

Submit 1 Copy To Appropriate District Office
District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED

JAN 28 2019

DISTRICT II-ARTESIA O.C.D.

WELL API NO. 30-015-45204
5. Indicate Type of Lease STATE ☐ FEE ☒
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Mad Cow SWD
8. Well Number 1
9. OGRID Number 371643
10. Pool name or Wildcat SWD; Devonian - Silurian

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.)	
1. Type of Well: Oil Well ☐ Gas Well ☐ Other ☐ SWD	
2. Name of Operator Solaris Water Midstream, LLC	
3. Address of Operator 907 Tradewinds Blvd, Suite B, Midland, TX 79706	
4. Well Location Unit Letter <u>I</u> : <u>2441</u> feet from the <u>South</u> line and <u>1135</u> feet from the <u>East</u> line Section <u>12</u> Township <u>24S</u> Range <u>30E</u> NMPM <u>Eddy</u> County	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3535' GR	

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐
CLOSED-LOOP SYSTEM ☐
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐
OTHER: Sidetrack ☒

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 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Solaris respectfully requests to perform a workover on the recently completed Made Cow SWD #1 in order to perform a sidetrack within the Devonian open hole interval due to a plugged wellbore. The well was drilled to a total MD of 17,430' within the Devonian interval. The completion pkr was set at 16,558' (61' above the 5-1/2" liner shoe) and a 5-1/2" x 3-1/2" tapered tbg string was ran. The drilling rig was released on January 17, 2019. Upon attempt to perform an acid stimulation on the well, the entire original wellbore was discovered to be plugged off with barite and injection was not possible. The current bottom hole location as drilled is at a distance of 36' south and 102' west of the approved SHL.

A drlg rig will be RU upon immediate availability and the tbg and pkr removed from the wellbore. A 4-1/2", open hole sidetrack will be performed in the Devonian interval with a kick off point (KOP) of 16,650' and a final BHL of 19' south and 33' west of the approved BHL. No other offset operators and/or inj wells within the AOR will be impacted as a result of the sidetrack. Upon successful sidetrack, the well will be completed per the original APD and in accordance with the approved injection permit.

Directional sidetrack plan is attached for reference.

Spud Date:

10/13/2018

Rig Release Date:

1/17/2019

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Bonnie Atwater TITLE Regulatory Tech DATE 1/28/19

Type or print name Bonnie Atwater E-mail address: bonnie.atwater@solarismidstream.com PHONE: 432-203-9020 ext 9046
For State Use Only

APPROVED BY Raymond K. Rodan TITLE Geologist DATE 1-30-19
Conditions of Approval (if any):

REF-149

**NM OIL CONSERVATION
ARTESIA DISTRICT**

DISTRICT I
1025 N. French Dr., Hobbs, NM 88240
Phone (505) 393-8161 Fax: (505) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (505) 748-1283 Fax: (505) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-8178 Fax: (505) 331-8170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-5400 Fax: (505) 476-5408

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

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

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number 30-015-45204	Pool Code 97869	Pool Name SWD; Devonian - Silurian
Property Code 322266	Property Name MADCOW SWD	Well Number 1
GRID No. 371643	Operator Name SOLARIS WATER MIDSTREAM, LLC	Elevation 3527'

Surface Location

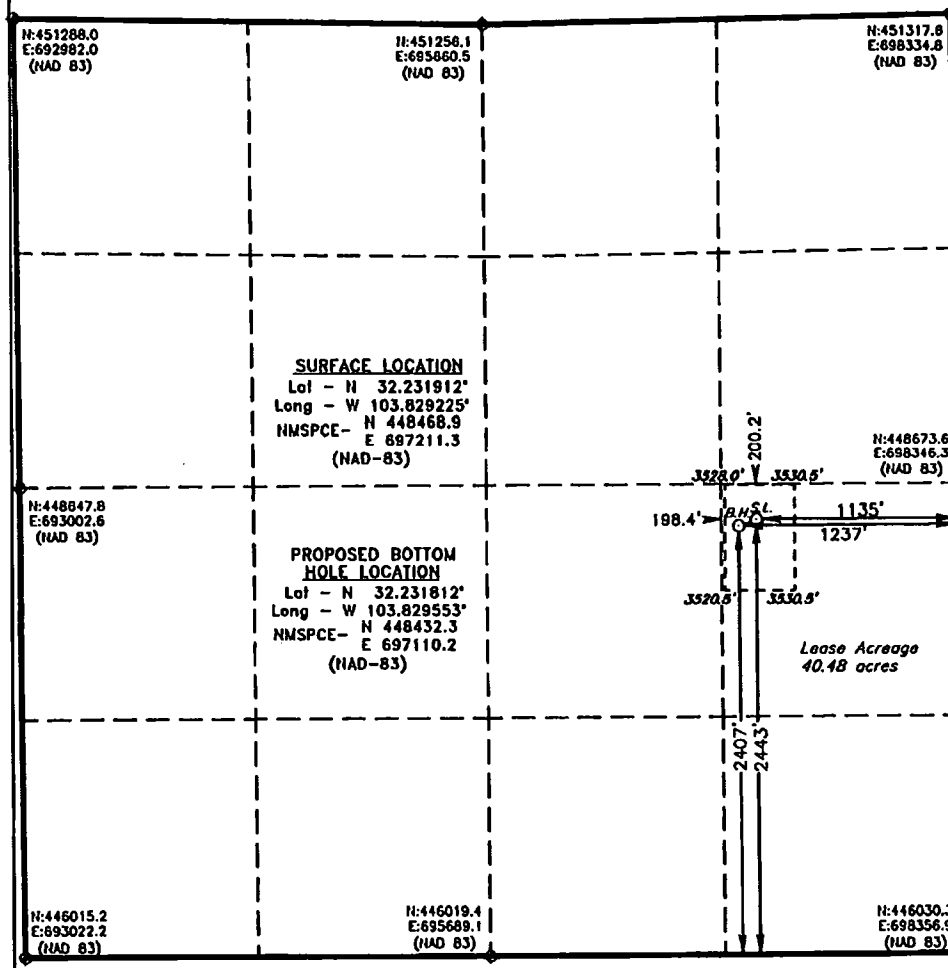
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	12	24 S	30 E		2443	SOUTH	1135	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	12	24 S	30 E		2407	SOUTH	1237	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

**NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION**



OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Bonnie Atwater 1/30/19
Signature Date

Bonnie Atwater
Printed Name
bonnie.atwater@solarismidstream.com
Email Address

SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 20, 2018

Date Surveyed
Signature of Surveyor
Professional Surveyor

NEW MEXICO
7977

Certificate No. 7977

0' 500' 1000' 1500' 2000'
SCALE: 1" = 1000'
WO Num.: 34087

Rw. 2-1-19



Solaris Water Midstream

Downhole Well Profile - Current

Well Name: Mad Cow SWD #1

API: 30-015-45204

API/UWI 30-015-45204	Surface Legal Location 2441' FSL & 1135' FEL, Sec. 12, T24S, R30E	Well Configuration Type Vertical	County Eddy	State/Province New Mexico
Original KB Elevation (ft) 3,554.00	KB-Tubing Head Distance (ft)	Spud Date 10/13/2018 04:30	Rig Release Date 1/17/2019 12:00	PBTD (All) (ftKB)
Total Depth All (TVD) (ftKB)				

Wellbore Sections

Section Des	Size (in)	Act Btm (ftKB)
Surface	26	667.0
Intermediate 1	17 1/2	4,270.0
Intermediate 2	12 1/4	10,771.0
Drilling Liner	8 1/2	14,686.0
Production Liner	6 1/2	16,620.0
Open Hole Injection	4 3/4	17,430.0

Casing Strings

Csg Des	OD (in)	Wt/Len (lb/ft)	Grade	Top Thread	Set Depth (ftKB)
Conductor	30				147.0
Surface	20	94.00	J-55	BTC	667.0
1st Intermediate	13 3/8	68.00	J-55	BTC	4,269.0
2nd Intermediate	9 5/8	53.50	HCP-110	LT&C	10,771.0
Drilling Liner	7 5/8	39.00	P-110	EZGO FJ3	14,683.0
Production Liner	5 1/2	23.00	HCP-110	EZGO FJ3	16,618.0

Tubing Strings

Tubing Description		Run Date		String Length (ft)		Set Depth (ftKB)		
Tapered Injection Tubing		1/16/2019		16,551.23		16,565.8		
Item Des	Jts	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top (ftKB)	Btm (ftKB)	Len (ft)
C-22 Stainless Hanger HTGT	1	11	4.67			14.6	15.8	1.20
5-1/2" 23 ppf HCP-110 HTGT	1	5 1/2	4.67	23.00	HCP-110	15.8	57.3	41.51
5-1/2" 23 ppf HCP-110 HTGT Pup	4	5 1/2	4.67	23.00	HCP-110	57.3	83.4	26.10
5-1/2" 23 ppf HCP-110 HTGT	249	5 1/2	4.67	23.00	HCP-110	83.4	10,257.9	10,174.52
5-1/2" HTGT x 5" FJ3 XO	1	5 1/2	4.67	23.00	HCP-110	10,257.9	10,296.7	38.79
5" 21.40 ppf HCP-110 FJ3	98	5	4.13	21.40	HCP-110	10,296.7	14,217.9	3,921.18
5" FJ3 x 3-1/2" FJ3 XO	1	5	2.99	9.30	L-80	14,217.9	14,219.0	1.08
3-1/2" 8.81 ppf L-80 FJ3 Tubing	72	3 1/2	2.99	9.30	L-80	14,219.0	16,547.1	2,328.14
3-1/2" FJ3 x 2-7/8" EUE XO	1	2 7/8	2.44			16,547.1	16,548.0	0.95
2-7/8" Crossover	1	2 7/8	2.44			16,548.0	16,548.9	0.85
2-7/8" Locator Sub	1	2 7/8	2.44			16,548.9	16,553.9	5.00
Seal Unit Extension		2 31/32	2.33			16,553.9	16,559.1	5.22
3" Nickel Alloy Seal Unit	1	2.959	2.33			16,559.1	16,561.5	2.36
3" ATR Seal Unit	1	2.959	2.33			16,561.5	16,563.0	1.56
3" Nickel Alloy Seal Unit	1	2.959	2.33			16,563.0	16,565.4	2.36
Muleshoe Locator	1	2.951	2.33			16,565.4	16,565.8	0.41

Tubing Description				Run Date	String Length (ft)	Set Depth (ftKB)		
5-1/2" Halliburton Packer Assembly				1/13/2019	24.50	16,582.0		
Item Des	Jts	OD (in)	ID (in)	Wt (lb/ft)	Grade	Top (ftKB)	Btm (ftKB)	Len (ft)
5-1/2" x 3-1/2" Nickel Alloy Packer	1	4.36	3.00	20.00		16,557.5	16,560.2	2.70
3-1/2" Nickel Alloy Seal Bore Ext.	1	3.78	3.00			16,560.2	16,569.6	9.38
2-7/8" Nickel Plated Coupling	1	3.668	2.44		L-80	16,569.6	16,570.3	0.67
2-7/8" Nickel Plated Pup	1	2 7/8	2.44	6.50	L-80	16,570.3	16,579.8	9.50
2-7/8" Nickel Plated Coupling	1	3.668	2.44		L-80	16,579.8	16,580.4	0.67
3-1/2" XN Nipple	1	3 1/4	2.31	6.50		16,580.4	16,581.4	0.93
3-1/2" Pump Out Plug and WLG	1	3.668	2.50			16,581.4	16,582.0	0.65

Perforations

Date	Top (ftKB)	Btm (ftKB)	Linked Zone



Solaris Water Midstream

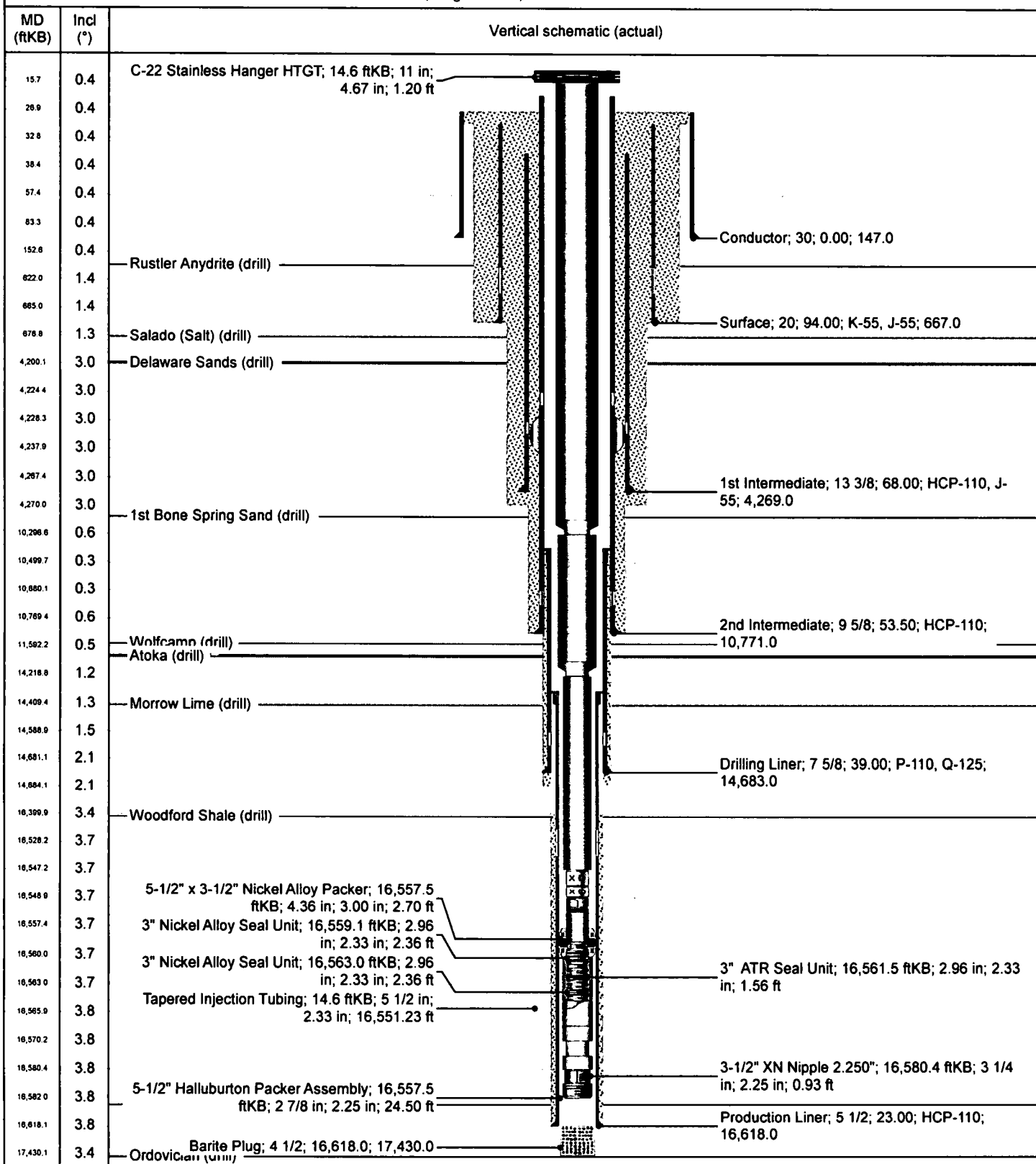
Downhole Well Profile - WBD

Well Name: Mad Cow SWD #1

API: 30-015-45204

API/UWI 30-015-45204	Surface Legal Location 2441' FSL & 1135' FEL, Sec. 12, T24S, R30E	Well Configuration Type Vertical	County Eddy	State/Province New Mexico
Original KB Elevation (ft) 3,554.00	KB-Tubing Head Distance (ft)	Spud Date 10/13/2018 04:30	Rig Release Date 1/17/2019 12:00	PBTD (All) (ftKB)
		Total Depth All (TVD) (ftKB)		

Vertical, Original Hole, 1/28/2019 1:23:18 PM





PHOENIX
TECHNOLOGY SERVICES

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Solaris MidStream

JAN 28 2019

Eddy County, New Mexico (NAD 83) DISTRICT II-ARTESIA O.G.D.

Mad Cow SWD

#1

30-015-45204

ST01

Plan: Plan 1 01-26-19

Standard Planning Report

26 January, 2019



Planning Report

Database: USA Compass
Company: Solaris MidStream
Project: Eddy County, New Mexico (NAD 83)
Site: Mad Cow SWD
Well: #1
Wellbore: ST01
Design: Plan 1 01-28-19

Local Co-ordinate Reference: Well #1
TVD Reference: RKB @ 3587.00usft
MD Reference: RKB @ 3587.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Eddy County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Mad Cow SWD			
Site Position:		Northing:	448,449.69 usft	Latitude: 32° 13' 54.69373 N
From:	Map	Easting:	697,178.20 usft	Longitude: 103° 49' 45.59676 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.27 °

Well	#1			
Well Position	+N/-S	0.00 usft	Northing: 448,449.69 usft	Latitude: 32° 13' 54.69373 N
	+E/-W	0.00 usft	Easting: 697,178.20 usft	Longitude: 103° 49' 45.59676 W
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 3,535.00 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	2/20/2019	6.84	58.93	47,948.62763507

Design	Plan 1 01-28-19			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	16,620.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	240.33

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
16,620.00	3.68	268.85	16,614.98	-27.92	-52.68	0.00	0.00	0.00	0.00	
16,650.00	3.65	268.32	16,644.91	-28.00	-54.60	0.51	-0.12	-7.78	-104.88	
16,821.38	5.00	70.60	16,816.11	-25.87	-52.99	5.00	0.79	95.86	170.88	
16,896.38	5.00	70.60	16,890.82	-23.69	-46.82	0.00	0.00	0.00	0.00	
17,229.71	0.00	0.00	17,223.73	-18.87	-33.11	1.50	-1.50	-21.18	180.00	
17,655.97	0.00	0.00	17,650.00	-18.87	-33.11	0.00	0.00	0.00	0.00	BHL - Mad Cow SWD



Planning Report

Database: USA Compass
Company: Solaris MidStream
Project: Eddy County, New Mexico (NAD 83)
Site: Mad Cow SWD
Well: #1
Wellbore: ST01
Design: Plan 1 01-28-19

Local Co-ordinate Reference: Well #1
TVD Reference: RKB @ 3587.00usft
MD Reference: RKB @ 3587.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,620.00	3.68	268.65	16,614.98	-27.92	-52.68	59.59	0.00	0.00	0.00
Tie In - ST01									
16,650.00	3.65	268.32	16,644.91	-28.00	-54.60	61.30	0.51	-0.12	-7.76
ST KOP, Begin 5.00°/100° Build									
16,700.00	1.24	284.87	16,694.87	-27.96	-58.71	63.12	5.00	-4.81	37.12
16,800.00	3.94	68.80	16,794.80	-28.44	-54.55	60.49	5.00	2.70	143.93
16,821.38	5.00	70.60	16,816.11	-25.87	-52.99	58.85	5.00	4.86	8.42
Hold 5.00° Inc at 70.60° Azm									
16,886.38	5.00	70.60	16,880.82	-23.69	-46.82	52.41	0.00	0.00	0.00
Begin 1.50°/100° Drop									
16,900.00	4.95	70.60	16,894.44	-23.59	-46.53	52.11	1.50	-1.50	0.00
17,000.00	3.45	70.60	16,994.16	-21.16	-39.63	44.91	1.50	-1.50	0.00
17,100.00	1.95	70.60	17,094.05	-19.60	-35.19	40.28	1.50	-1.50	0.00
17,200.00	0.45	70.60	17,194.03	-18.90	-33.22	38.23	1.50	-1.50	0.00
17,229.71	0.00	0.00	17,223.73	-18.87	-33.11	38.11	1.50	-1.50	-237.65
Begin Vertical Hold									
17,300.00	0.00	0.00	17,294.03	-18.87	-33.11	38.11	0.00	0.00	0.00
17,400.00	0.00	0.00	17,394.03	-18.87	-33.11	38.11	0.00	0.00	0.00
17,500.00	0.00	0.00	17,494.03	-18.87	-33.11	38.11	0.00	0.00	0.00
17,600.00	0.00	0.00	17,594.03	-18.87	-33.11	38.11	0.00	0.00	0.00
17,655.97	0.00	0.00	17,650.00	-18.87	-33.11	38.11	0.00	0.00	0.00
TD at 17655.97									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL - Mad Cow SWD 1	0.00	0.00	17,650.00	-18.87	-33.11	448,430.82	697,145.08	32° 13' 54.50857 N	103° 49' 45.98332 W
- plan hits target center									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
250.00		B/Fresh Water		0.00	
675.00		T/Rustler		0.00	
4,320.00	4,318.43	Delaware Sand		0.00	
5,930.00	5,928.31	Bone Spring		0.00	
11,370.00	11,368.00	Wolfcamp		0.00	
13,450.00	13,447.52	Strawn		0.00	
13,630.00	13,627.47	Atoka		0.00	
14,430.00	14,427.28	Morrow		0.00	
16,420.00	16,415.38	Devonian		0.00	



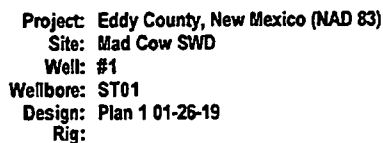
Planning Report

Database: USA Compass
Company: Solaris MidStream
Project: Eddy County, New Mexico (NAD 83)
Site: Mad Cow SWD
Well: #1
Wellbore: ST01
Design: Plan 1 01-28-19

Local Co-ordinate Reference: Well #1
TVD Reference: RKB @ 3587.00usft
MD Reference: RKB @ 3587.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

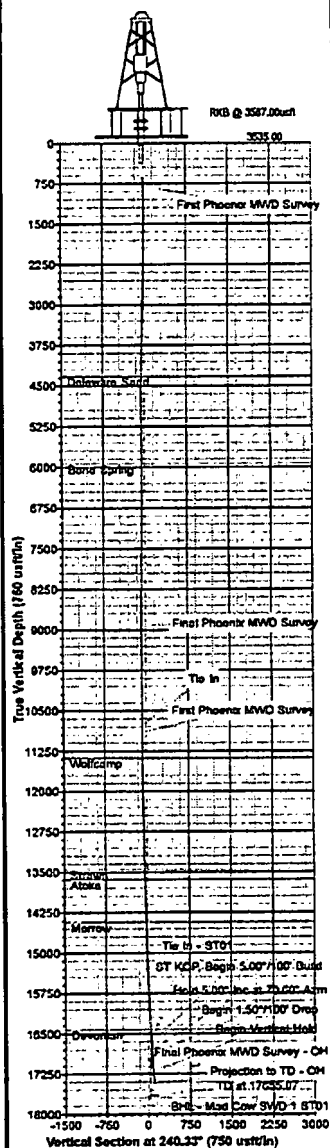
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
16,620.00	16,614.98	-27.92	-52.68	Tie In - ST01
16,650.00	16,644.91	-28.00	-54.60	ST KOP, Begin 5.00°/100' Build
16,821.38	16,816.11	-25.87	-52.89	Hold 5.00° Inc at 70.60° Azm
16,896.38	16,890.62	-23.69	-46.82	Begin 1.50°/100' Drop
17,229.71	17,223.73	-18.87	-33.11	Begin Vertical Hold
17,655.97	17,650.00	-18.87	-33.11	TD at 17655.97



Azimuths to Grid North
True North: -0.27°
Magnetic North: 0.57°

Magnetic Field
Strength: 47948.8nT
Dip Angle: 58.03°
Date: 2/20/2019
Model: MVHD



WELL DETAILS											
3535.00											
+NAG		+EAW		Northing		Easting		Longitude			
0.00		0.00		448449.89		637170.20		32° 13' 54.00373 N 103° 49' 45.59076 W			
SECTION DETAILS											
Sec	MD	Inc	Asn	TVD	+NAG	+EAW	Org	TFace	VFace	Target	Annotation
1	10629.00	3.68	288.85	18914.08	-7.92	-52.68	0.00	0.00	00.50		The In - STDPI
2	10633.30	3.65	288.82	18944.01	-8.00	-54.00	0.51	+04.86	01.70		ST EOP, Begin 5.00"/100' Dip
3	10621.37	5.00	70.00	12416.11	-25.87	-52.80	5.00	170.88	33.45		Hold 5.00" Inc at 70.00' Azm
4	12690.37	5.00	70.00	16580.82	-23.60	-46.82	0.00	0.00	02.21		Begin 1.50"/100' Dip
5	17228.71	0.00	0.00	17223.73	-10.87	-33.11	1.50	180.00	38.11		Begin Vertical Hold
6	17655.97	0.00	0.00	17650.00	-10.87	-33.11	0.00	0.00	01.20		TO at 17653.67
BHL - Mad Cow GWD + STDPI											

DESIGN TARGET DETAILS							
Name	TVD	+W3	+E4W	Northing	Easting	Latitude	Longitude
DW1 - West Cow DWO 1 STD1	17820.00	-18.87	-33.11	448430.82	277145.09	32° 13' 54.50557 N	103° 47' 43.86332 W

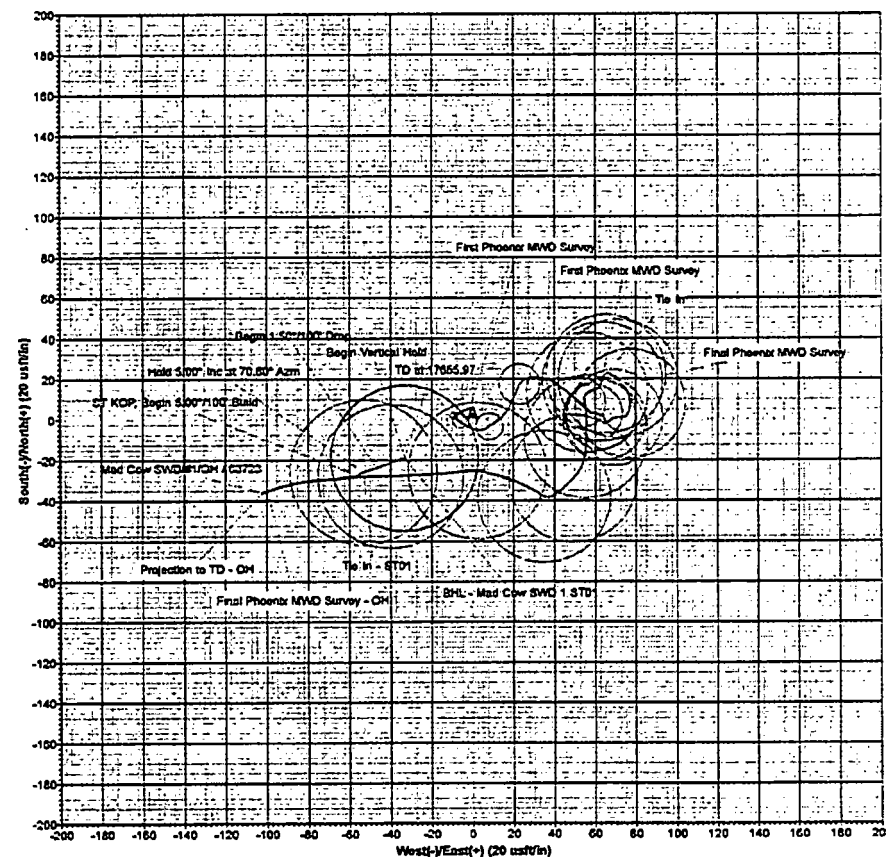
Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone
Local Origin: Well #1, Grid North
Latitude: 32° 13' 54.69373 N
Longitude: 103° 49' 45.58678 W
Grid East: 607178.20
Grid North: 448449.69
Scale Factor: 1.000
Geomagnetic Model: MVHD
Sample Date: 20-Feb-10
Magnetic Declination: 6.84°
Dip Angle from Horizontal: 59.0°
Magnetic Field Strength: 47948.82763508nT

To convert a Magnetic Direction to a Grid Direction, Add 6.57°
To convert a Magnetic Direction to a True Direction, Add 6.84° East
To convert a True Direction to a Grid Direction, Subtract 0.27°

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
		B/Press Water	0.00	
		ST/Res	0.00	
4318.43	4323.30	Delaware Sand	0.00	
5928.31	5930.00	Bone Spring	0.00	
11288.05	11379.00	Wolfcamp	0.00	
13447.52	13459.00	Strawn	0.00	
13627.47	13630.00	Albini	0.00	
14457.28	14432.00	Morrow	0.00	
16415.38	16420.00	Dawson	0.00	

LEGEND

----- 91. 04 / 53721, Surveys (Precision 313) V0
----- Rev : 01-75-18





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TECHNOLOGY SERVICES

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JAN 28 2019

Solaris MidStream

Eddy County, New Mexico (NAD 83)

DISTRICT II-ARTESIA O.C.D.

Mad Cow SWD

#1

ST01

Plan 1 01-26-19

30-015-45204

Anticollision Report

26 January, 2019



Anticollision Report

Company:	Solaris MidStream	Local Co-ordinate Reference:	Well #1
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	RKB @ 3587.00usft
Reference Site:	Mad Cow SWD	MD Reference:	RKB @ 3587.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ST01	Database:	USA Compass
Reference Design:	Plan 1 01-28-19	Offset TVD Reference:	Offset Datum

Reference	Plan 1 01-28-19		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 50,000.00 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program Date 1/28/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
779.00	8,914.00	Phoenix MWD Surveys (Pre-Gyro) (OH / 6	MWD+HDGM	OWSG Rev.2 MWD + HDGM
9,100.00	10,785.00	Phoenix Gryo Surveys (OH / 63723)	SPT_GTD	Continuous north-seeking gyro
10,802.00	16,620.00	Phoenix MWD Surveys (OH / 63723)	MWD+HDGM	OWSG Rev.2 MWD + HDGM
16,620.00	17,655.97	Plan 1 01-28-19 (ST01)	MWD+HDGM	OWSG Rev.2 MWD + HDGM

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Mad Cow SWD						
#1 - OH / 63723 - Surveys (Precision 312)	17,000.00	16,997.49	38.03	37.18	44.824	CC, ES
#1 - OH / 63723 - Surveys (Precision 312)	17,500.00	17,430.00	100.42	94.28	16.352	SF

Offset Design Mad Cow SWD - #1 - OH / 63723 - Surveys (Precision 312)

Survey Program: 779-MWD+HDGM, 9100-SPT_GTD, 10902-MWD+HDGM

Offset Site Error: 0.00 usft
Offset Well Error: 0.00 usft

Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
16,620.00	16,614.98	16,620.00	16,614.98	0.00	0.00	-19.97	-27.82	-52.68	0.09	0.09	0.00	N/A	
16,700.00	16,694.87	16,699.98	16,694.80	0.14	0.17	-33.18	-28.30	-57.74	1.09	0.57	0.62	2.110	
16,800.00	16,784.80	16,799.58	16,784.20	0.11	0.41	-173.44	-28.81	-63.88	9.76	9.08	0.68	14.328	
16,900.00	16,894.44	16,899.49	16,892.91	0.05	0.67	-174.12	-29.30	-70.20	24.40	23.61	0.78	31.123	
17,000.00	16,894.18	16,997.49	16,991.70	0.08	1.02	-173.80	-29.65	-78.67	38.03	37.18	0.85	44.824	CC, ES
17,100.00	17,094.05	17,096.85	17,090.85	0.10	1.26	-173.70	-30.73	-82.98	49.18	48.20	0.98	50.150	
17,200.00	17,194.03	17,196.68	17,190.37	0.12	1.50	-173.71	-31.98	-89.34	67.74	66.65	1.08	53.235	
17,300.00	17,294.03	17,298.77	17,290.38	0.14	1.73	-103.32	-33.56	-95.17	63.87	62.61	1.37	48.769	
17,400.00	17,394.03	17,398.52	17,389.97	0.17	1.96	-103.81	-35.44	-100.54	69.54	67.90	1.65	42.204	
17,500.00	17,494.03	17,430.00	17,423.39	0.19	2.04	-103.97	-36.09	-102.38	100.42	94.28	6.14	16.352	SF
17,600.00	17,594.03	17,430.00	17,423.39	0.23	2.04	-103.97	-36.09	-102.38	184.96	178.48	6.51	21.745	
17,655.97	17,650.00	17,430.00	17,423.39	0.25	2.04	-103.97	-36.09	-102.38	237.59	228.49	9.09	26.125	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report

Company: Solaris MidStream
Project: Eddy County, New Mexico (NAD 83)
Reference Site: Mad Cow SWD
Site Error: 0.00 usft
Reference Well: #1
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan 1 01-26-19

Local Co-ordinate Reference: Well #1
TVD Reference: RKB @ 3567.00usft
MD Reference: RKB @ 3567.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA Compass
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 3567.00usft

Offset Depths are relative to Offset Datum

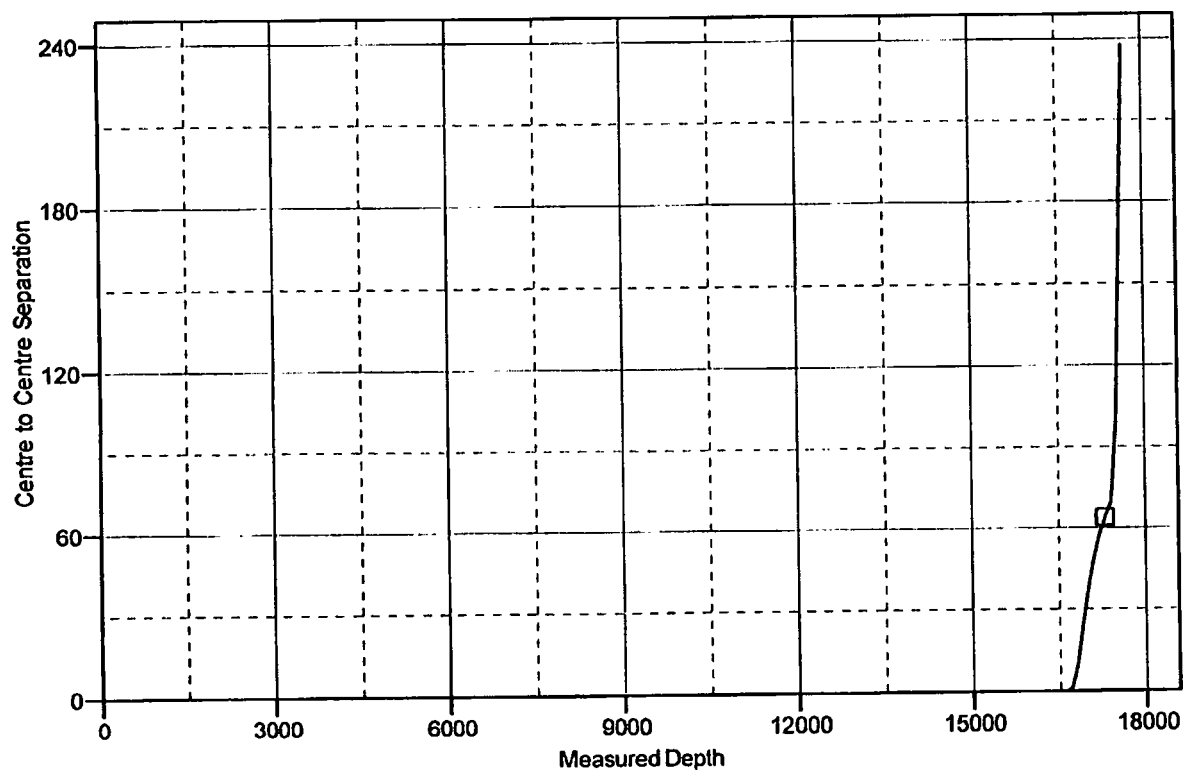
Central Meridian is 104° 19' 00.00000 W

Coordinates are relative to: #1

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.27°

Ladder Plot



LEGEND

— #1, OH/63723, Surveys (Predslon 312) V0

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report

Company: Solaris MidStream
Project: Eddy County, New Mexico (NAD 83)
Reference Site: Mad Cow SWD
Site Error: 0.00 usft
Reference Well: #1
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan 1 01-26-19

Local Co-ordinate Reference: Well #1
TVD Reference: RKB @ 3567.00usft
MD Reference: RKB @ 3567.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA Compass
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 3567.00usft

Offset Depths are relative to Offset Datum

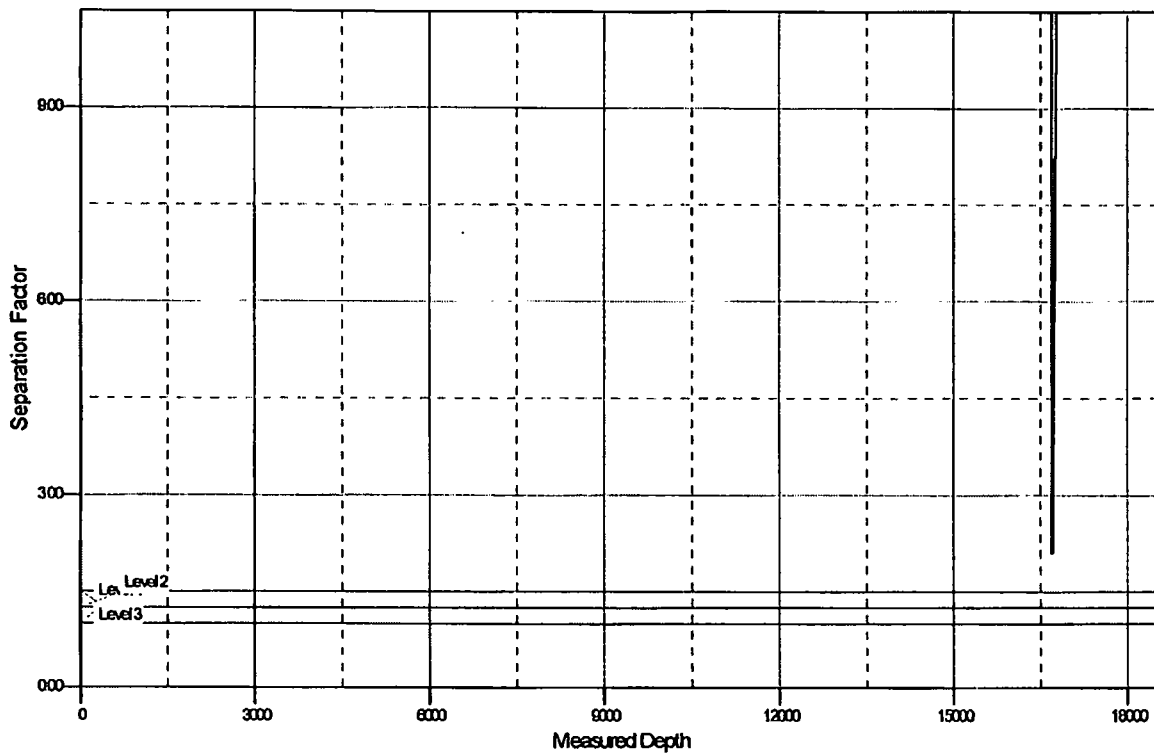
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: #1

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.27°

Separation Factor Plot



LEGEND

— #1, OH/63723, Surveys (Precision 312) V0