#### OCD. 10/24/2022 1.21.54 DM R 11

eceived by OCD: 10/24/2023 1:31:54 PM						Page 1 of			
Form 3160-5 (June 2019)						C Exp	FORM APPROVED OMB No. 1004-0137 Expires: October 31, 2021 5. Lease Serial No.		
						N	MNM02007		
Do not	use this i	NOTICES AND REP( form for proposals t Use Form 3160-3 (A	o drill or to	o re-enter an		6. If Indian, Allottee of	r Tribe Nam	8	
	SUBMIT IN	TRIPLICATE - Other instru	uctions on page	e 2		7. If Unit of CA/Agre	ement, Name	e and/or No.	
1. Type of Well									
✓ Oil Well	Gas V					8. Well Name and No	TWEETY E	BIRD 8 FED COM/504H	
2. Name of Operator EC	G RESOUR	CES INCORPORATED				9. API Well No.	30-025-517	70	
3a. Address 1111 BAG	BY SKY LOE	BBY 2, HOUSTON, TX 770	3b. Phone No. (713) 651-700		e)	10. Field and Pool or CRUZ; BONE SPF		Area	
4. Location of Well (Foo SEC 8/T23S/R33E/N	-	R.,M., or Survey Description)				11. Country or Parish, LEA/NM	State		
	12. CHE	CK THE APPROPRIATE B	OX(ES) TO INI	DICATE NATUR	E OF NO	OTICE, REPORT OR OTI	HER DATA		
TYPE OF SUBM	ISSION			ТҮ	PE OF A	ACTION			
✓ Notice of Intent		Acidize	Deep Deep Hydr	en aulic Fracturing		roduction (Start/Resume) eclamation		er Shut-Off Integrity	
Subsequent Report	rt	Casing Repair		Construction		ecomplete	Othe	r	
Final Abandonme	nt Notice	Change Plans Convert to Injection		and Abandon Back		emporarily Abandon Vater Disposal			
completion of the inv completed. Final Aba is ready for final insp	volved operation andonment No pection.)	Il be perfonned or provide th ons. If the operation results in tices must be filed only after (FKA 504H) API #: 30-02.	a multiple com all requirement	pletion or recom	pletion i	n a new interval, a Form 3	160-4 must b	e filed once testing has been	
the following cha	nges:	amendment to our approv							
Change BHL fror	n T-23-S, R-3	33-E, Sec 5, 100' FNL, 23( ' FNL, 2305' FWL, Lea Co	)5' FWL, Lea C						
Change target fo	rmation to Le	eonard B.							
Continued on pag				1					
5 5	0 0	s true and correct. Name (Pro	inted/Typed)	Regulato	rv Sneo	ialist			
CRAIG RICHARDSON / Ph: (432) 686-3600				Title					
(Electronic Submission) D				Date		08/30/2	023		
		THE SPACE	FOR FEDI	ERAL OR S		OFICE USE			
Approved by									
KEITH P IMMATTY /	Ph: (575) 988	8-4722 / Approved		Title ENC	SINEER		Date	10/24/2023	
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.					ARLSB/	AD.			

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

#### SPECIFIC INSTRUCTIONS

*Item 4* - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

*Item 13:* Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

#### NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

#### **Additional Information**

#### **Additional Remarks**

Update casing and cement program to current design.

#### Location of Well

0. SHL: TR N / 520 FSL / 2077 FWL / TWSP: 23S / RANGE: 33E / SECTION: 8 / LAT: 32.3134637 / LONG: -103.5962023 (TVD: 0 feet, MD: 0 feet ) PPP: TR N / 100 FSL / 2311 FWL / TWSP: 23S / RANGE: 33E / SECTION: 8 / LAT: 32.3123132 / LONG: -103.5954422 (TVD: 10867 feet, MD: 10890 feet ) PPP: TR F / 2626 FSL / 2311 FWL / TWSP: 23S / RANGE: 33E / SECTION: 8 / LAT: 32.319259 / LONG: -103.5954711 (TVD: 11132 feet, MD: 13518 feet ) BHL: LOT 3 / 100 FNL / 2305 FWL / TWSP: 23S / RANGE: 33E / SECTION: 5 / LAT: 32.3407642 / LONG: -103.5955605 (TVD: 11132 feet, MD: 21342 feet )

#### *Received by OCD: 10/24/2023 1:31:54 PM*

DISTRICT I 1625 N. French Dr., Hobbs, NM 88240 Phone: (57) 393-6161 Fax: (57) 393-0720 DISTRICT II 811 S. Frist St., Artesia, NM 88210 Phone: (57) 748-1283 Fax: (57) 5748-720 DISTRICT III 1000 Rio Brazos Rd., Aztec, NM 87410 Phone: (50) 334-6178 Fax: (50) 343-6170 DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (50) 476-3460 Fax: (50) 476-3462

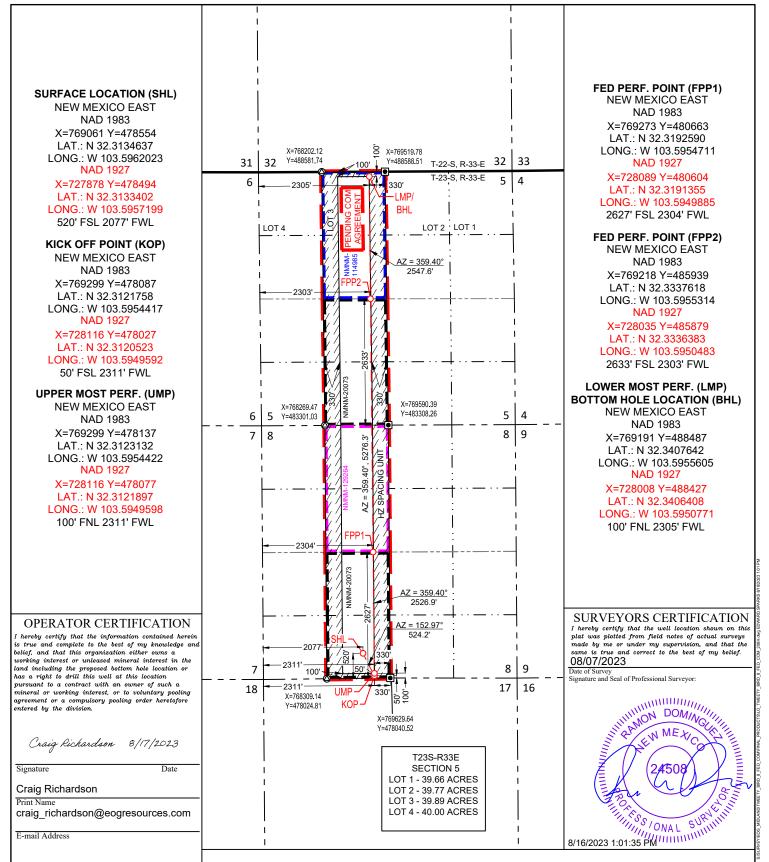
#### State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number				Pool Code		Pool Name				
30-025- 51770 148				5	CRUZ;BONE SPRING					
Property Co	de				Proper	y Name			Well Nun	ıber
				ΤV	EETY B	RD 8	FED COM		20	)6H
OGRID N	lo.				Operat	or Name			Elevati	on
7377	,			E	DG RES	DURC	ES, INC.		37	705'
Surface Location										
UL or lot no.	Section	Township	Range	Lot Idn	Feet from	the	North/South line	Feet from the	East/West line	County
N	8	23-S	33-E	-	52	0'	SOUTH	2077'	WEST	LEA
		]	Bottom Ho	le Locati	on If Diff	erent F	rom Surface			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from	the	North/South line	Feet from the	East/West line	County
3	5	23-S	33-E	-	10	0'	NORTH	2305'	WEST	LEA
Dedicated Acres	Joint or I	nfill C	onsolidated Code	Ore	Order No.					
319.89					PENDING COM AGREEMENT					

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.



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# **S**eog resources

#### Tweety Bird 8 Fed Com 206H

#### **Revised Permit Information 07/26/2023:**

Well Name: Tweety Bird 8 Fed Com 206H Location: SHL: 520' FSL & 2077' FWL, Section 8, T-23-S, R-33-E, Lea Co., N.M. BHL: 100' FNL & 2305' FWL, Section 5, T-23-S, R-33-E, Lea Co., N.M.

#### **Casing Program A:**

Hole	Interv	al MD	Interval TVD		Csg			
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
16"	0	1,490	0	1,490	13-3/8"	54.5#	J-55	STC
11"	0	4,982	0	4,950	9-5/8"	40#	J-55	LTC
6-3/4"	0	19,786	0	9,563	5-1/2"	17#	HCP-110	LTC

Variance is requested to waive the centralizer requirements for the 9-5/8" casing in the 11" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 11" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive any centralizer requirements for the 5-1/2" casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

EOG requests permission to allow deviation from the 0.422" annulus clearance requirement for the intermediate (salt) section from Onshore Order #2 under the following conditions:

- The variance is not applicable within the Potash Boundaries or Capitan Reef areas.
- Operator takes responsibility to get casing to set point in the event that the clearance causes stuck pipe issues.

	inting 1108	5		
Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description
1,490' 13-3/8''	450	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	100	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 1,290')
4,950' <sub>9-5/8''</sub>	500	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	100	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,960')
19,786' 5-1/2''	260	10.5	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 4,450')
	750	13.2	1.52	Tail: Class H + 5% NEX-020 + 0.2% NAC-102 + 0.15% NAS-725 + 0.5% NFL-549 + 0.2% NFP-703 + 1% NBE-737 + 0.3% NRT-241 (TOC @ 9120')

#### **Cementing Program:**

Additive	Purpose
Bentonite Gel	Lightweight/Lost circulation prevention
Calcium Chloride	Accelerator
Cello-flake	Lost circulation prevention
Sodium Metasilicate	Accelerator
MagOx	Expansive agent
Pre-Mag-M	Expansive agent
Sodium Chloride	Accelerator
FL-62	Fluid loss control
Halad-344	Fluid loss control
Halad-9	Fluid loss control
HR-601	Retarder
Microbond	Expansive Agent

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

#### Mud Program:

Depth (TVD)	Туре	Weight (ppg)	Viscosity	Water Loss
0 - 1,490'	Fresh - Gel	8.6-8.8	28-34	N/c
1,490' – 4,950'	Brine	8.6-8.8	28-34	N/c
4,950' - 19,786'	Oil Base	8.8-9.5	58-68	N/c - 6



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#### **TUBING REQUIREMENTS**

EOG respectively requests an exception to the following NMOCD rule:

• 19.15.16.10 Casing AND TUBING RQUIREMENTS: J (3): "The operator shall set tubing as near the bottom as practical and tubing perforations shall not be more than 250 feet above top of pay zone."

With horizontal flowing and gas lifted wells an end of tubing depth placed at or slightly above KOP is a conservative way to ensure the tubing stays clean from debris, plugging, and allows for fewer well interventions post offset completion. The deeper the tubulars are run into the curve, the higher the probability is that the tubing will become stuck in sand and or well debris as the well produces over time. An additional consideration for EOT placement during artificial lift installations is avoiding the high dog leg severity and inclinations found in the curve section of the wellbore to help improve reliability and performance. Dog leg severity and inclinations tend not to hamper gas lifted or flowing wells, but they do effect other forms of artificial lift like rod pump or ESP (electric submersible pump). Keeping the EOT above KOP is an industry best practice for those respective forms of artificial lift.

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## **Seog resources** Tweety Bird 8 Fed Com 206H

520' FSL 2077' FWL	Revised Wellbore A:	KB: 3730' GL: 3705'
Section 8 T-23-S, R-33-E	API: 30-025-51770	
Bit Size: 16" 13-3/8", 54.5#, J-55, STC @ 0' - 1,490'		
Bit Size: 11" 9-5/8", 40.#, J-55, LTC @ 0' - 4,950'		
Bit Size: 6-3/4''		ГОС: 4,450'
5-1/2'', 17.#, HCP-110, LTC @ 0' - 19,786'		Lateral: 19,786' MD, 9,563' TVD Upper Most Perf: 100' FSL & 2311' FWL Sec. 8 Lower Most Perf: 100' FNL & 2305' FWL Sec. 5 BH Location: 100' FNL & 2305' FWL Sec. 5 T-23-S R-33-E
KOP: 9,112' MD, 9,086' TV EOC: 9,862' MD, 9,563' TV		

## **S**eog resources

#### Tweety Bird 8 Fed Com 206H

#### **Revised Permit Information 07/26/2023:**

Well Name: Tweety Bird 8 Fed Com 206H

Location: SHL: 520' FSL & 2077' FWL, Section 8, T-23-S, R-33-E, Lea Co., N.M. BHL: 100' FNL & 2305' FWL, Section 5, T-23-S, R-33-E, Lea Co., N.M.

#### **Casing Program B:**

Hole	Interv	Interval MD Interval TVD		Csg				
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
13-1/2"	0	1,490	0	1,490	10-3/4"	40.5#	J-55	STC
9-7/8"	0	4,028	0	4,000	8-5/8"	32#	J-55	BTC-SC
9-7/8"	4,028	4,978	4,000	4,950	8-5/8"	32#	P110-EC	BTC-SC
6-3/4"	0	19,786	0	9,563	5-1/2"	17#	HCP-110	LTC

#### **Cementing Program:**

Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description
1,490' 10-3/4''	470	13.5		Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello- Flake (TOC @ Surface)
	110	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 1,290')
4,950' <sup>8-5/8''</sup>	340	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	100	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,960')
19,786' <sub>5-1/2''</sub>	490	10.5	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 4,450')
	770	13.2	1.52	Tail: Class H + 5% NEX-020 + 0.2% NAC-102 + 0.15% NAS-725 + 0.5% NFL-549 + 0.2% NFP-703 + 1% NBE-737 + 0.3% NRT-241 (TOC @ 9120')

# Seog resources

Variance is requested to waive the centralizer requirements for the 8-5/8" casing in the 9-7/8" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 9-7/8" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive any centralizer requirements for the 5-1/2" casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

EOG requests permission to allow deviation from the 0.422" annulus clearance requirement for the intermediate (salt) section from Onshore Order #2 under the following conditions:

- The variance is not applicable within the Potash Boundaries or Capitan Reef areas.
- Operator takes responsibility to get casing to set point in the event that the clearance causes stuck pipe issues.

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## **Oeog resources** Tweety Bird 8 Fed Com 206H

520' 2077'	Revised Wellbore B:	KB: 3730' GL: 3705'
Section 8 T-23-S, R-33-E	API: 30-025-51770	
Bit Size: 13-1/2" 10-3/4", 40.5#, J-55, STC @ 0' - 1,490' Bit Size: 9-7/8" 8-5/8", 32.#, J-55, BTC-SC @ 0' - 4,000' 8-5/8", 32.#, P110-EC, BTC-SC @ 4,000' - 4,950'		TOC: 4,450'
Bit Size: 6-3/4" 5-1/2", 17.#, HCP-110, LTC @ 0' - 19,786'		Lateral: 19,786' MD, 9,563' TVD Upper Most Perf: 100' FSL & 2311' FWL Sec. 8 Lower Most Perf: 100' FNL & 2305' FWL Sec. 5 BH Location: 100' FNL & 2305' FWL Sec. 5 T-23-S R-33-E
KOP: 9,112' MD, 9,086' TVE EOC: 9,862' MD, 9,563' TVE		

#### **GEOLOGIC NAME OF SURFACE FORMATION:**

Permian

#### **ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:**

Rustler Tamarisk Anhydrite	1,363' 1,465'
Top of Salt	2,058'
Base of Salt	4,854'
Lamar	5,093'
Bell Canyon	5,115'
Cherry Canyon	6,017'
Brushy Canyon	7,349'
Bone Spring Lime	8,915'
Leonard (Avalon) Shale	9,094'
1st Bone Spring Sand	10,096'
2nd Bone Spring Shale	10,366'
2nd Bone Spring Sand	10,779'
3rd Bone Spring Carb	11,302'
3rd Bone Spring Sand	11,889'
Wolfcamp	12,308'
TD	9,563'

#### ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0-400'	Fresh Water
Bell Canyon	5,115'	Oil
Cherry Canyon	6,017'	Oil
Brushy Canyon	7,349'	Oil
Leonard (Avalon) Shale	9,094'	Oil
1st Bone Spring Sand	10,096'	Oil
2nd Bone Spring Shale	10,366'	Oil
2nd Bone Spring Sand	10,779'	Oil

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

COUNTY: L	Section 8, T.23 S., R.33 E. Lea County, New Mexico
	Section 8, T.23 S., R.33 E.
LOCATION: S	
BOTTOM HOLE FOOTAGE   1	100'/N & 2305'/W
SURFACE HOLE FOOTAGE: 5	
	ГWEETY BIRD 8 FED COM 206Н
OPERATOR'S NAME: E	EOG RESOURCES INCORPORATED

#### ALL PREVIOUS COAs STILL APPLY

## COA

H2S	• Yes	O No	
Potash	None	Secretary	© R-111-P
Cave/Karst Potential	• Low	O Medium	O High
Cave/Karst Potential	Critical		
Variance	None	C Flex Hose	O Other
Wellhead	Conventional	Multibowl	O Both
Wellhead Variance	O Diverter		
Other	4 String	Capitan Reef	WIPP
Other	□ Fluid Filled	🗆 Pilot Hole	🗆 Open Annulus
Cementing	□ Contingency	EchoMeter	Primary Cement
	Cement Squeeze		Squeeze
Special Requirements	🗆 Water Disposal	COM	🗆 Unit
Special Requirements	□ Batch Sundry		
Special Requirements	Break Testing	☑ Offline	Casing
Variance		Cementing	Clearance

#### A. CASING

#### **Primary Casing Design:**

- 1. The **13-3/8** inch surface casing shall be set at approximately **1,490** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after

completing the cement job.

- b. Wait on cement (WOC) time for a primary cement job will be a minimum of  $\underline{\mathbf{8}}$ <u>hours</u> or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
- The 9-5/8 inch intermediate casing shall be set at approximately 4,982 feet. CEMENT EXCESS < 25% CFO RECOMMENDATION. PLEASE REVIEW AND ENSURE CEMENT TO SURFACE. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

#### **Option 1 (Single Stage):**

- Cement to surface. If cement does not circulate see B.1.a, c-d above.
- 3. The **5-1/2** inch production casing shall be set at approximately **19,786** feet. The minimum required fill of cement behind the **5-1/2** inch production casing is:

#### **Option 1 (Single Stage):**

• Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

#### Alternate Casing Design:

- 1. The **10-3/4** inch surface casing shall be set at approximately **1,490** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface.
  - e. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - f. Wait on cement (WOC) time for a primary cement job will be a minimum of <u>8</u>
     <u>hours</u> or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - g. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - h. If cement falls back, remedial cementing will be done prior to drilling out that

string.

2. The **8-5/8** inch intermediate casing shall be set at approximately **4,982** feet. The minimum required fill of cement behind the **8-5/8** inch intermediate casing is:

#### **Option 1 (Single Stage):**

- Cement to surface. If cement does not circulate see B.1.a, c-d above.
- 3. The **5-1**/2 inch production casing shall be set at approximately **19,786** feet. The minimum required fill of cement behind the **5-1**/2 inch production casing is:

#### **Option 1 (Single Stage):**

• Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

#### (Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system) BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. (Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer (**575-706-2779**) prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-689-5981 Lea County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per 43 CFR part 3170 Subpart 3172.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

#### **Offline Cementing**

OK in surface and intermediate intervals. Notify the BLM prior to the commencement of any offline cementing procedure.

#### **Casing Clearance:**

- Salt annular clearance in place for the intermediate interval

- Overlap clearance OK

Operator shall clean up cycles until wellbore is clear of cuttings and any large debris, ensure cutting sizes are adequate "coffee ground or less" before cementing.

## **GENERAL REQUIREMENTS**

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)
  - Eddy County

**EMAIL** or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,

**BLM\_NM\_CFO\_DrillingNotifications@BLM.GOV** (575) 361-2822

- Lea CountyCall the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 689-5981
- 1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.
- 2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on

which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

#### A. CASING

- 1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
- <u>Wait on cement (WOC) for Potash Areas:</u> After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least <u>24 hours</u>. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 3. <u>Wait on cement (WOC) for Water Basin:</u> After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least <u>8 hours</u>. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
- 5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
- 6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

- 7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
- 8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.
- B. PRESSURE CONTROL
- All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in 43 CFR part 3170 Subpart 3172 and API STD 53 Sec. 5.3.
- 2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
- 3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
- 4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in 43
     CFR part 3170 Subpart 3172 must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
  - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to 43 CFR part 3170 Subpart 3172 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
  - d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
  - e. The results of the test shall be reported to the appropriate BLM office.
  - f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
  - g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to

the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per 43 CFR part 3170 Subpart 3172.

#### C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**KPI** 10/23/2023



## Midland

Lea County, NM (NAD 83 NME) Tweety Bird 8 Fed Com #206H

OH

Plan: Plan #0.1 RT

## **Standard Planning Report**

17 August, 2023



Planning Report

Ceogre							
Database: Company: Project: Site: Well: Wellbore: Design:	PEDM Midland Lea County, NM Tweety Bird 8 F #206H OH Plan #0.1 RT		ME)	TVD Referen MD Reference North Reference	e:	Well #206H kb = 25' @ 373 kb = 25' @ 373 Grid Minimum Curva	0.0usft
Project	Lea County, NM	(NAD 83 NM	1E)				
Geo Datum:	US State Plane 1 North American D New Mexico Easte	atum 1983		System Datun	1:	Mean Sea Level	
Site	Tweety Bird 8 Fe	ed Com					
Site Position: From: Position Uncertainty:	Мар	0.0 usft	Northing: Easting: Slot Radius:	768,823	00 usft Latitud 00 usft Longitu 1/16 "		32° 18' 47.273 N 103° 35' 49.114 W
Well	#206H						
Well Position Position Uncertainty	+N/-S +E/-W	0.0 usft 0.0 usft 0.0 usft 0.39 °	Northing: Easting: Wellhead Elev		478,554.00 usft 769,061.00 usft usft	Latitude: Longitude: Ground Level:	32° 18' 48.474 N 103° 35' 46.331 W 3,705.0 usft
Grid Convergence:	ОН	0.00					
Magnetics	Model Name	e	Sample Date	Declinatio (°)	n	Dip Angle (°)	Field Strength (nT)
	IGRF	2020	8/17/2023		6.31	59.90	47,315.83296577
Design	Plan #0.1 RT						
Audit Notes: Version:			Phase:	PLAN	Tie On Dep	th:	0.0
Vertical Section:		(u	rom (TVD) Isft) ).0	+N/-S (usft) 0.0	<b>+E/-W</b> (usft) 0.0		rection (°) 0.75
				0.0	0.0		0.10
Plan Survey Tool Pro	gram	Date 8/17/2	2023				
Depth From (usft)	Depth To (usft) Si	urvey (Wellb	ore)	Tool Name	Rema	arks	
1 0.0	19,785.5 PI	an #0.1 RT (	OH)	EOG MWD+IFR <sup>2</sup> MWD + IFR1			



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #206H
Company:	Midland	TVD Reference:	kb = 25' @ 3730.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3730.0usft
Site:	Tweety Bird 8 Fed Com	North Reference:	Grid
Well:	#206H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН		
Design:	Plan #0.1 RT		

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,058.0	0.00	0.00	2,058.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,357.8	6.00	152.99	2,357.2	-14.0	7.1	2.00	2.00	0.00	152.99	
7,076.1	6.00	152.99	7,049.8	-453.0	230.9	0.00	0.00	0.00	0.00	
7,375.9	0.00	0.00	7,349.0	-467.0	238.0	2.00	-2.00	0.00	180.00	
9,112.4	0.00	0.00	9,085.5	-467.0	238.0	0.00	0.00	0.00	0.00	KOP(Tweety Bird 8
9,332.9	26.46	0.00	9,298.2	-417.0	238.0	12.00	12.00	0.00	0.00	FTP(Tweety Bird 8
9,862.4	90.00	359.38	9,563.0	10.4	234.8	12.00	12.00	-0.12	-0.69	
11,961.1	90.00	359.38	9,563.0	2,109.0	212.0	0.00	0.00	0.00	0.00	Fed Perf 1(Tweety B
17,237.3	90.00	359.43	9,563.0	7,385.0	157.0	0.00	0.00	0.00	86.89	Fed Perf 2(Tweety
19,785.5	90.00	359.36	9,563.0	9,933.0	130.0	0.00	0.00	0.00	-92.23	PBHL(Tweety Bird

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Database:	PEDM	Local Co-ordinate Reference:	Well #206H
Company:	Midland	TVD Reference:	kb = 25' @ 3730.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3730.0usft
Site:	Tweety Bird 8 Fed Com	North Reference:	Grid
Well:	#206H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
				0.0	0.0	0.0	0.00		0.00
1,000.0	0.00	0.00	1,000.0					0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,058.0	0.00	0.00	2,058.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.84	152.99	2,100.0	-0.3	0.1	-0.3	2.00	2.00	0.00
2,200.0	2.84	152.99	2,199.9	-3.1	1.6	-3.1	2.00	2.00	0.00
2,300.0	4.84	152.99	2,299.7	-9.1	4.6	-9.0	2.00	2.00	0.00
2,357.8	6.00	152.99	2,357.2	-14.0	7.1	-13.9	2.00	2.00	0.00
2,400.0	6.00	152.99	2,399.2	-17.9	9.1	-17.8	0.00	0.00	0.00
2,500.0	6.00	152.99	2,498.7	-27.2	13.9	-27.0	0.00	0.00	0.00
2,600.0	6.00	152.99	2,598.1	-36.5	18.6	-36.3	0.00	0.00	0.00
2,700.0	6.00	152.99	2,697.6	-45.8	23.3	-45.5	0.00	0.00	0.00
2,800.0	6.00	152.99	2,797.0	-55.1	28.1	-54.7	0.00	0.00	0.00
2,900.0	6.00	152.99	2,896.5	-64.4	32.8	-64.0	0.00	0.00	0.00
3,000.0	6.00	152.99	2,995.9	-73.7	37.6	-73.2	0.00	0.00	0.00
3,100.0	6.00	152.99	3,095.4	-83.0	42.3	-82.5	0.00	0.00	0.00
3,200.0	6.00	152.99	3,194.8	-92.3	47.1	-91.7	0.00	0.00	0.00
3,300.0	6.00	152.99	3,294.3	-101.6	51.8	-101.0	0.00	0.00	0.00
3,400.0	6.00	152.99	3,393.8	-110.9	56.5	-110.2	0.00	0.00	0.00
3,500.0	6.00	152.99	3,493.2	-120.3	61.3	-119.4	0.00	0.00	0.00
3,600.0	6.00	152.99	3,592.7	-129.6	66.0	-128.7	0.00	0.00	0.00
3,700.0	6.00	152.99	3,692.1	-138.9	70.8	-137.9	0.00	0.00	0.00
3,800.0	6.00	152.99	3,791.6	-148.2	75.5	-147.2	0.00	0.00	0.00
3,900.0	6.00	152.99	3,891.0	-157.5	80.3	-156.4	0.00	0.00	0.00
4,000.0	6.00	152.99	3,990.5	-166.8	85.0	-165.7	0.00	0.00	0.00
4,100.0	6.00	152.99	4,089.9	-176.1	89.7	-174.9	0.00	0.00	0.00
4,200.0	6.00	152.99	4,189.4	-185.4	94.5	-184.1	0.00	0.00	0.00
4,300.0	6.00	152.99	4,288.8	-194.7	99.2	-193.4	0.00	0.00	0.00
4,400.0	6.00	152.99	4,388.3	-204.0	104.0	-202.6	0.00	0.00	0.00
4,500.0	6.00	152.99	4,487.7	-213.3	108.7	-211.9	0.00	0.00	0.00
4,600.0	6.00	152.99	4,587.2	-222.6	113.5	-221.1	0.00	0.00	0.00
4,700.0	6.00	152.99	4,686.6	-231.9	118.2	-230.4	0.00	0.00	0.00
4,800.0	6.00	152.99	4,786.1	-241.2	122.9	-239.6	0.00	0.00	0.00
4,900.0	6.00	152.99	4,885.5	-250.5	127.7	-248.8	0.00	0.00	0.00
5,000.0	6.00	152.99	4,985.0	-259.8	132.4	-258.1	0.00	0.00	0.00
5,100.0	6.00	152.99	5,084.5	-269.1	137.2	-267.3	0.00	0.00	0.00
0,100.0	0.00	.02.00	2,001.0			20110	0.00	0.00	

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COMPASS 5000.16 Build 100



	25214		
Database:	PEDM	Local Co-ordinate Reference:	Well #206H
Company:	Midland	TVD Reference:	kb = 25' @ 3730.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3730.0usft
Site:	Tweety Bird 8 Fed Com	North Reference:	Grid
Well:	#206H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН		
Design:	Plan #0.1 RT		

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)
5,200.0	6.00	152.99	5,183.9	-278.5	141.9	-276.6	0.00	0.00	0.00
,									
5,300.0	6.00	152.99	5,283.4	-287.8	146.7	-285.8	0.00	0.00	0.00
5,400.0	6.00	152.99	5,382.8	-297.1	151.4	-295.1	0.00	0.00	0.00
5,500.0	6.00	152.99	5,482.3	-306.4	156.1	-304.3	0.00	0.00	0.00
5,600.0	6.00	152.99	5,581.7	-315.7	160.9	-313.5	0.00	0.00	0.00
5,700.0	6.00	152.99	5,681.2	-325.0	165.6	-322.8	0.00	0.00	0.00
5,800.0	6.00	152.99	5,780.6	-334.3	170.4	-332.0	0.00	0.00	0.00
5,900.0	6.00	152.99	5,880.1	-343.6	175.1	-341.3	0.00	0.00	0.00
6,000.0	6.00	152.99	5,979.5	-352.9	179.8	-350.5	0.00	0.00	0.00
6,100.0	6.00	152.99	6,079.0	-362.2	184.6	-359.8	0.00	0.00	0.00
6,200.0	6.00	152.99	6,178.4	-371.5	189.3	-369.0	0.00	0.00	0.00
6,300.0	6.00	152.99	6,277.9	-380.8	194.1	-378.2	0.00	0.00	0.00
6,400.0	6.00	152.99	6,377.3	-390.1	194.1	-387.5	0.00	0.00	0.00
	6.00	152.99	6,476.8	-399.4	203.6	-396.7	0.00	0.00	0.00
6,500.0 6,600.0	6.00	152.99	6,476.8 6,576.3	-399.4 -408.7	203.6	-396.7 -406.0	0.00	0.00	0.00
6,700.0	6.00	152.99	6,675.7	-418.0	213.0	-415.2	0.00	0.00	0.00
6,800.0	6.00	152.99	6,775.2	-427.3	217.8	-424.5	0.00	0.00	0.00
6,900.0	6.00	152.99	6,874.6	-436.6	222.5	-433.7	0.00	0.00	0.00
7,000.0	6.00	152.99	6,974.1	-446.0	227.3	-442.9	0.00	0.00	0.00
7,076.1	6.00	152.99	7,049.8	-453.0	230.9	-450.0	0.00	0.00	0.00
7,100.0	5.52	152.99	7,073.5	-455.2	232.0	-452.1	2.00	-2.00	0.00
7,200.0	3.52	152.99	7,173.2	-462.2	235.5	-459.1	2.00	-2.00	0.00
7,300.0	1.52	152.99	7,273.1	-466.1	237.5	-463.0	2.00	-2.00	0.00
7,375.9	0.00	0.00	7,349.0	-467.0	238.0	-463.8	2.00	-2.00	0.00
7,400.0	0.00	0.00	7,373.1	-467.0	238.0	-463.8	0.00	0.00	0.00
7,500.0	0.00	0.00	7,473.1	-467.0	238.0	-463.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,573.1	-467.0	238.0	-463.8	0.00	0.00	0.00
7,700.0	0.00	0.00	7,673.1	-467.0	238.0	-463.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,773.1	-467.0	238.0	-463.8	0.00	0.00	0.00
7,900.0	0.00	0.00	7,873.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,000.0	0.00	0.00	7,973.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,100.0	0.00	0.00	8,073.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,200.0	0.00	0.00	8,173.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,300.0	0.00	0.00	8,273.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,400.0	0.00	0.00	8,373.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,500.0	0.00	0.00	8,473.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,573.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,700.0	0.00	0.00	8,673.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,800.0	0.00	0.00	8,773.1	-467.0	238.0	-463.8	0.00	0.00	0.00
8,900.0	0.00	0.00	8,873.1	-467.0	238.0	-463.8	0.00	0.00	0.00
9,000.0	0.00	0.00	8,973.1	-467.0	238.0	-463.8	0.00	0.00	0.00
9,100.0	0.00	0.00	9,073.1	-467.0	238.0	-463.8	0.00	0.00	0.00
9,112.4	0.00	0.00	9,085.5	-467.0	238.0	-463.8	0.00	0.00	0.00
	Bird 8 Fed Com								
9,125.0	1.51	0.00	9,098.1	-466.8	238.0	-463.7	12.00	12.00	0.00
9,150.0	4.51	0.00	9,123.1	-465.5	238.0	-462.4	12.00	12.00	0.00
9,175.0	7.51	0.00	9,147.9	-462.9	238.0	-459.7	12.00	12.00	0.00
9,200.0	10.51	0.00	9,172.6	-459.0	238.0	-455.8	12.00	12.00	0.00
9,225.0	13.51	0.00	9,197.1	-453.8	238.0	-450.6	12.00	12.00	0.00
9,250.0	16.51	0.00	9,221.2	-447.3	238.0	-444.2	12.00	12.00	0.00
9,275.0	19.51	0.00	9,245.0	-439.6	238.0	-436.4	12.00	12.00	0.00
9,300.0	22.51	0.00	9,268.3	-430.6	238.0	-427.5	12.00	12.00	0.00
9,325.0	25.51	0.00	9,291.1	-420.4	238.0	-417.3	12.00	12.00	0.00
9,325.0	25.51	0.00	9,291.1	-420.4	238.0	-417.3	12.00	12.00	0.00

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Database: Company:	PEDM Midland	Local Co-ordinate Reference: TVD Reference:	Well #206H kb = 25' @ 3730.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3730.0usft
Site:	Tweety Bird 8 Fed Com	North Reference:	Grid
Well:	#206H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН		
Design:	Plan #0.1 RT		

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)
9,332.9	26.46	0.00	9,298.2	-417.0	238.0	-413.8	12.00	12.00	0.00
FTP(Tweety	Bird 8 Fed Com	206H)							
9,350.0	28.51	359.95	9,313.4	-409.1	238.0	-405.9	12.00	12.00	-0.30
9,375.0	31.51	359.88	9,335.1	-396.6	238.0	-393.4	12.00	12.00	-0.26
9,400.0	34.51	359.83	9,356.0	-383.0	237.9	-379.8	12.00	12.00	-0.22
9,425.0	37.51	359.78	9,376.2	-368.3	237.9	-365.1	12.00	12.00	-0.19
9,450.0	40.51	359.74	9,395.7	-352.5	237.8	-349.4	12.00	12.00	-0.16
9,475.0	43.51	359.70	9,414.2	-335.8	237.7	-332.7	12.00	12.00	-0.14
9,500.0	46.51	359.67	9,431.9	-318.1	237.6	-315.0	12.00	12.00	-0.13
9,525.0	49.51	359.64	9,448.6	-299.5	237.5	-296.4	12.00	12.00	-0.12
0.550.0	F0 F4	250.00	0 404 4		007.4	077.0	40.00	40.00	0.44
9,550.0	52.51	359.62	9,464.4	-280.1	237.4	-277.0	12.00	12.00	-0.11
9,575.0	55.51	359.59	9,479.0	-259.9	237.3	-256.8	12.00	12.00	-0.10
9,600.0	58.51	359.57	9,492.6	-238.9	237.1	-235.8	12.00	12.00	-0.09
9,625.0	61.51	359.55	9,505.1	-217.3	236.9	-214.1	12.00	12.00	-0.09
9,650.0	64.51	359.53	9,516.5	-195.0	236.8	-191.9	12.00	12.00	-0.08
9,675.0	67.51	359.51	9.526.6	-172.2	236.6	-169.0	12.00	12.00	-0.08
9,700.0	70.51	359.49	9,535.6	-172.2	236.4	-169.0	12.00	12.00	-0.08
9,700.0 9,725.0	70.51	359.49 359.47	9,535.6 9,543.3	-146.6 -125.0	236.4	-145.7 -121.9	12.00	12.00	-0.07 -0.07
9,725.0 9,750.0				-125.0 -100.9	236.2	-121.9 -97.8		12.00	
	76.51	359.45	9,549.8				12.00		-0.07
9,775.0	79.51	359.44	9,555.0	-76.4	235.7	-73.4	12.00	12.00	-0.07
9,800.0	82.51	359.42	9,558.9	-51.8	235.4	-48.7	12.00	12.00	-0.07
9,825.0	85.51	359.40	9,561.5	-26.9	235.2	-23.8	12.00	12.00	-0.07
9,850.0	88.51	359.39	9,562.8	-1.9	234.9	1.1	12.00	12.00	-0.07
9,862.4	90.00	359.38	9,563.0	10.4	234.8	13.5	12.00	12.00	-0.06
9,900.0	90.00	359.38	9,563.0	48.1	234.4	51.1	0.00	0.00	0.00
10,000.0	90.00	359.38	9,563.0	148.1	233.3	151.1	0.00	0.00	0.00
10,100.0	90.00	359.38	9,563.0	248.1	232.2	251.1	0.00	0.00	0.00
10,200.0	90.00	359.38	9,563.0	348.0	231.1	351.0	0.00	0.00	0.00
10,300.0	90.00	359.38	9,563.0	448.0	230.0	451.0	0.00	0.00	0.00
10,400.0	90.00	359.38	9,563.0	548.0	229.0	551.0	0.00	0.00	0.00
10,500.0	90.00	359.38	9,563.0	648.0	227.9	651.0	0.00	0.00	0.00
10,600.0	90.00	359.38	9,563.0	748.0	226.8	750.9	0.00	0.00	0.00
10,700.0	90.00	359.38	9,563.0	848.0	225.7	850.9	0.00	0.00	0.00
10,800.0	90.00	359.38	9,563.0	948.0	224.6	950.9	0.00	0.00	0.00
									0.00
10,900.0	90.00	359.38	9,563.0	1,048.0	223.5	1,050.8	0.00	0.00	
11,000.0	90.00	359.38	9,563.0	1,148.0	222.4	1,150.8	0.00	0.00	0.00
11,100.0	90.00	359.38	9,563.0	1,248.0	221.3	1,250.8	0.00	0.00	0.00
11,200.0	90.00	359.38	9,563.0	1,348.0	220.3	1,350.8	0.00	0.00	0.00
11,300.0	90.00	359.38	9,563.0	1,448.0	219.2	1,450.7	0.00	0.00	0.00
11,400.0	90.00	359.38	9,563.0	1,548.0	218.1	1,550.7	0.00	0.00	0.00
11,500.0	90.00	359.38	9,563.0	1,648.0	217.0	1,650.7	0.00	0.00	0.00
11,600.0	90.00	359.38	9,563.0	1,748.0	215.9	1,750.6	0.00	0.00	0.00
11,700.0	90.00	359.38	9,563.0	1,848.0	214.8	1,850.6	0.00	0.00	0.00
11,800.0	90.00	359.38	9,563.0	1,948.0	213.7	1,950.6	0.00	0.00	0.00
11,900.0	90.00	359.38	9,563.0	2,047.9	212.7	2,050.6	0.00	0.00	0.00
11,961.1	90.00	359.38	9,563.0	2,109.0	212.0	2,111.6	0.00	0.00	0.00
	weety Bird 8 Fed		0,000.0	_,.00.0	212.5	_,	0.00	0.00	0.00
12.000.0	90.00	359.38	9,563.0	2,147.9	211.6	2,150.5	0.00	0.00	0.00
,									
12,100.0	90.00	359.38	9,563.0	2,247.9	210.5	2,250.5	0.00	0.00	0.00
12,200.0	90.00	359.38	9,563.0	2,347.9	209.4	2,350.5	0.00	0.00	0.00
12,300.0	90.00	359.38	9,563.0	2,447.9	208.3	2,450.4	0.00	0.00	0.00
12,400.0	90.00	359.38	9,563.0	2,547.9	207.2	2,550.4	0.00	0.00	0.00
12,500.0	90.00	359.38	9,563.0	2,647.9	206.2	2,650.4	0.00	0.00	0.00
12.600.0	90.00	359.38	9,563.0	2,747.9	205.1	2,750.4	0.00	0.00	0.00

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COMPASS 5000.16 Build 100

.



Database:	PEDM	Local Co-ordinate Reference:	Well #206H
Company:	Midland	TVD Reference:	kb = 25' @ 3730.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3730.0usft
Site:	Tweety Bird 8 Fed Com	North Reference:	Grid
Well:	#206H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН		
Design:	Plan #0.1 RT		

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)
12,700.0	90.00	359.38	9,563.0	2,847.9	204.0	2,850.3	0.00	0.00	0.00
12,800.0	90.00	359.39	9,563.0	2,947.9	202.9	2,950.3	0.00	0.00	0.00
12 000 0	90.00	359.39	9,563.0	3,047.9	201.9	3,050.3	0.00	0.00	0.00
12,900.0 13,000.0	90.00 90.00	359.39 359.39	9,563.0 9,563.0	3,047.9 3,147.9	201.9	3,050.3 3,150.2	0.00	0.00	0.00
13,100.0	90.00	359.39	9,563.0	3,247.9	200.8	3,150.2	0.00	0.00	0.00
13,200.0	90.00	359.39	9,563.0	3,347.9	199.7	3,350.2	0.00	0.00	0.00
13,300.0	90.00	359.39	9,563.0	3,447.9	190.7	3,450.2	0.00	0.00	0.00
						,			
13,400.0	90.00	359.39	9,563.0	3,547.9	196.5	3,550.1	0.00	0.00	0.00
13,500.0	90.00	359.39	9,563.0	3,647.9	195.5	3,650.1	0.00	0.00	0.00
13,600.0	90.00	359.39	9,563.0	3,747.8	194.4	3,750.1	0.00	0.00	0.00
13,700.0	90.00	359.39	9,563.0	3,847.8	193.4	3,850.0	0.00	0.00	0.00
13,800.0	90.00	359.40	9,563.0	3,947.8	192.3	3,950.0	0.00	0.00	0.00
13,900.0	90.00	359.40	9,563.0	4,047.8	191.3	4,050.0	0.00	0.00	0.00
14,000.0	90.00	359.40	9,563.0	4,147.8	190.2	4,150.0	0.00	0.00	0.00
14,100.0	90.00	359.40	9,563.0	4,247.8	189.2	4,249.9	0.00	0.00	0.00
14,200.0	90.00	359.40	9,563.0	4,347.8	188.1	4,349.9	0.00	0.00	0.00
14,300.0	90.00	359.40	9,563.0	4,447.8	187.1	4,449.9	0.00	0.00	0.00
14,400.0	90.00	359.40	9,563.0	4,547.8	186.0	4,549.8	0.00	0.00	0.00
14,500.0	90.00	359.40	9,563.0	4,647.8	185.0	4,649.8	0.00	0.00	0.00
14,600.0	90.00	359.40	9,563.0	4,747.8	183.9	4,749.8	0.00	0.00	0.00
14,700.0	90.00	359.40	9,563.0	4,847.8	182.9	4,849.8	0.00	0.00	0.00
14,800.0	90.00	359.40	9,563.0	4,947.8	181.8	4,949.7	0.00	0.00	0.00
14,900.0	90.00	359.41	9,563.0	5,047.8	180.8	5,049.7	0.00	0.00	0.00
15,000.0	90.00	359.41	9,563.0	5,147.8	179.8	5,149.7	0.00	0.00	0.00
15,100.0	90.00	359.41	9,563.0	5,247.8	178.7	5,249.7	0.00	0.00	0.00
15,200.0	90.00	359.41	9,563.0	5,347.8	177.7	5,349.6	0.00	0.00	0.00
15,300.0	90.00	359.41	9,563.0	5,447.8	176.7	5,449.6	0.00	0.00	0.00
15,400.0	90.00	359.41	9,563.0	5,547.7	175.6	5,549.6	0.00	0.00	0.00
15,500.0	90.00	359.41	9,563.0	5,647.7	175.6	5,649.5	0.00	0.00	0.00
15,600.0	90.00	359.41	9,563.0	5,747.7	174.0	5,749.5	0.00	0.00	0.00
15,700.0	90.00	359.41	9,563.0	5,847.7	172.6	5,849.5	0.00	0.00	0.00
15,800.0	90.00	359.41	9,563.0	5,947.7	171.5	5,949.5	0.00	0.00	0.00
15,900.0	90.00	359.42	9,563.0	6,047.7	170.5	6,049.4	0.00	0.00	0.00
16,000.0	90.00	359.42 359.42	9,563.0	6,147.7	169.5	6,149.4 6,249.4	0.00 0.00	0.00	0.00 0.00
16,100.0 16,200.0	90.00 90.00	359.42 359.42	9,563.0 9,563.0	6,247.7 6,347.7	168.5 167.5	6,249.4 6,349.4	0.00	0.00 0.00	0.00
16,300.0	90.00	359.42	9,563.0	6,447.7	166.4	6,449.3	0.00	0.00	0.00
16,400.0	90.00	359.42	9,563.0	6,547.7	165.4	6,549.3	0.00	0.00	0.00
16,500.0	90.00	359.42	9,563.0	6,647.7	164.4	6,649.3	0.00	0.00	0.00
16,600.0 16,700.0	90.00	359.42	9,563.0	6,747.7	163.4	6,749.2	0.00	0.00	0.00
16,700.0 16,800.0	90.00 90.00	359.42 359.42	9,563.0 9,563.0	6,847.7 6,947.7	162.4 161.4	6,849.2 6,949.2	0.00 0.00	0.00 0.00	0.00 0.00
16,900.0	90.00	359.42	9,563.0	7,047.7	160.4	7,049.2	0.00	0.00	0.00
17,000.0	90.00	359.43	9,563.0	7,147.7	159.4	7,149.1	0.00	0.00	0.00
17,100.0	90.00	359.43	9,563.0	7,247.7	158.4	7,249.1	0.00	0.00	0.00
17,200.0	90.00	359.43	9,563.0	7,347.7	157.4	7,349.1	0.00	0.00	0.00
17,237.3	90.00	359.43	9,563.0	7,385.0	157.0	7,386.4	0.00	0.00	0.00
Fed Perf 2(T)	weety Bird 8 Fec	d Com 206H)							
17,300.0	90.00	359.43	9,563.0	7,447.7	156.4	7,449.1	0.00	0.00	0.00
17,400.0	90.00	359.42	9,563.0	7,547.6	155.4	7,549.0	0.00	0.00	0.00
17,500.0	90.00	359.42	9,563.0	7,647.6	154.4	7,649.0	0.00	0.00	0.00
17,600.0	90.00	359.42	9,563.0	7,747.6	153.3	7,749.0	0.00	0.00	0.00
17,700.0	90.00	359.42	9,563.0	7,847.6	152.3	7,849.0	0.00	0.00	0.00

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**Planning Report** 

Database:	PEDM	Local Co-ordinate Reference:	Well #206H
Company:	Midland	TVD Reference:	kb = 25' @ 3730.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3730.0usft
Site:	Tweety Bird 8 Fed Com	North Reference:	Grid
Well:	#206H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН		
Design:	Plan #0.1 RT		

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)
17,800.0	90.00	359.41	9,563.0	7,947.6	151.3	7,948.9	0.00	0.00	0.00
17,900.0	90.00	359.41	9,563.0	8,047.6	150.3	8,048.9	0.00	0.00	0.00
18,000.0	90.00	359.41	9,563.0	8,147.6	149.2	8,148.9	0.00	0.00	0.00
18,100.0	90.00	359.40	9,563.0	8,247.6	148.2	8,248.8	0.00	0.00	0.00
18,200.0	90.00	359.40	9,563.0	8,347.6	147.2	8,348.8	0.00	0.00	0.00
18,300.0	90.00	359.40	9,563.0	8,447.6	146.1	8,448.8	0.00	0.00	0.00
18,400.0	90.00	359.40	9,563.0	8,547.6	145.1	8,548.8	0.00	0.00	0.00
18,500.0	90.00	359.39	9,563.0	8,647.6	144.0	8,648.7	0.00	0.00	0.00
18,600.0	90.00	359.39	9,563.0	8,747.6	142.9	8,748.7	0.00	0.00	0.00
18,700.0	90.00	359.39	9,563.0	8,847.6	141.9	8,848.7	0.00	0.00	0.00
18,800.0	90.00	359.39	9,563.0	8,947.6	140.8	8,948.6	0.00	0.00	0.00
18,900.0	90.00	359.38	9,563.0	9,047.6	139.7	9,048.6	0.00	0.00	0.00
19,000.0	90.00	359.38	9,563.0	9,147.6	138.7	9,148.6	0.00	0.00	0.00
19,100.0	90.00	359.38	9,563.0	9,247.6	137.6	9,248.6	0.00	0.00	0.00
19,200.0	90.00	359.37	9,563.0	9,347.5	136.5	9,348.5	0.00	0.00	0.00
19,300.0	90.00	359.37	9,563.0	9,447.5	135.4	9,448.5	0.00	0.00	0.00
19,400.0	90.00	359.37	9,563.0	9,547.5	134.3	9,548.5	0.00	0.00	0.00
19,500.0	90.00	359.37	9,563.0	9,647.5	133.2	9,648.4	0.00	0.00	0.00
19,600.0	90.00	359.36	9,563.0	9,747.5	132.1	9,748.4	0.00	0.00	0.00
19,700.0	90.00	359.36	9,563.0	9,847.5	131.0	9,848.4	0.00	0.00	0.00
19,785.5	90.00	359.36	9,563.0	9,933.0	130.0	9,933.9	0.00	0.00	0.00
DBHI (Twoot	y Bird 8 Fed Co	m 206H)							

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP(Tweety Bird 8 Fed - plan hits target cent - Point	0.00 er	0.00	9,085.5	-467.0	238.0	478,087.00	769,299.00	32° 18' 43.837 N	103° 35' 43.595 W
FTP(Tweety Bird 8 Fed ( - plan hits target cent - Point	0.00 er	0.00	9,298.2	-417.0	238.0	478,137.00	769,299.00	32° 18' 44.332 N	103° 35' 43.591 W
Fed Perf 1(Tweety Bird { - plan hits target cent - Point	0.00 er	0.00	9,563.0	2,109.0	212.0	480,663.00	769,273.00	32° 19' 9.328 N	103° 35' 43.691 W
Fed Perf 2(Tweety Bird { - plan hits target cent - Point	0.00 er	0.00	9,563.0	7,385.0	157.0	485,939.00	769,218.00	32° 20' 1.539 N	103° 35' 43.909 W
PBHL(Tweety Bird 8 Fec - plan hits target cent - Point	0.00 er	0.00	9,563.0	9,933.0	130.0	488,487.00	769,191.00	32° 20' 26.753 N	103° 35' 44.019 W

# leog resources

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1200-

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3900-

4200-

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5100-

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6000-

6300-

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6900-

7200

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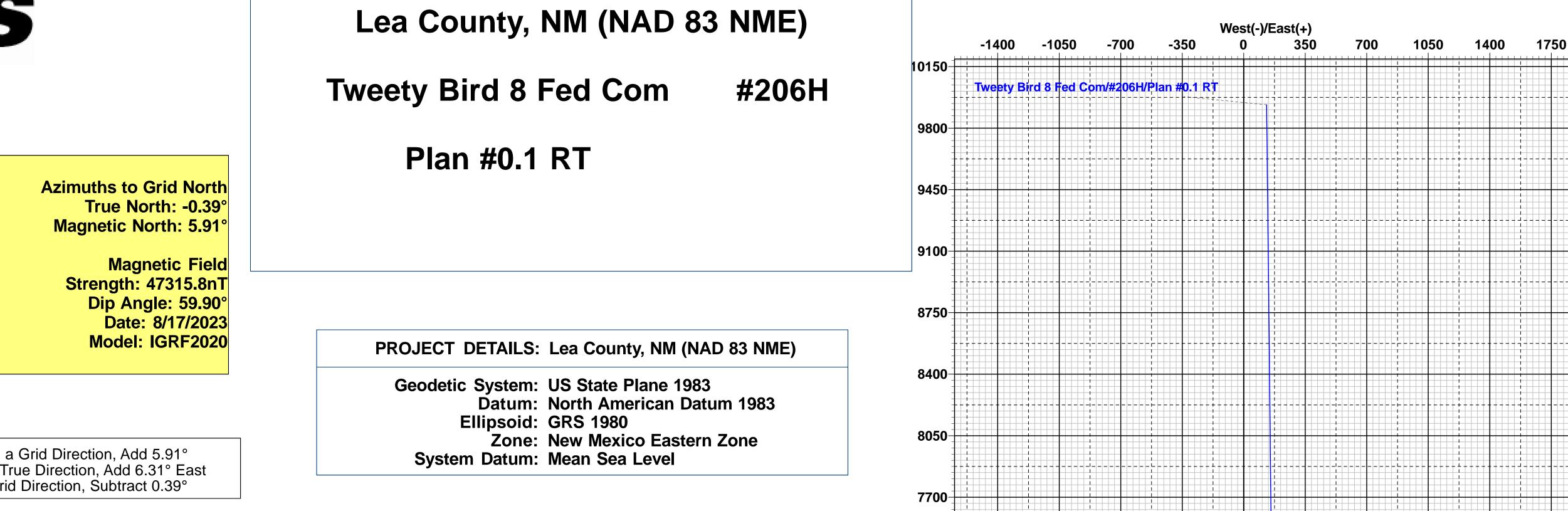
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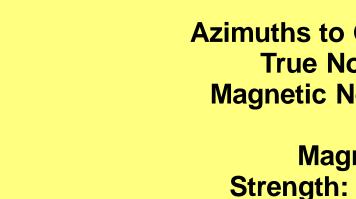
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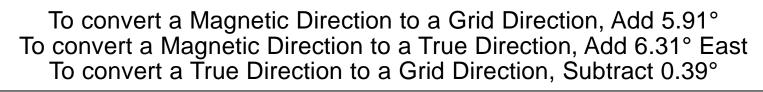
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True



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	WELL DETAILS	5: #206H	
		3705.	0
	kb = 25' (	@ 3730.0usft	
Northing	Easting	Latittude	Lonaitude
478554.00	769061.00	32° 18' 48,474 N	Longitude 103° 35' 46.331 W

Target

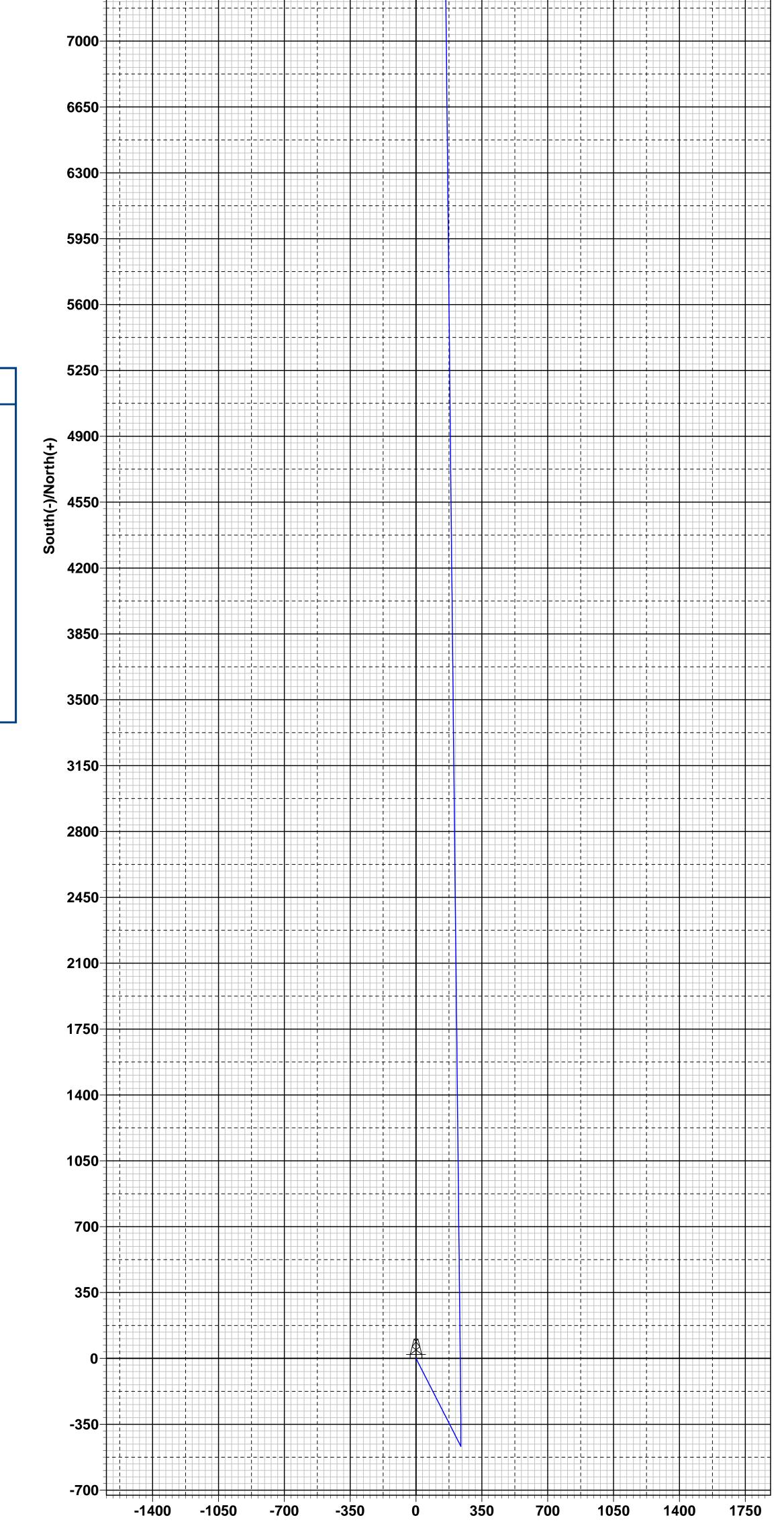
KOP(Tweety Bird 8 Fed Com 206H)

FTP(Tweety Bird 8 Fed Com 206H)

Fed Perf 1(Tweety Bird 8 Fed Com 206H)

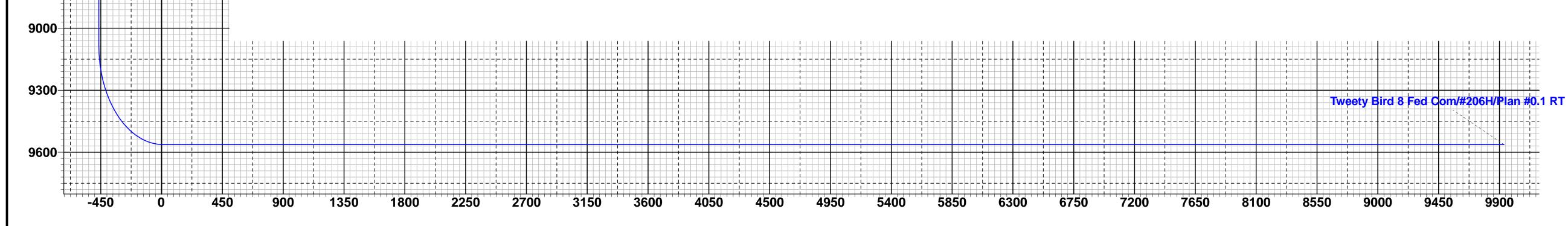
Fed Perf 2(Tweety Bird 8 Fed Com 206H) PBHL(Tweety Bird 8 Fed Com 206H)

							SECTION	N DETAILS		
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2058.0	0.00	0.00	2058.0	0.0	0.0	0.00	0.00	0.0	
3	2357.8	6.00	152.99	2357.2	-14.0	7.1	2.00	152.99	-13.9	
4	7076.1	6.00	152.99	7049.8	-453.0	230.9	0.00	0.00	-450.0	
5	7375.9	0.00	0.00	7349.0	-467.0	238.0	2.00	180.00	-463.8	
6	9112.4	0.00	0.00	9085.5	-467.0	238.0	0.00	0.00	-463.8	
7	9332.9	26.46	0.00	9298.2	-417.0	238.0	12.00	0.00	-413.8	
8	9862.4	90.00	359.38	9563.0	10.4	234.8	12.00	-0.69	13.5	
9	11961.1	90.00	359.38	9563.0	2109.0	212.0	0.00	0.00	2111.6	
10	17237.3	90.00	359.43	9563.0	7385.0	157.0	0.00	86.89	7386.4	
11	19785.5	90.00	359.36	9563.0	9933.0	130.0	0.00	-92.23	9933.9	



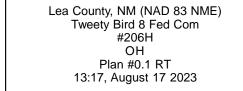
							2800
CASING DETAILS	WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
No casing data is available	Name KOP(Tweety Bird 8 Fed Com 206H)	TVD 9085.5	+N/-S -467.0	+E/-W 238.0	Northing 478087.00	Easting 769299.00	2450
	FTP(Tweety Bird 8 Fed Com 206H) Fed Perf 1(Tweety Bird 8 Fed Com 206H) Fed Perf 2(Tweety Bird 8 Fed Com 206H) PBHL(Tweety Bird 8 Fed Com 206H)	9298.2 9563.0 9563.0 9563.0	-417.0 2109.0 7385.0 9933.0	238.0 212.0 157.0 130.0	478137.00 480663.00 485939.00 488487.00	769299.00 769273.00 769218.00 769191.00	2100
		9303.0	3333.0	130.0	400407.00	709191.00	1750

West(-)/East(+)

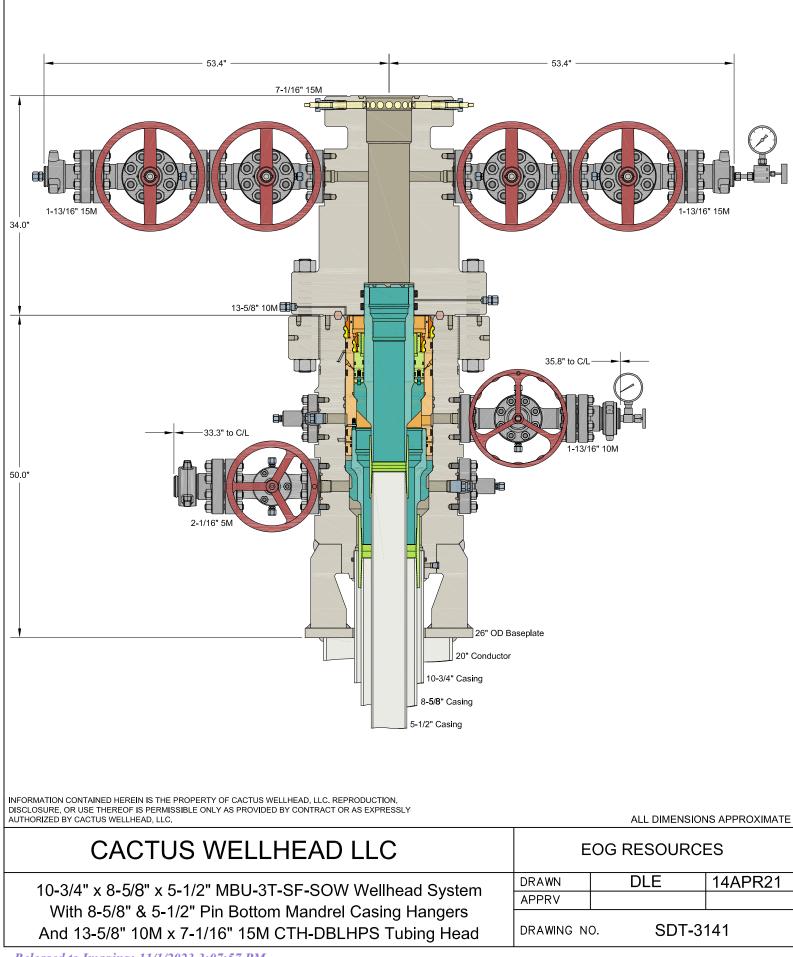


Vertical Section at 0.75°





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# **S**eog resources

#### **Tweety Bird 8 Fed Com Package**

Wells in package:	Tgt TVD
Tweety Bird 17 Fed Com #205H	9,094
Tweety Bird 17 Fed Com #305H	10,096
Tweety Bird 8 Fed Com #206H	9,094
Tweety Bird 8 Fed Com #306H	10,096

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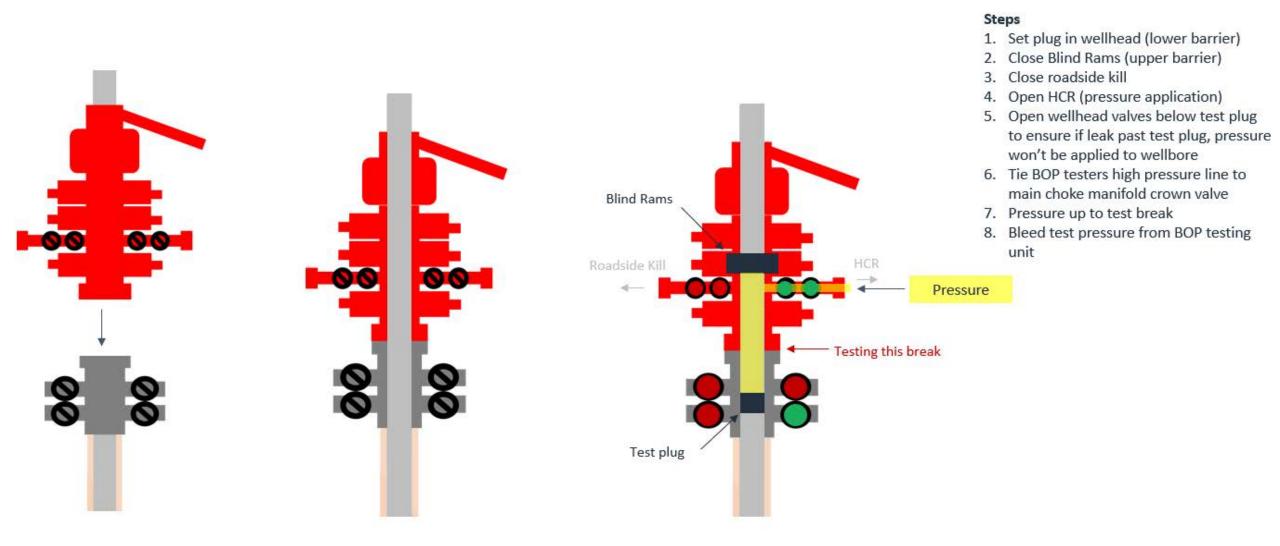


#### **Break-test BOP & Offline Cementing:**

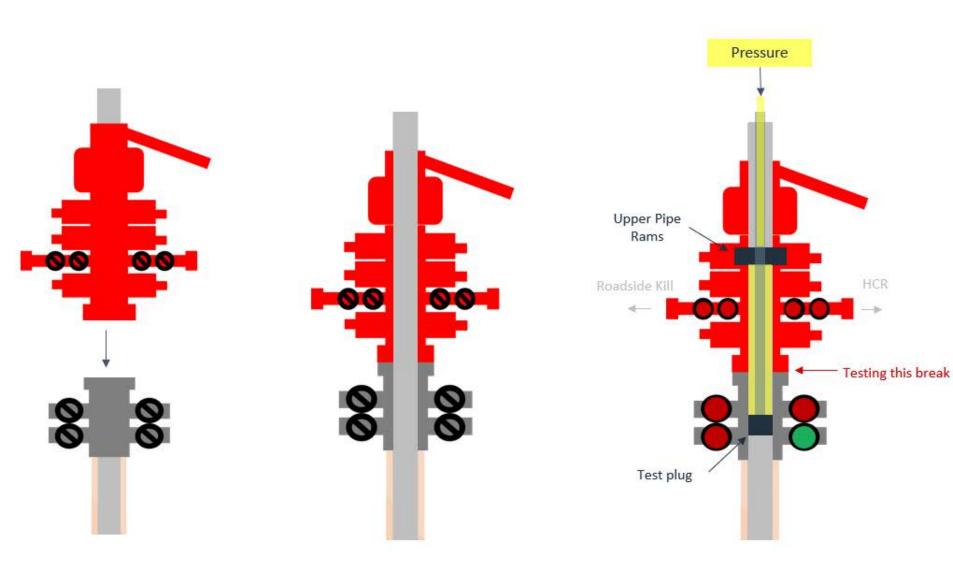
EOG Resources Inc. (EOG) respectfully requests a variance from the minimum standards for well control equipment testing of ECFR Title 43 Part 3172.6(b)(9)(iv) to allow a testing schedule of the blow out preventer (BOP) and blow out prevention equipment (BOPE) along with Batch Drilling & Offline cement operations to include the following:

- Full BOPE test at first installation on the pad.
- Full BOPE test every 21 days.
- This test will be conducted for 5M rated hole intervals only.
- Each rig requesting the break-test variance is capable of picking up the BOP without damaging components using winches, following API Standard 53, Well Control Equipment Systems for Drilling Wells (Fifth edition, December 2018, Annex C. Table C.4) which recognizes break testing as an acceptable practice.
- Function tests will be performed on the following BOP elements:
  - Annular **à** during each full BOPE test
  - Upper Pipe Rams **à** On trip ins where FIT required
  - Blind Rams **à** Every trip
  - Lower Pipe Rams à during each full BOPE test
- Break testing BOP and BOPE coupled with batch drilling operations and option to offline cement and/or remediate (if needed) any surface or intermediate sections, according to attached offline cementing support documentation.
- After the well section is secured, the BOP will be disconnected from the wellhead and walked with the rig to another well on the pad.
- TA cap will also be installed per Wellhead vendor procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.

# **Break Test Diagram (HCR valve)**



# **Break Test Diagram (Test Joint)**



#### Steps

- 1. Set plug in with test joint wellhead (lower barrier)
- 2. Close Upper Pipe Rams (upper barrier)
- 3. Close roadside kill
- 4. Close HCR
- Open wellhead valves below test plug to ensure if leak past test plug, pressure won't be applied to wellbore
- 6. Tie BOP testers high pressure line to top of test joint
- 7. Pressure up to test break
- 8. Bleed test pressure from BOP testing unit

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## **Seog resources** Offline Intermediate Cementing Procedure

#### **Cement Program**

1. No changes to the cement program will take place for offline cementing.

#### Summarized Operational Procedure for Intermediate Casing

- 1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment back pressure valves.
  - a. Float equipment is equipped with two back pressure valves rated to a minimum of 5,000 psi.
- 2. Land production casing on mandrel hanger through BOP.
  - a. If casing is unable to be landed with a mandrel hanger, then the **casing will be cemented online**.
- 3. Break circulation and confirm no restrictions.
  - a. Ensure no blockage of float equipment and appropriate annular returns.
  - b. Perform flow check to confirm well is static.
- 4. Set pack-off
  - a. If utilizing a fluted/ported mandrel hanger, ensure well is static on the annulus and inside the casing by filling the pipe with kill weight fluid, remove landing joint, and set annular packoff through BOP. Pressure test to 5,000 psi for 10 min.
  - b. If utilizing a solid mandrel hanger, ensure well is static on the annulus and inside the casing by filling the pipe with kill weight fluid. Pressure test seals to 5,000 psi for 10 min. Remove landing joint through BOP.
- 5. After confirmation of both annular barriers and the two casing barriers, install TA plug and pressure test to 5,000 psi for 10 min. Notify the BLM with intent to proceed with nipple down and offline cementing.
  - a. Minimum 4 hrs notice.
- 6. With the well secured and BLM notified, nipple down BOP and secure on hydraulic carrier or cradle.
  - a. Note, if any of the barriers fail to test, the BOP stack will not be nippled down until after the cement job has concluded and both lead and tail slurry have reached 500 psi.
- 7. Skid/Walk rig off current well.
- 8. Confirm well is static before removing TA Plug.
  - a. Cementing operations will not proceed until well is under control. (If well is not static, notify BLM and proceed to kill)
  - b. Casing outlet valves will provide access to both the casing ID and annulus. Rig or third party pump truck will kill well prior to cementing.
  - c. Well control plan can be seen in Section B, Well Control Procedures.
  - d. If need be, rig can be moved back over well and BOP nippled back up for any further remediation.

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## **S**eog resources

Offline Intermediate Cementing Procedure

- e. Diagram for rig positioning relative to offline cementing can be seen in Figure 4.
- 9. Rig up return lines to take returns from wellhead to pits and rig choke.
  - a. Test all connections and lines from wellhead to choke manifold to 5,000 psi high for 10 min.
  - b. If either test fails, perform corrections and retest before proceeding.
  - c. Return line schematics can be seen in Figure 3.
- 10. Remove TA Plug from the casing.
- 11. Install offline cement tool.
  - a. Current offline cement tool schematics can be seen in Figure 1 (Cameron) and Figure 2 (Cactus).
- 12. Rig up cement head and cementing lines.
  - a. Pressure test cement lines against cement head to 80% of casing burst for 10 min.
- 13. Break circulation on well to confirm no restrictions.
  - a. If gas is present on circulation, well will be shut in and returns rerouted through gas buster.
  - b. Max anticipated time before circulating with cement truck is 6 hrs.
- 14. Pump cement job as per plan.
  - a. At plug bump, test casing to 0.22 psi/ft or 1500 psi, whichever is greater.
  - b. If plug does not bump on calculated, shut down and wait 8 hrs or 500 psi compressive strength, whichever is greater before testing casing.
- 15. Confirm well is static and floats are holding after cement job.
  - a. With floats holding and backside static:
    - i. Remove cement head.
  - b. If floats are leaking:
    - i. Shut-in well and WOC (Wait on Cement) until tail slurry reaches 500 psi compressive strength and the casing is static prior to removing cement head.
  - c. If there is flow on the backside:
    - i. Shut in well and WOC until tail slurry reaches 500 psi compressive strength. Ensure that the casing is static prior to removing cement head.
- 16. Remove offline cement tool.
- 17. Install night cap with pressure gauge for monitoring.
- 18. Test night cap to 5,000 psi for 10 min.

#### **Example Well Control Plan Content**

#### A. Well Control Component Table

The table below, which covers the cementing of the <u>5M MASP (Maximum Allowable Surface Pressure) portion of the well</u>, outlines the well control component rating in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the BOP nippled up to the wellhead.

Intermediate hole section, 5M requirement

Component	RWP
Pack-off	10M
Casing Wellhead Valves	10M
Annular Wellhead Valves	5M
TA Plug	10M
Float Valves	5M
2" 1502 Lo-Torque Valves	15M

#### **B. Well Control Procedures**

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level tasks prescribed to assure a proper shut-in while circulating and cementing through the Offline Cement Adapter.

#### **General Procedure While Circulating**

- 1. Sound alarm (alert crew).
- 2. Shut down pumps.
- 3. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 4. Confirm shut-in.
- 5. Notify tool pusher/company representative.

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# **S**eog resources

Offline Intermediate Cementing Procedure

- 6. Read and record the following:
  - a. SICP (Shut in Casing Pressure) and AP (Annular Pressure)
  - b. Pit gain
  - c. Time
  - d. Regroup and identify forward plan to continue circulating out kick via rig choke and mud/gas separator. Circulate and adjust mud density as needed to control well.

### **General Procedure While Cementing**

- 1. Sound alarm (alert crew).
- 2. Shut down pumps.
- 3. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 4. Confirm shut-in.
- 5. Notify tool pusher/company representative.
- 6. Open rig choke and begin pumping again taking returns through choke manifold and mud/gas separator.
- 7. Continue to place cement until plug bumps.
- 8. At plug bump close rig choke and cement head.
- 9. Read and record the following
  - a. SICP and AP
  - b. Pit gain
  - c. Time
  - d. Shut-in annulus valves on wellhead

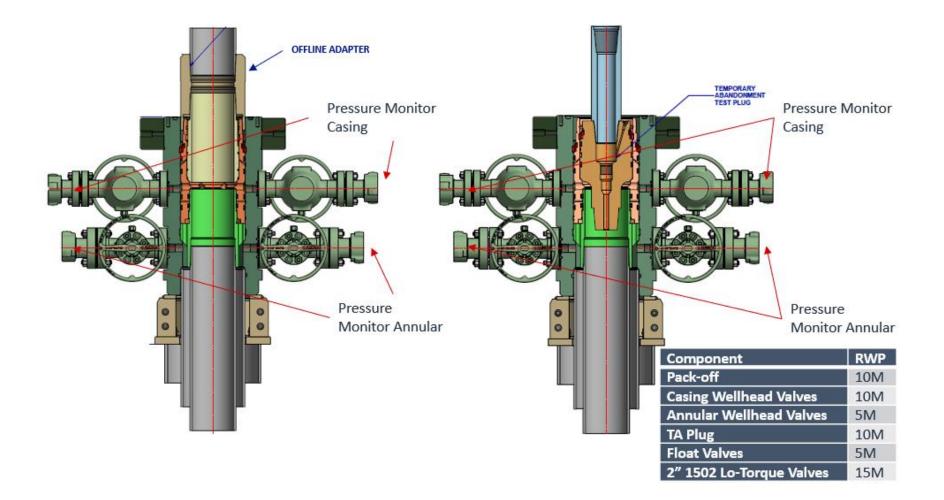
#### General Procedure After Cementing

- 1. Sound alarm (alert crew).
- 2. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 3. Confirm shut-in.
- 4. Notify tool pusher/company representative.
- 5. Read and record the following:
  - a. SICP and AP
  - b. Pit gain
  - c. Time
  - d. Shut-in annulus valves on wellhead

Page | 4

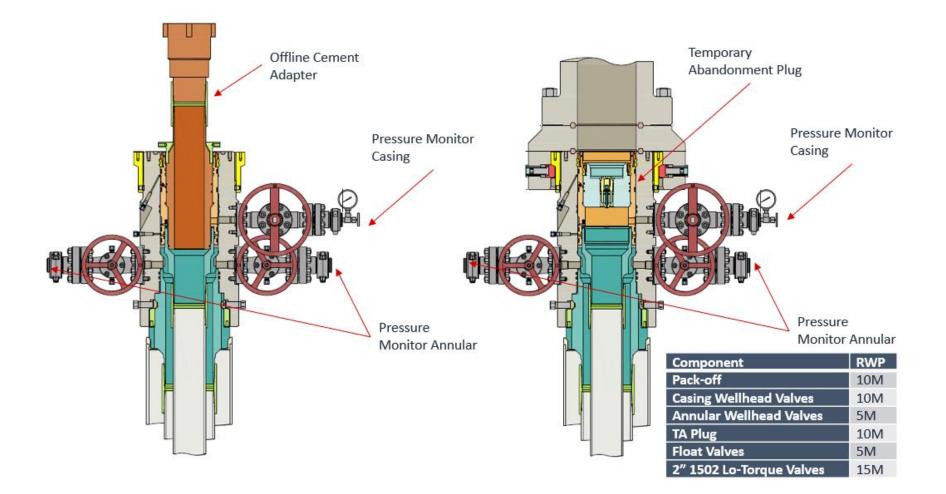
### **Seog resources** Offline Intermediate Cementing Procedure

Figure 1: Cameron TA Plug and Offline Adapter Schematic



# **Offline Intermediate Cementing Procedure**





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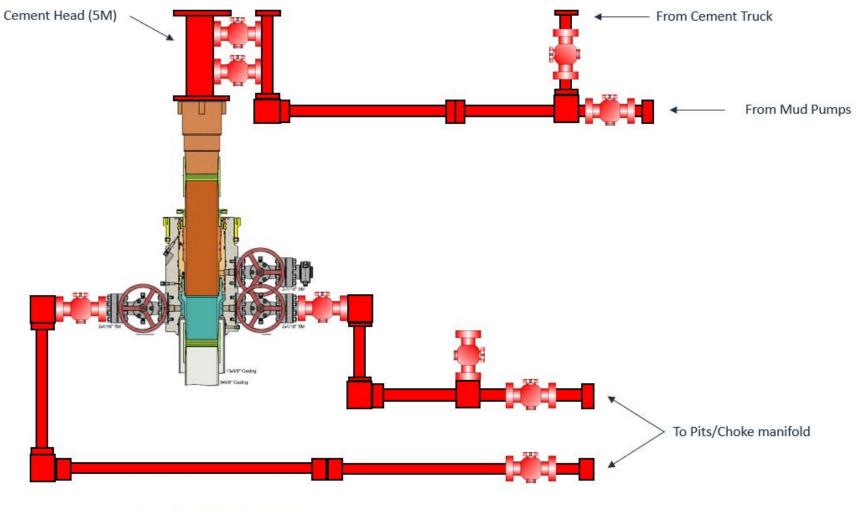
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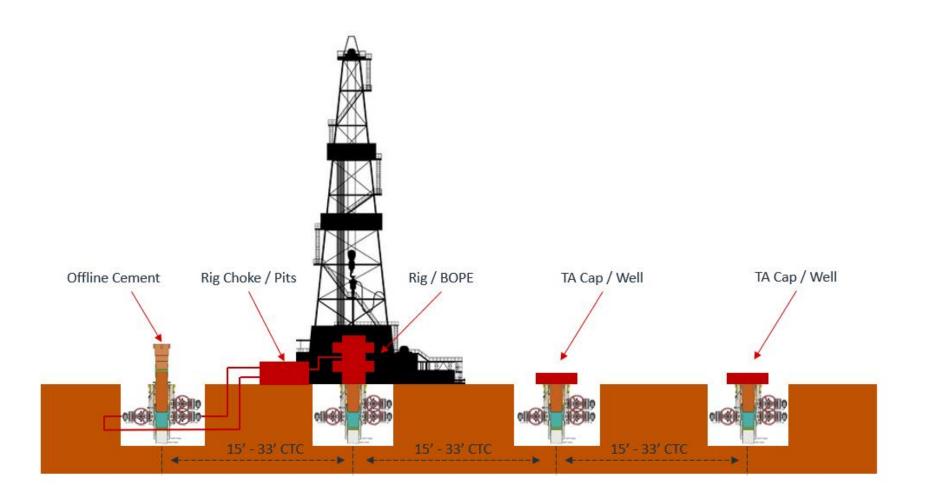


\*\*\* All Lines 10M rated working pressure

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VALLOUREC STAR 8.625 32#

						V	val	lou	rec
				AP	9I 5CT, <sup>•</sup>	10th Ed. (	Connect	tion Dat	a Sheet
	t) 2.00 1.13	<b>WALL</b> ( 0.352	-		<b>ADE</b> 55	* <b>API DRI</b> 7.79	. ,	<b>RB</b> 87	
Material Properties	s (PE)				I	Pipe Body	y Data (	PE)	
Pipe						Geo	metry		
Minimum Yield Strength:	55	ksi		Nomir	nal ID:			7.92	inch
Maximum Yield Strength:	80	ksi		Nomir	nal Area	1:		9.149	in <sup>2</sup>
Minimum Tensile Strength:	75	ksi		*Spec	ial/Alt. I	Drift:		7.875 inch	
Coupling				Performance					
Minimum Yield Strength:	n Yield Strength: 55 ksi			Pipe Body Yield Strength:				503 kips	
Maximum Yield Strength:	80	ksi		Collapse Resistance:				2,530 psi	
Minimum Tensile Strength:	75	ksi		Internal Yield Pressure: (API Historical)				3,930 psi	
<b>API Connection</b> Coupling OD: 9.62					A	PI Conneo	ction To	orque	
STC Performan						STC Torc	ue (ft-ll	bs)	
STC Internal Pressure:	3,930	psi		Min:	2,793	Opti:	3,724	Max:	4,655
STC Joint Strength:	372	kips							
LTC Performan	ce					LTC Torc	ue (ft-ll	bs)	
LTC Internal Pressure:	3,930	psi		Min:	3,130	Opti:	4,174	Max:	5,217
LTC Joint Strength:		kips							
SC-BTC Performance - Cpl	g OD =	9.125"				BTC Torc	ue (ft-ll	hs)	
BTC Internal Pressure:	3,930	psi		follo		idelines reg	• •		ake up
BTC Joint Strength:	503	kips							
*Al		be used un			-				

\*\*If above API connections do not suit your needs, VAM® premium connections are available up to

100% of pipe body ratings.

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# Pipe Body and APP Connections Performance Data

### 10.750 40.50/0.350 J55

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Mechanical Properties	Ptpe	BTC	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Pipe	BTC	LTC	STC	
Outside Diameter	10.750	11.750	-	11.750	in.
Wall Thickness	0.350	-	-	-	in.
Inside Diameter	10.050	10.050	-	10.050	in.
Standard Drift	9.894	9.894	-	9.894	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	40.50	-	-	-	lbs/ft
Plain End Weight	38.91	-	-	-	lbs/ft
Performance	Ptpe	BTC	LTC	STC	
Minimum Collapse Pressure	1,580	1,580	-	1,580	psi
Minimum Internal Yield Pressure	3,130	3,130	-	3,130	psi
Minimum Pipe Body Yield Strength	629.00	-	-	-	1000 lbs
Joint Strength	-	700	-	420	1000 lbs
Reference Length	-	11,522	-	6,915	ft
Make-Up Data	Ртре	BTC	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque		-	-	3,150	ft-lbs
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# Salt Section Annular Clearance Variance Request

**Daniel Moose** 

# **Current Design (Salt Strings)**

### 0.422" Annular clearance requirement

- Casing collars shall have a minimum clearance of 0.422 inches on all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.

- 12.25" Hole x 9.625"40# J55/HCK55 LTC Casing
  - 1.3125" Clearance to casing OD
  - 0.8125" Clearance to coupling OD
- 9.875" Hole x 8.75" 38.5# P110 Sprint-SF Casing
  - 0.5625" Clearance to casing OD
  - 0.433" Clearance to coupling OD

### Page 47 of 57

# **Annular Clearance Variance Request**

EOG request permission to allow deviation from the 0.422" annulus clearance requirement for the intermediate (salt) section from Onshore Order #2 under the following conditions:

- The variance is not applicable within the Potash Boundaries or Capitan Reef areas.
- Operator takes responsibility to get casing to set point in the event that the clearance causes stuck pipe issues

# **Volumetric Hole Size Calculation**

### **Hole Size Calculations Off Cement Volumes**

- Known volume of cement pumped
- Known volume of cement returned to surface
- Must not have had any losses
- Must have bumped plug

### **Average Hole Size**

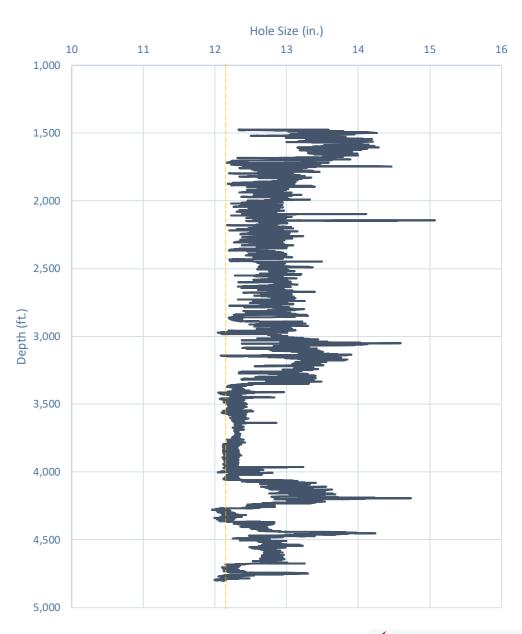
- 12.25" Hole
  - 12.88" Hole
    - 5.13% diameter increase
    - 10.52% area increase
  - 0.63" Average enlargement
  - 0.58" Median enlargement
  - 179 Well Count
- 9.875" Hole
  - 10.30" Hole
    - 4.24% diameter increase
    - 9.64% area increase
  - 0.42" Average enlargement
  - 0.46" Median enlargement
  - 11 Well Count



# Caliper Hole Size (12.25")

### **Average Hole Size**

- 12.25" Bit
  - 12.76" Hole
    - 4.14% diameter increase
    - 8.44% area increase
  - 0.51" Average enlargement
  - 0.52" Median enlargement
  - Brine



Modelo 10 Fed Com #501H

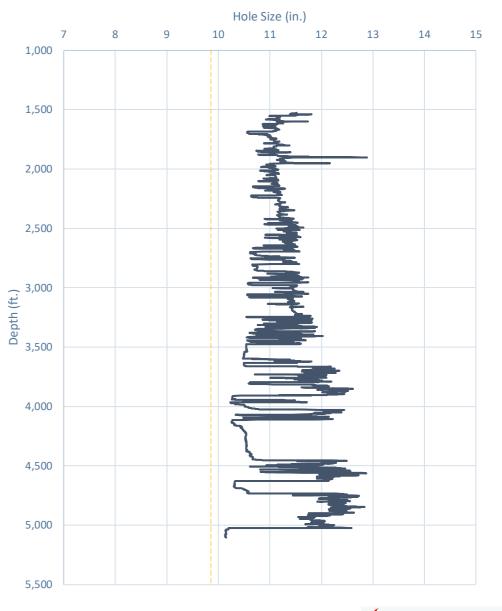


### Whirling Wind 11 Fed Com #744H

# Caliper Hole Size (9.875")

### **Average Hole Size**

- 9.875" Hole
  - 11.21" Hole
    - 13.54% diameter increase
    - 28.92% area increase
  - 1.33" Average enlargement
  - 1.30" Median enlargement
  - EnerLite





# **Design A**

# Proposed 11" Hole with 9.625" 40# J55/HCK55 LTC Casing

- 11" Bit + 0.52" Average hole enlargement = 11.52" Hole Size
  - 0.9475" Clearance to casing OD

$$=\frac{11.52 - 9.625}{2}$$
475" Clearance to

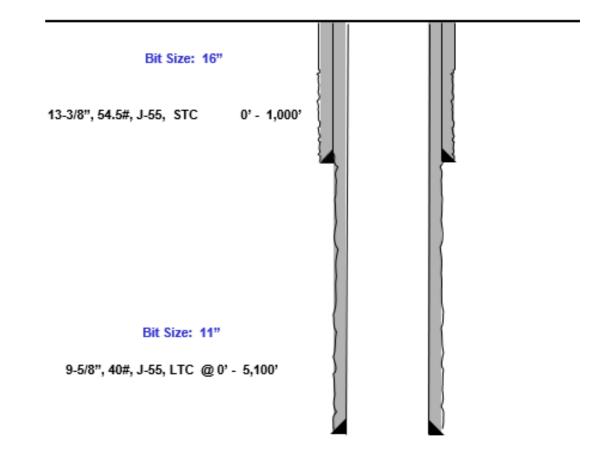
 0.4475" Clearance to coupling OD 11.52 - 10.625

$$\frac{11.52 - 10}{2}$$

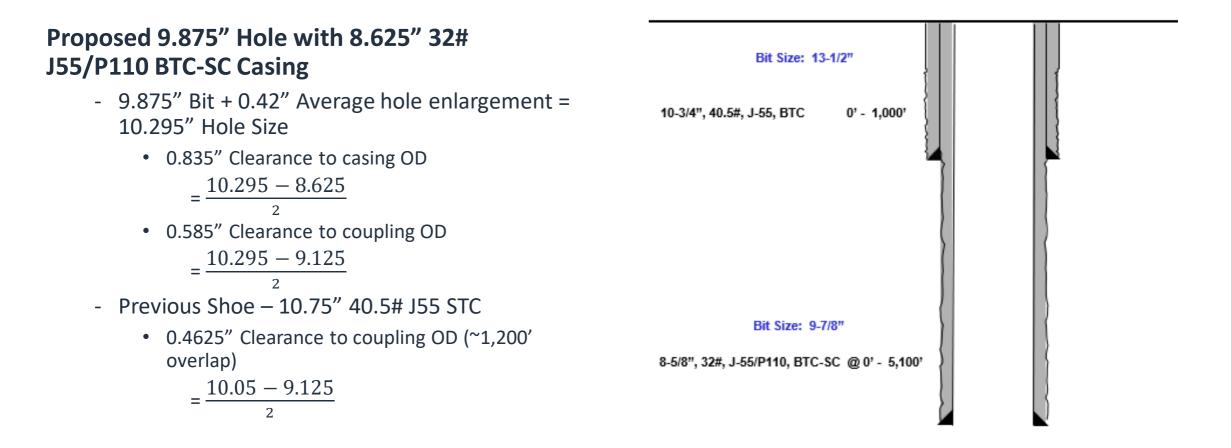
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- Previous Shoe 13.375" 54.5# J55 STC
  - 0.995" Clearance to coupling OD (~1,200' overlap)

$$=\frac{12.615-10.625}{2}$$



# **Design B**







.

# **Casing Spec Sheets**

### **PERFORMANCE DATA**

API LTC		
Technical	Data	Sheet

9.625 in 40.00 lbs/ft

K55 HC

#### Tubular Parameters

Size	9.625	in	Minimum Yield	55	ksi
Nominal Weight	40.00	lbs/ft	Minimum Tensile	95	ksi
Grade	K55 HC		Yield Load	629	kips
PE Weight	38.94	lbs/ft	Tensile Load	1088	kips
Wall Thickness	0.395	in	Min. Internal Yield Pressure	3,950	psi
Nominal ID	8.835	in	Collapse Pressure	3600	psi
Drift Diameter	8.750	in			
Nom. Pipe Body Area	11.454	in²			

#### **Connection Parameters**

Connection OD	10.625	in
Coupling Length	10.500	in
Threads Per Inch	8	tpi
Standoff Thread Turns	3.50	turns
Make-Up Loss	4.750	in
Min. Internal Yield Pressure	3,950	psi

### Pipe Body and API Connections Performance Data

13.375	54.50/0.380	J55

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Mechanical Properties	Ptpe	BTC	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Pipe	BTC	LTC	STC	
Outside Diameter	13.375	14.375	-	14.375	in.
Wall Thickness	0.380	-	-	-	in.
Inside Diameter	12.615	12.615	-	12.615	in.
Standard Drift	12.459	12.459	-	12.459	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	54.50	-	-	-	libs/ft
Plain End Weight	52.79	-	-	-	lbs/ft
Performance	Ptpe	втс	LTC	STC	
Minimum Collapse Pressure	1,130	1,130	-	1,130	psi
Minimum Internal Yield Pressure	2,740	2,740	-	2,740	psi
Minimum Pipe Body Yield Strength	853.00	-	-	-	1000 lbs
Joint Strength	-	909	-	514	1000 lbs
Reference Length	-	11,125	-	6,290	ft
Make-Up Data	Ptpe	BTC	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque	-	-	-	3,860	ft-lbs
Maximum Make-Up Torque	-	-	-	6,430	ft-lbs

# **Casing Spec Sheets**

#### Pipe Body and API Connections Performance Data

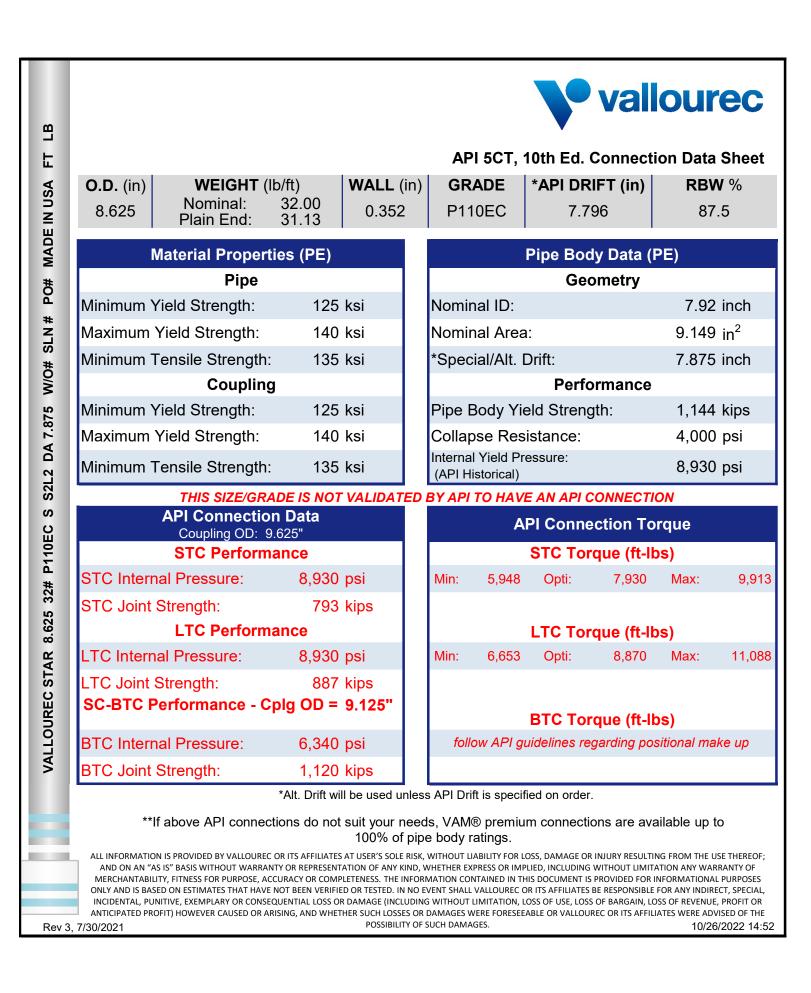
10.750 40.50/0.350 J55					PD
New Search »					« Back to Previous L
					USC 💽 Metr
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Mechanical Properties	Pipe	BTC	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Pipe	втс	LTC	STC	
Outside Diameter	10.750	11.750	-	11.750	in.
Wall Thickness	0.350	-	-		in.
Inside Diameter	10.050	10.050	-	10.050	in.
Standard Drift	9.894	9.894	-	9.894	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	40.50	-	-		lbs/ft
Plain End Weight	38.91	-	-	-	lbs/ft
Performance	Pipe	втс	LTC	STC	
Minimum Collapse Pressure	1,580	1,580	-	1,580	psi
Minimum Internal Yield Pressure	3,130	3,130	-	3,130	psi
Minimum Pipe Body Yield Strength	629.00	-	-		1000 lbs
Joint Strength	-	700	-	420	1000 lbs
Reference Length	-	11,522	-	6,915	ft
Make-Up Data	Pipe	втс	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque		-	-	3,150	ft-lbs
Maximum Make-Up Torque	-	-	-	5,250	ft-lbs

						AP	I 5CT, '	10th Ed. Co	nnect	ion Dat	a Shee
	. <b>D.</b> (in) 3.625	<b>WEIGHT</b> (lk Nominal: Plain End:	o/ft) 32.00 31.13	WALL (i 0.352	n)		<b>ADE</b> 55	* <b>API DRIF</b> 7.796	· · /	<b>RBV</b> 87	• • •
	l	Material Properti	es (PE)				ŀ	Pipe Body I	Data (I	PE)	
		Pipe						Geom	etry		
Mi	nimum '	Yield Strength:	55	ksi		Nomin	nal ID:			7.92	inch
Ma	aximum	Yield Strength:	80	ksi		Nomin	al Area	:		9.149	in <sup>2</sup>
Mi	nimum	Tensile Strength:	75	ksi		*Spec	ial/Alt. [	Drift:		7.875	inch
		Coupling						Perform	ance		
Mi	nimum '	Yield Strength:	55	ksi		Pipe E	Body Yie	eld Strength	:	503	kips
Ma	aximum	Yield Strength:	80	ksi				istance:		2,530	psi
Mi	nimum <sup>·</sup>	Tensile Strength:	75	ksi	Internal Yield Pressure: 3,930 psi			psi			
		API Connection Coupling OD: 9.	625"					PI Connecti STC Torqu			
ST	C Inter	nal Pressure:	3,930	nsi		Min:	2,793		3.724	Max:	4.655
		Strength:	372				2,.00	opu.	0,121		1,000
Ĩ	0 0000	LTC Performa		inpe				LTC Torqu	e (ft-lk	os)	
LT	C Interr	nal Pressure:	3,930	psi		Min:	3,130		4,174	Max:	5,217
		Strength: Performance - Cp	417 olg OD =					BTC Torqu	e (ft-lk	ns)	
В٦	C Inter	nal Pressure:	3,930	psi		follo		idelines regar	•		ake up
вт	C Joint	Strength:	503	kips							
<u> </u>		*	Alt. Drift will	be used unle	ess /	API Drift	is specifie	d on order.			
	**	If above API connecti	ons do not	suit your ne 100% of p				m connections	are av	ailable up	to

eog

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**State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS

Operator:	OGRID:
EOG RESOURCES INC	7377
P.O. Box 2267	Action Number:
Midland, TX 79702	278928
	Action Type:
	[C-103] NOI Change of Plans (C-103A)
	-

#### CONDITIONS

Created By		Condition Date
pkautz	None	11/1/2023

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Action 278928