	1.0	1.0	0.9	0.9	0.7	0.7
67.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
112.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
135.0	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.7
157.5	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9
180.0	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
202.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
225.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
337.5	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.3

DEPTH: 875 TILT: 0 RANGE: 34.8 VOS: 5935

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	5.7	5.7	5.7	5.6	5.6	5.7	5.7	5.7
22.5	5.6	5.7	5.9	6.2	6.3	6.5	6.6	6.9
45.0	7.2	6.9	6.5	6.3	6.0	5.9	5.7	5.6
67.5	5.6	5.6	5.6	5.7	5.9	5.9	6.0	6.2
90.0	6.2	6.2	6.2	5.9	5.7	5.7	5.6	5.6
112.5	5.6	5.6	5.6	5.6	5.7	5.6	5.7	5.6
135.0	5.6	5.7	5.7	5.9	5.9	5.9	5.9	5.7
157.5	5.6	5.4	5.4	5.7	5.6	5.4	5.4	5.1
180.0	5.1	4.7	4.0	3.7	2.8	2.4	1.3	1.3
202.5	1.2	1.2	1.2	1.2	1.0	1.0	0.9	0.9
225.0	0.9	0.9	0.9	0.7	0.7	0.7	0.7	0.7
247.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
270.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
292.5	0.7	0.7	0.7	0.7	0.9	0.9	1.0	0.9
315.0	1.0	1.0	1.0	1.2	1.2	1.3	1.3	1.5
337.5	1.6	1.6	5.4	5.4	5.4	5.6	5.6	5.6

DEPTH: 877 TILT: 0 RANGE: 34.8 VOS: 5953

Bearing	+ 0.0	+ 2.8	+ 5.6	+ 8.4	+11.3	+14.1	+16.9	+19.7
0.0	8.7	8.7	8.8	9.0	9.0	9.0	8.8	8.7
22.5	8.7	8.5	8.4	8.4	8.4	8.5	8.7	8.5
45.0	8.5	8.4	8.4	8.4	8.2	7.8	7.5	7.5
67.5	7.2	7.2	6.9	6.6	6.3	6.0	6.0	5.9
90.0	5.9	5.7	5.3	5.0	4.7	4.7	4.6	4.4
112.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.6
135.0	4.6	4.6	4.7	4.8	4.8	5.0	5.0	5.1
157.5	5.3	5.4	5.4	5.3	5.3	5.3	5.3	5.3
180.0	5.1	5.1	5.3	5.3	5.3	5.4	5.4	5.4
202.5	5.6	5.6	5.6	1.6	1.2	1.2	1.2	1.2
225.0	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0
247.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
270.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
292.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
315.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
337.5	1.0	8.1	8.1	8.2	8.2	8.4	8.4	8.4

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division

Certified Receipt/Return Requested:

August 01, 2008

Attention Brine Well Operator(s):

One of the permitted brine wells has experienced a total collapse and created an enormous sinkhole. The well was located approximately 17 miles SE of Artesia, NM. on State Trust Land. The operator was Jim's Water Service and the brine well permit is BW-005. OCD has enclosed a press release with photos of the event.

The magnitude of this event warrants an immediate investigation of all brine wells in the state. Therefore, please find enclosed a "BRINE WELL INFORMATION REQUEST" form to be filled out and returned to this office no later than September 05, 2008. Failure to properly fill out and return the form in a timely manner may result in OCD requesting you shut down your operations until further notice. If you have any questions please do not hesitate to call me at 505-476-3490 or E-mail wayne.price@state.nm.us.

Sincerely,

Wayne Price
Environmental Bureau Chief
Oil Conservation Division

Attachments: (2)

Cc: EMNRD Cabinet Secretary-Joanna Prukop
OCD Director-Mark Fesmire
NMSLO- Brian Henington SF, Jim Carr-Carlsbad
BLM-Carlsbad Office- Dave Herrell
Eddy Co. Emergency Management-Joel Arnwine
NM State Police –Roswell Sgt. Les Clements
National Cave and Karst Research Institute- Dr. George Veni
NMOSE-John Stewart
Solution Mining Research Institute-John Voigt

Price, Wayne, EMNRD

From: Porter, Jodi, EMNRD
Sent: Wednesday, July 23, 2008 5:00 PM
Subject: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide
Attachments: PR-OCD.Brine.Wells07.23.08.pdf

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division

July 23, 2008

NEWS RELEASE

Contact: Jodi McGinnis Porter,
Public Information Officer 505.476.3226

Energy, Minerals and Natural Resources Cabinet Secretary Joanna Prukop Proposes Stricter Conditions on Brine Wells State-wide

Artesia brine well collapse prompts statewide review

SANTA FE, NM – Secretary Joanna Prukop has directed the Oil Conservation Division (OCD) to conduct a complete evaluation of the rules and regulations concerning brine wells, a method of creating saturated salt water used in oil and gas production. The OCD evaluation will include an internal audit and inspection of all existing brine wells in New Mexico. Secretary Prukop is considering strengthening oversight of brine wells to protect against well failures such as the recent collapse in Artesia that created a huge sinkhole and forced the closure of an Eddy County road.

"There are several brine wells in New Mexico and we must ensure that they are all properly monitored to ensure safety and stability," stated Cabinet Secretary Joanna Prukop. "We have now seen that these wells can collapse and the extensive damage such a collapse can generate."

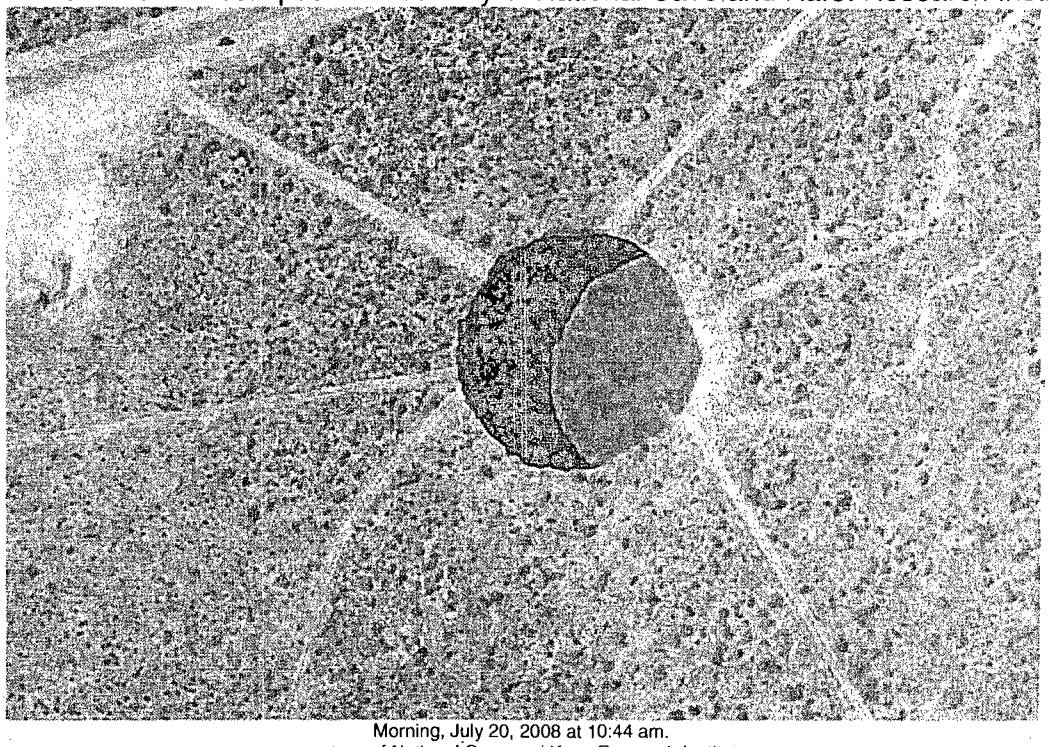
The Oil Conservation Division is continuing to monitor and investigate the collapse of the brine well, located on state trust land 17.3 miles southeast of Artesia, which is still active. The well is owned by Jim's Water Service. County Road 217 remains closed as a safety precaution, and a command center is on site. Division engineers estimate that the well is approximately 300 to 400 feet in diameter, 70 feet to the water level, and the actual depth to the bottom is unknown.

Scientists from the Oil Conservation Division, the Bureau of Land Management, State Land Office, the New Mexico

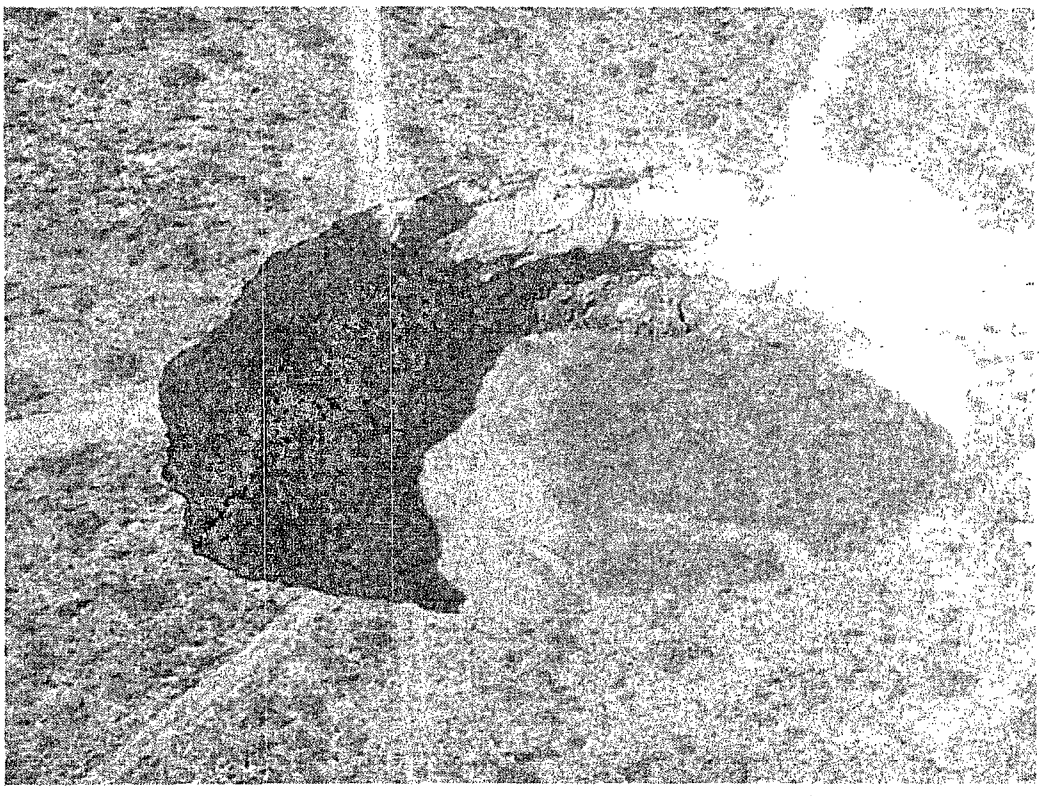
Bureau of Geology and Mineral Resources, and the National Cave & Karst Research Institute are all working together to assess horizontal and vertical movements to project any future subsidence. Work on a protective fence and keep-out signage began yesterday with completion expected on Friday.

In a related issue, the Oil Conservation Division has also been closely monitoring a brine well operated by I & W, Inc located in Carlsbad, NM. Yesterday, following ongoing inquiries from OCD the operator decided voluntarily to stop operation of the well The division will work with I & W, Inc. to ensure that the well is properly plugged, permanently abandoned, and monitored for the long term.

Images provided on the brine well collapse are courtesy of National Cave and Karst Research Institute:



Morning, July 20, 2008 at 10:44 am.
courtesy of National Cave and Karst Research Institute



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
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Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division

OIL CONSERVATION DIVISION
BRINE WELL INFORMATION REQUEST

GENERAL INFORMATION:
Operator Name_____ Well Name(s)_____ API Number _____ Brine Well Permit # _____ Date Permit Expires? _____ Location: Section _____Ts _____ Rg _____ FNL_____FSL_____FEL_____FWL_____ GPS of well(s): Lat: Long:
Have you reviewed and understand all of your permit conditions? Yes ☐ No☐ Are you presently deficient of any condition in your permit? Yes ☐ No☐ Don't know☐ Do you operate below grade tanks or pits at the site? Yes☐ No☐ Do all tanks, including fresh water tanks, have secondary containment? Yes☐ No☐ Do you think you have the expertise, knowledge and general understanding of what causes a brine well to collapse? Yes☐ No☐ Do you think OCD should provide guidelines on subsidence and collapse issues? Yes☐ No☐
SITING INFORMATION: ***Please provide the following information and depict on 7.5 minute (1": 2000') USGS Quad Map. Limit search to one mile radius.***
Is the brine well located within a municipality or city limits? Yes☐ No☐
Distance and direction to nearest permanent structure, house, school, *etc. if less than one mile:*
Distance and direction to nearest water well *if less than one mile:*
Distance to nearest watercourse(s), floodplain, playa lake(s), or man-made canal(s) or pond(s) *if less than one mile:*
Distance and direction to nearest known karst features or mines *if less than one mile:*

Distance and direction to nearest producing oil or gas well(s) *if less than one mile:* Provide API Number:
Distance and direction to nearest tank battery(ies) *if less than one mile:*
Distance and direction to nearest pipeline(s), including fresh water pipelines *if less than one mile:*
Distance and direction to nearest paved or maintained road or railroad *if less than one mile:*
Depth to ground water found above the Salado (salt section), regardless of yield:
Name of aquifer(s):
WELL CONSTRUCTION: ***Please provide the following information and attach a diagram depicting the brine well. Check box if attached:*** *Copy of a current well diagram:* *Attached* ☐ *Copy of formation record with tops:* *Attached* ☐ *Copy of geophysical well logs if available:* *Attached* ☐ *If not, well logs within one mile* ☐
Depth of the top of the salt below ground surface (feet):
Depth to the bottom of the salt below ground surface (feet):
Depth(s) to and thickness(es) of any anhydrite section(s) (located above the salt):
Depth of casing(s) shoe below ground surface (feet):_____ Is the casing shoe set in the anhydrite or other layer above the salt? Yes ☐ No ☐ Is the casing shoe set into the salt? Yes☐ No☐ If yes, how far into the salt?_____
Depth of tubing(s):
Do you suspect that your cavern has partially caved in? Yes☐ No☐ Don't know☐
OPERATIONS: *Please provide the following information.*
Start date of brine well operation:
Total volume of fresh water injected into the brine well to date (bbls) and how determined:

Total volume of brine water produced (bbls) to date and how determined:
Have you ever lost casing or tubing? If yes, please provide details. Document attached ☐
Do you maintain a surface pressure on your well during idle times? Yes☐ No☐
Have you noticed large amounts of air built up during cavity pressurization? Yes☐ No☐
Have you ever noticed fluids or air/gas bubbling up around the casing during testing or normal operations? Yes☐ No☐
MONITORING: ***Please provide the following information.***
Are you currently monitoring ground water contamination from your brine well or system? Yes ☐ No☐
Have you ever run a sonar log? Yes☐ No☐ *If yes,* please provide last date:_____
Provide cavern configuration (dimensions and volume) and method(s) used to estimate: If sonar report please attach ☐ *If other, please specify and provide a sketch of cavern:* ☐
Do you have a subsidence monitoring program in place? Yes ☐ No☐
Do you have any geophysical monitoring devices, such as a seismic device positioned near your brine well? Yes ☐ No☐
Have you submitted all of your monthly, quarterly, or annual reports to the OCD? Yes ☐ No☐
Have you failed a brine well mechanical integrity test (MIT)? If yes, please attach details and results. Attached ☐
Have you ever had a casing leak? Yes ☐ No☐ Have you ever had a cavern leak? Yes ☐ No☐ Don't know ☐ Have you ever exceeded the cavern fracture pressure? Yes ☐ No☐ Don't know ☐ Do you know how to calculate your maximum pressure? Yes ☐ No☐ Don't know ☐
Have you routinely looked for cracks or fissures in the ground surface around your brine well? Yes ☐ No☐
Do you have any minor or major cracks, fissures, tank settlement, line breakage from settlement or any minor subsidence. Yes ☐ No☐
During operations have you experienced any ground vibration, ground movement, or well movement after opening or shunting valves, pump start-up, shut-down, etc.? Yes☐ No☐

Have you ever experienced unexpected pressure gain or loss in the cavern? Yes☐ No☐ If Yes, was there a difference in your normal flow rate? Yes☐ No☐
Anytime during the past 5 years, have you experienced a noticeable difference between fresh water volume pumped into the well verses brine water produced? Yes ☐ No☐
Are you concerned about pulling the tubing due to the fact it may be difficult to re-enter the hole? Yes☐ No☐
Are you concerned about running a sonar tool in fear of losing tool because of debris in hole? Yes☐ No☐
Have you ever conducted a fly over of your well site? No☐ *Yes☐ if yes, please provide photo.* ☐ *Photo(s) attached*
Calculation: Please divide your estimated total volume of produced brine by 180,000 and multiply by 50. ***Example:*** If you have produced a total of 18,000,000 bbls of brine in the life time of the well then your calculation would be 18,000,000/180,000 = 100 x 50 = 5000. 1. Provide the calculated number above here:_____. 2. Now provide the depth (ft) from the surface to your casing shoe:_____ . Is the calculated number found in #1 above greater than #2? Yes☐ No☐
Comments or recommendations for OCD:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

_____
Company Name-print name above

_____
Company Representative- print name

_____
Company Representative- Signature

Title_____

Date:_____

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, July 25, 2008 4:21 PM
To: Hansen, Edward J., EMNRD; Price, Wayne, EMNRD
Cc: Sanchez, Daniel J., EMNRD
Subject: RE: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide
Attachments: image001.jpg; image007.jpg

Ed, Wayne, et. al:

Based on my records and knowledge of current activities at NMOCD BWs, my tally is as follows:

There are a total of 15 active UIC Class III Brine Well Permits (excluding BW-5 JWS & BW-6 I&W)

There are currently 13 active UIC Class III Brine Wells in operation (BW-2; BW-4; BW-8; BW-9; BW-12; BW-13; BW-22; BW-25; BW-27 Wells 1 & 2; BW-28; BW-30; and BW-31)

There are currently 6 brine wells that have actually been PA'd including: BW-5 JWS Collapse w/ Site Closure; BW-6 Eugenie #2; BW-21 Loco Hills Well #1 recently PA'd; BW-26 Salado Brine Sales; BW-29 Marbob; & William Brininstool.

There are currently 3 pending PAs of BWs including: BW-6 Eugenie #1 w/ Site Closure; BW-18 Key w/ redrill; and BW-19 Key w/ redrill.

There are currently 5 inactive brine wells (BW-5 Collapse w/ Site Closure; BW-6 needs PA Eugenie #1 w/ Site Closure; BW-18 needs PA w/ redrill; BW-19 needs PA w/ redrill; and BW21 needs redrill)

Let me know how we need to straighten RBDMS out. Please contact me if you have questions. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Hansen, Edward J., EMNRD
Sent: Wednesday, July 23, 2008 5:56 PM
To: Price, Wayne, EMNRD
Cc: Chavez, Carl J, EMNRD
Subject: FW: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide

Wayne,
Jane and I tallied these numbers off of RBDMS (you may want to double check).

From: Hansen, Edward J., EMNRD
Sent: Wednesday, July 23, 2008 5:54 PM
To: Porter, Jodi, EMNRD
Subject: RE: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide

Jodi,

We counted (from our database: RBDMS):

16 Active Brine Wells

11 Plugged and Abandoned Brine Wells

2 Inactive Brine Wells

From: Porter, Jodi, EMNRD
Sent: Wednesday, July 23, 2008 5:00 PM
Subject: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide

New Mexico Energy, Minerals and Natural Resources Department

July 23, 2008

NEWS RELEASE

Contact: Jodi McGinnis Porter,
Public Information Officer 505.476.3226

Energy, Minerals and Natural Resources Cabinet Secretary Joanna Prukop Proposes Stricter Conditions on Brine Wells State-wide

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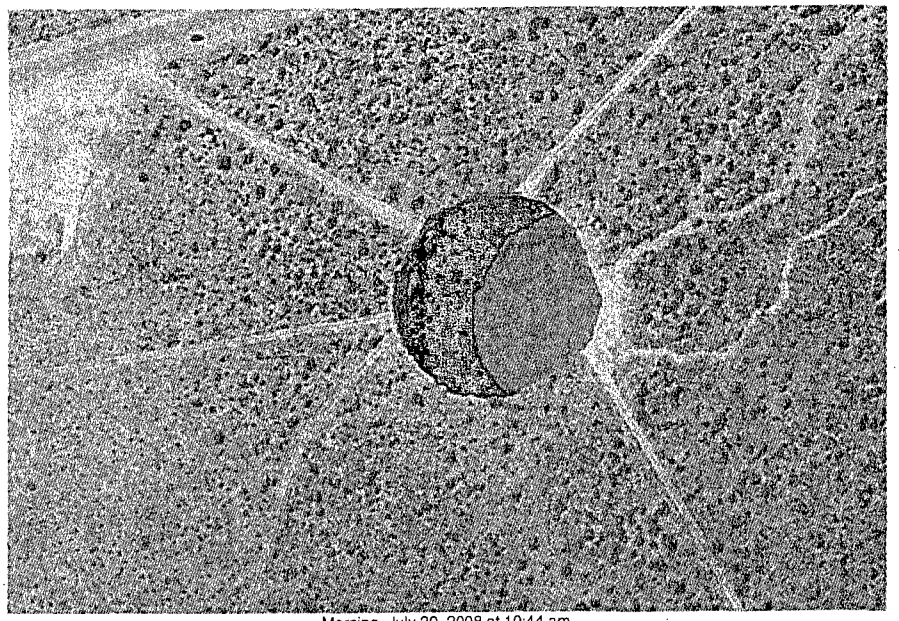
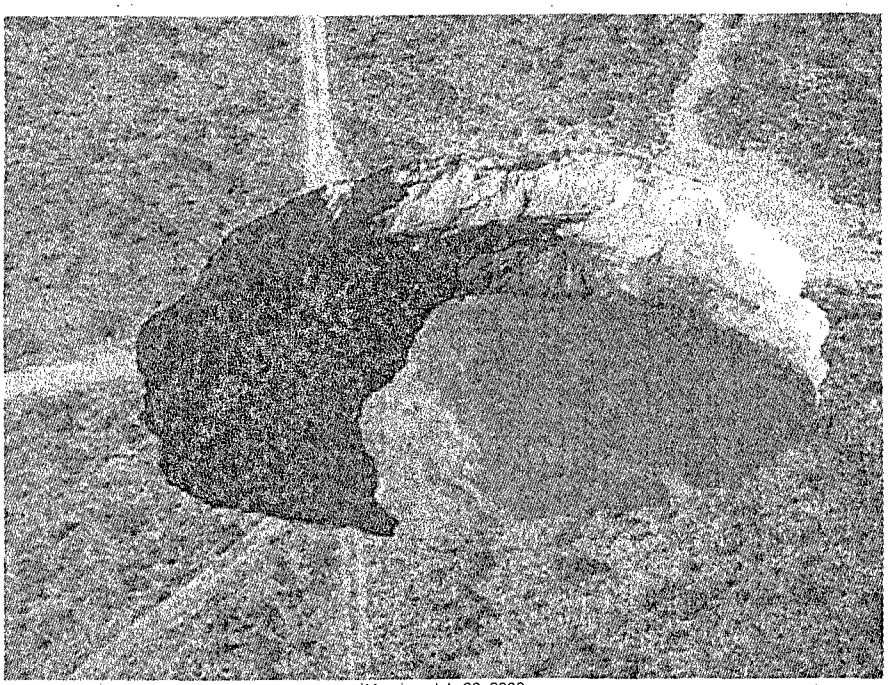


Morning, July 20, 2008 at 10:44 am.
courtesy of National Cave and Karst Research Institute



Morning, July 22, 2008
courtesy of National Cave and Karst Research Institute

#30#

The Energy, Minerals and Natural Resources Department provides resource protection and renewable energy resource development services to the public and other state agencies.

Oil Conservation Division
1220 South St. Francis Drive • Santa Fe, New Mexico 87505
Phone (505) 476-3440 • Fax (505) 476-3462 • www.emnrd.state.nm.us/OCD

jodi

Jodi McGinnis Porter
Public Information Officer
Energy, Minerals and Natural Resources Department (EMNRD)
1220 South St. Francis Drive
Santa Fe, NM 87505
Phone: (505) 476-3226

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Website: www.emnrd.state.nm.us