<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720 District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

Printed Name:

Email Address:

Title:

Date:

Electronically filed by Jerry Sherrell

Phone: 575-748-1288

Regulatory Supervisor

jerrys@mec.com

2/15/2022

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

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

Form C-101 August 1, 2011

Permit 307921

		APPLICA	ATION	FOR PERMIT	гто	DRILL, RE-E	NTER	, DEEPE	N, F	PLUGBAC	K, OR					
Red	ne and Address wood Operating L	LC												RID Number 330211		
	Box 1370 sia, NM 88211137	0											3. API	Number 30-015-4928	30	
4. Property Cod			5. Prope	rty Name									6. Well			
332	353			Hickory Fee										002H		
						7. Surfa										
UL - Lot	Section 11	Township 18		Range 26E		Lot Idn F	eet From	640	N/S	S Line N	Feet F	rom 1120	0	E/W Line E	County	Eddy
						8. Proposed Bo	ttom Ho	le Locatio	on							
UL - Lot	Section 12	Township 1	8S	Range 26E		Lot Idn A	Feet F	rom 330		N/S Line	F	eet From	1	E/W Line E	County	Eddy
						9. Pool	nforma	tion								
RED LAKE;G	LORIETA-YESO					000.								51120		
						Additional V	Vell Info	rmation						•		
11. Work Type		12. Well T	уре		13. 0	Cable/Rotary	1011 11110	14. Lease	е Тур	ре		15. Grou	ınd Lev	el Elevation		
New Well OIL										ivate			3306	6		
16. Multiple N		17. Propos	sed Depth 9328	1	18. F	Formation Yeso		19. Contr	actor	r		20. Spuc		2022		
Depth to Groun	d water		9020		Dista	ance from nearest f	resh wate	er well				Distance		rest surface water		
▼ Wo will bo u	ısing a closed-loo	n evetom in li	ou of line	ad nite												
Z We will be t	ising a closed-loo	p system in in	eu oi iiii	•	21. F	Proposed Casin	a and C	ement Pr	oara	am						
Туре	Hole Size	Casing			asing	Weight/ft		Setting D	epth		Sa	acks of Ce	ement		Estimated	TOC
Surf	12.25	9.6				36		1230				450			0	
Prod Prod	8.75 8.75	5.				2 <u>6</u> 17		3250 9328				1700 375	)		0	
			-			· /O - · · · · · · · · · · · · · · · · ·				4-				ı		
Redwood On	erating LLC propo	sed to drill 12	1/4" hole			g/Cement Progra					sa/cmt	nut wel	l on pr	roduction		
rtouwood op	ordanig EEO propo	Jou to drill 12	17 1 11010	•							og, omi	put wo	i on pi	oddollon.		
	Туре					Proposed Blowo Pressure	ut Prev	ention Pr	ogra	am Test Press	uro			Mon	nufacturer	
	Double Ram			VVO	300					3000	uie			iviai	iuiaciuiei	
			1		330											
knowledge ar	fy I have complied			·			:			(	OIL COI	NSERVA	TION I	DIVISION		
Signature:																

Approved By:

Approved Date:

Title:

Katherine Pickford

Expiration Date: 2/18/2024

Geoscientist

2/18/2022

Conditions of Approval Attached

District I

District III

1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone: (575) 748-1283 Fax: (575) 748-9720

1000 Rio Brazos Road, Aztec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462 State of New Mexico

# Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr.

Santa Fe, NM 87505

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

☐ AMENDED REPORT

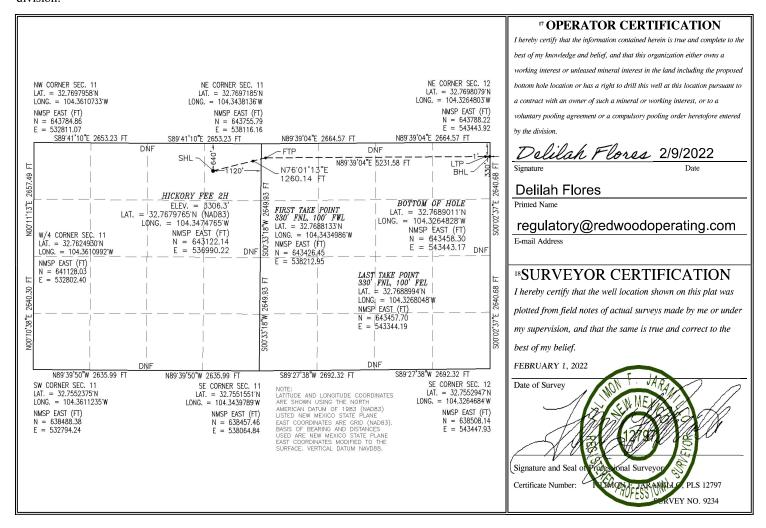
## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Numbe	er	<sup>2</sup> Pool Code	<sup>3</sup> Pool Name					
30-015-49280	100000000000000000000000000000000000000							
<sup>4</sup> Property Code		<sup>5</sup> Pı	coperty Name	<sup>6</sup> Well Number				
332353		HIC	KORY FEE	2H				
<sup>7</sup> OGRID No.		8 O	perator Name	<sup>9</sup> Elevation				
330211		REDWOOD	OPERATING LLC	3306.3				

### <sup>™</sup> Surface Location

					Sarrace	Location							
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County				
A	11	18 S	26 E	640		NORTH	NORTH 1120		EDDY				
	Bottom Hole Location If Different From Surface												
UL or lot no.	Section	Township	Range	Lot Idn	t Idn Feet from the North/South line Feet fr		Feet from the	East/West line	County				
A	12	18 S	6   26 E		330   NORTH   1   EAST   EDI								
12 Dedicated Acre	es <sup>13</sup> Joint	or Infill 14	Consolidation	n Code	<sup>15</sup> Order No.								
160													

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.



Inten	t	As Drill	ed										
API#	:		]										
Ope	rator Nan	ne:	<u> </u>			Property N	lame:					Well Number	
REC	OWOOD	OPERATIN	IG LLC			HICKORY FEE						2H	
V: al. (	044 D = :+ /	KOD)											
UL <b>A</b>	Off Point ( Section 11	Township 18S	Range <b>26E</b>	Lot	Feet <b>640</b>	From NOR	N/S <b>TH</b>	Feet <b>112</b>	O EA	om E/W <b>\ST</b>	County <b>EDDY</b>		
Latitu		79765		1	Longitu	104.34	7476	55			NAD 83		
First 1	Гаке Poin <sup>.</sup>	t (FTP)											
UL <b>D</b>	Section 12	Township <b>18S</b>	Range <b>26E</b>	Lot	Feet 330	From I	N/S <b>TH</b>	Feet <b>100</b>	Fro <b>W</b>	om E/W <b>'EST</b>	County <b>EDDY</b>		
Latitu	ude <b>32.768</b>	8133		1	Longitu	ngitude 104.3434986							
_ast T UL <b>A</b>	Take Point Section 12	Township 18S	Range <b>26E</b>	Lot	Feet <b>330</b>	From N/S NORTH	Feet <b>10</b> 0		From E/W <b>EAST</b>	Coun <b>EDD</b>	ty <b>Y</b>		
Latitu		688994		<u> </u>	Longitu	de 104.326	- 5804	.8		NAD	83		
	s well the	defining w	ell for the	Horizo	ontal Spa	cing Unit?			]				
	ng Unit.	llease prov	ride API it	f availa	able, Ope	erator Nam	e and	l well	number t	or Defi	ning well	for Horizontal	
					Т							T	
Ope	rator Nan	ne:				Property N	lame:					Well Number	

KZ 06/29/2018

## ACCESS ROAD PLAT

ACCESS ROAD TO HICKORY FEE 1H, 2H, 3H, 4H, 5H

REDWOOD OPERATING LLC
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 11, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 1, 2022

## DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING FEE LAND IN SECTION 11, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 11, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 11, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M. BEARS N36'16'26"E, A DISTANCE OF 1633.91 FEET;

THENCE NO0'00'00"W A DISTANCE OF 448.26 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 11, TOWNSHIP 18 SOUTH, RANGE 26 EAST, N.M.P.M. BEARS N48'02'48"E, A DISTANCE OF 1299.86 FEET;

SAID STRIP OF LAND BEING 448.26 FEET OR 27.17 RODS IN LENGTH, CONTAINING 0.309 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4 448.26 L.F. 27.17 RODS 0.309 ACRES

#### SURVEYOR CERTIFICATE

NEW MEXICO

FILIMON

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 2-2

MADRON SURVEYING, INC. 301 SOUTH

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, IEXICO, 2415 17 14 ADAY OF FEBRUARY 2022

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO 88220 Phone (575) 234-3341

SURVEY NO. 9234



Form APD Conditions

Permit 307921

District III

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

kpickford Cement is required to circulate on both surface and intermediate1 strings of casing

drilling fluids and solids must be contained in a steel closed loop system

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

#### PERMIT CONDITIONS OF APPROVAL

	lame and Address: Redwood Operating LLC [330211]	API Number: 30-015-49280
	PO Box 1370	Well:
	Artesia, NM 882111370	Hickory Fee #002H
OCD	Condition	
Reviewer		
kpickford	Notify OCD 24 hours prior to casing & cement	
kpickford	Will require a File As Drilled C-102 and a Directional Survey with the C-104	
kpickford	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud	
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator	shall drill without interruption through the fresh
	water zone or zones and shall immediately set in cement the water protection string	

kpickford Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud,

I. Operator: Redwood Operating LLC

## State of New Mexico Energy, Minerals and Natural Resources Department

Submit Electronically Via E-permitting

Date: 02 / 09 / 2022

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

## Section 1 – Plan Description Effective May 25, 2021

**OGRID:** 

330211

II. Type: ☒ Original □	Amendment	due to 19.15.27.	9.D(6)(a) NMAC	□ 19.15.27.9.D(	(6)(b) N	MAC □ O	ther.		
If Other, please describe:									
<b>III. Well(s):</b> Provide the be recompleted from a si					wells pro	oposed to l	oe dri	lled or proposed to	
Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D				Anticipated roduced Water BBL/D	
Hickory Fee 2H		Sec. 11 T18S R26E	640 FNL 1120 FEL	100	100		1,0	000	
V. Anticipated Schedule proposed to be recomple:					L	et of wells j  Initial Fl  Back Da	ow	sed to be drilled or  First Production  Date	
Hickory Fee 2H		06/01/2022	07/01/2022	07/15/2022		07/15/2022		07/15/2022	
-									
VI. Separation Equipment:   Attach a complete description of how Operator will size separation equipment to optimize gas capture.  VII. Operational Practices:   Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.  VIII. Best Management Practices:   Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.									

## Section 2 – Enhanced Plan EFFECTIVE APRIL 1, 2022

		EFFECTIV	E APRIL 1, 2022								
Beginning April 1, 2 reporting area must co			with its statewide natural ga	as capture requirement for the applicable							
☐ Operator certifies capture requirement f			tion because Operator is in o	compliance with its statewide natural gas							
IX. Anticipated Nati	ural Gas Productio	on:									
We	11	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF							
X. Natural Gas Gatl	hering System (NC	GGS):									
Operator System ULSTR of Tie-in Anticipated Gathering Start Date Available Maximum Daily Capacity of System Segment Tie-in											
production operations the segment or portion XII. Line Capacity. production volume from XIII. Line Pressure. natural gas gathering Attach Operator's XIV. Confidentiality Section 2 as provided	s to the existing or p n of the natural gas The natural gas gas om the well prior to Operator   Operator   does   system(s) described plan to manage pro y:   Operator asso in Paragraph (2) of	planned interconnect of the gathering system(s) to we thering system will the product of the date of first product does not anticipate the dabove will continue to reduction in response to the date confidentiality pursue.	he natural gas gathering systewhich the well(s) will be combined will not have capacity to go tion.  It its existing well(s) connect meet anticipated increases in the increased line pressure.  Usuant to Section 71-2-8 NMS 27.9 NMAC, and attaches a few which the well (s) will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which the well(s) will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which the well(s) will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which the well(s) will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which the well(s) will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC, and attaches a few which we will be combined to section 71-2-8 NMS 27.9 NMAC.	ticipated pipeline route(s) connecting the em(s), and the maximum daily capacity of nected.  ather 100% of the anticipated natural gas ed to the same segment, or portion, of the line pressure caused by the new well(s).  GA 1978 for the information provided in full description of the specific information							

(i)

# Section 3 - Certifications <u>Effective May 25, 2021</u>

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal: 🛮 Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system: or ☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. If Operator checks this box, Operator will select one of the following: Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or Venting and Flaring Plan. 

Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including: power generation on lease; (a) **(b)** power generation for grid; compression on lease; (c) (d) liquids removal on lease; reinjection for underground storage; (e) **(f)** reinjection for temporary storage; **(g)** reinjection for enhanced oil recovery; fuel cell production; and (h)

## **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

other alternative beneficial uses approved by the division.

- (a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or
- (b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.
- 2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: Delilah Flores
Printed Name:  Delilah Flores
Title: Regulatory Technician I
E-mail Address: regulatory@redwoodoperating.com
Date: 02/09/2022
Phone:
575-748-1288
OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

## VI. Separation Equipment:

Redwood Operating LLC production facilities include separation equipment designed to efficiently separate gas from liquid phases to optimize gas capture based on projected and estimated volumes from the targeted pool of our completion project. Redwood Operating LLC will utilize flowback separation equipment and production separation equipment designed and built to industry specifications after the completion to optimize gas capture and send gas to sales or flare based on analytical composition. Redwood Operating LLC operates facilities that are typically multi-well facilities. Production separation equipment is upgraded prior to new wells being completed, if determined to be undersized or inadequate. This equipment is already on-site and tied into our sales gas lines prior to the new drill operations.

## VII. Operational Practices:

- 1. Subsection (A) Venting and Flaring of Natural Gas. Redwood Operating LLC understands the requirements of NMAC 19.15.27.8 which outlines that the venting and flaring of natural gas during drilling, completion or production operations that constitutes waste as defined in 19.15.2 are prohibited.
- 2. Subsection (B) Venting and Flaring during drilling operations. This gas capture plan isn't for a well being drilled.
- 3. Subsection (C) Venting and flaring during completion or recompletion. Flowlines will be routed for flowback fluids into a completion or storage tank and if feasible under well conditions, flare rather than vent and commence operation of a separator as soon as it is technically feasible for a separator to function.
  - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.
- 4. Subsection (D) Venting and flaring during production operations o At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.
  - Monitor manual liquid unloading for wells on-site or in close proximity (<30 minutes' drive time), take reasonable actions to achieve a stabilized rate and pressure at the earliest practical time, and take reasonable actions to minimize venting to the maximum extent practicable.
  - Redwood Operating LLC will not vent or flare except during the approved activities listed in NMAC 19.15.27.8 (D) 14.
- 5. Subsection (E) Performance standards  $\circ$  All tanks and separation equipment are designed for maximum throughput and pressure to minimize waste.
  - If a flare is utilized during production operations it will have a continuous pilot and is located more than 100 feet from any known well or storage tanks.
  - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.

- 6. Subsection (F) Measurement or estimation of vented and flared natural gas o Measurement equipment is installed to measure the volume of natural gas flared from process piping.
  - When measurement isn't practicable, estimation of vented and flared natural gas will be completed as noted in 19.15.27.8 (F) 5-6.

## VIII. Best Management Practices:

- 1. Redwood Operating LLC has adequate storage and takeaway capacity for wells it chooses to complete as the flowlines at the sites are already in place and tied into a gathering system.
- 2. Redwood Operating LLC will flare rather than vent vessel blowdown gas when technically feasible during active and/or planned maintenance to equipment on-site.
- 3. Redwood Operating LLC combusts natural gas that would otherwise be vented or flared, when technically feasible.
- 4. Redwood Operating LLC will shut in wells in the event of a takeaway disruption, emergency situation, or other operations where venting or flaring may occur due to equipment failures.

# Hickory Fee 2H, Plan 1

Units feet, °/100ft 15:48 Monday, February 07, 2022 Page 1 of 5 Operator Redwood Operating LLC Field Red Lake County Eddy Vertical Section Azimuth 89.65 Well Name Hickory Fee 2H State New Mexico Survey Calculation Method Minimum Curvature Plan 1 **Country** USA **Database** Access

Location SL: 640 FNL & 1120 FEL Section 11-T18S-R27E BHL:

330 FNL & 1 FEL Section 12-T18S-R26E

Site

UWI **Slot Name** Well Number 2H API

> **Project** MD/TVD Ref KB

Map Zone UTM

**Surface X** 1841016 **Surface Y** 11894762.6

**Surface Z** 3324.3 Ground Level 3306.3 Lat Long Ref

**Surface Long Surface Lat** Global Z Ref KB

Local North Ref Grid

**DIRECTIONAL WELL PLAN** 

MD*	INC*	AZI*	TVD*	N*	E*		V. S.*	MapE*	MapN*	SysTVD*
*** TIE (at MD	= 2144.00)	dod	ft_	ft ft	ft	°/100ff	ff	<del>fi</del>	<del>f1</del>	f+
2144.00	0.00	0.0	2144.00	0.00	0.00		0.00	1841016.00	11894762.60	1180.30
2150.00	0.00	0.0	2150.00	0.00	0.00	0.00	0.00	1841016.00	11894762.60	1174.30
2200.00	0.00	0.0	2200.00	0.00	0.00	0.00	0.00	1841016.00	11894762.60	1124.30
*** KOP 8 DEG	GREES (at N	/ID = 2244	.00)							
2244.00	0.00	0.0	2244.00	0.00	0.00	0.00	0.00	1841016.00	11894762.60	1080.30
2250.00	0.48	63.4	2250.00	0.01	0.02	8.00	0.02	1841016.02	11894762.61	1074.30
2300.00	4.48	63.4	2299.94	0.98	1.96	8.00	1.96	1841017.96	11894763.58	1024.36
2350.00	8.48	63.4	2349.61	3.51	7.00	8.00	7.02	1841023.00	11894766.11	974.69
2400.00	12.48	63.4	2398.77	7.58	15.13	8.00	15.18	1841031.13	11894770.18	925.53
2450.00	16.48	63.4	2447.17	13.17	26.31	8.00	26.39	1841042.31	11894775.77	877.13
2500.00	20.48	63.4	2494.58	20.27	40.48	8.00	40.60	1841056.48	11894782.87	829.72
2550.00	24.48	63.4	2540.77	28.83	57.57	8.00	57.74	1841073.57	11894791.43	783.53
2600.00	28.48	63.4	2585.52	38.81	77.50	8.00	77.73	1841093.50	11894801.41	738.78
2650.00	32.48	63.4	2628.60	50.16	100.17	8.00	100.48	1841116.17	11894812.76	695.70
2700.00	36.48	63.4	2669.81	62.83	125.48	8.00	125.86	1841141.48	11894825.43	654.49
2750.00	40.48	63.4	2708.94	76.76	153.29	8.00	153.75	1841169.29	11894839.36	615.36
2800.00	44.48	63.4	2745.81	91.88	183.48	8.00	184.03	1841199.48	11894854.48	578.49
2850.00	48.48	63.4	2780.23	108.11	215.89	8.00	216.54	1841231.89	11894870.71	544.07
2900.00	52.48	63.4	2812.05	125.38	250.37	8.00	251.13	1841266.37	11894887.98	512.25
*** 55 DEGREE	E TANGENT	(at MD =	2931.50)							
2931.50	55.00	63.4	2830.67	136.75	273.08	8.00	273.91	1841289.08	11894899.35	493.63
2950.00	55.00	63.4	2841.29	143.53	286.63	0.00	287.50	1841302.63	11894906.13	483.01
3000.00	55.00	63.4	2869.96	161.87	323.25	0.00	324.23	1841339.25	11894924.47	454.34
3050.00	55.00	63.4	2898.64	180.21	359.87	0.00	360.97	1841375.87	11894942.81	425.66
3100.00	55.00	63.4	2927.32	198.55	396.50	0.00	397.70	1841412.50	11894961.15	396.98
3150.00	55.00	63.4	2956.00	216.89	433.12	0.00	434.43	1841449.12	11894979.49	368.30
*** 10 DEGREE										
3181.50	55.00	63.4	2974.07	228.44	456.19	0.00	457.58	1841472.19	11894991.04	350.23
3200.00	56.39	64.9	2984.49	235.11	469.94	10.00	471.37	1841485.94	11894997.71	339.81
3250.00	60.24	68.6	3010.76	251.87	509.03	10.00	510.56	1841525.03	11895014.47	313.54
3300.00	64.19	72.1	3034.06	266.71	550.68	10.00	552.30	1841566.68	11895029.31	290.24
3350.00	68.22	75.3	3054.23	279.52	594.58	10.00	596.28	1841610.58	11895042.12	270.07
3400.00	72.30	78.4	3071.12	290.19	640.40	10.00	642.16	1841656.40	11895052.79	253.18
3450.00	76.43	81.3	3084.60	298.65	687.79	10.00	689.60	1841703.79	11895061.25	239.70
3500.00	80.60	84.2	3094.55	304.83	736.38	10.00	738.23	1841752.38	11895067.43	229.75
3550.00	84.78	86.9	3100.92	308.69	785.80	10.00	787.68	1841801.80	11895071.29	223.38
3600.00	88.98	89.6	3103.64	310.19	835.69	10.00	837.57	1841851.69	11895072.79	220.66

Lat Long Ref

**Surface Long** 

**Surface Lat** 

# Hickory Fee 2H, Plan 1

OperatorRedwood Operating LLCUnitsfeet, °/100ft15:48 Monday, February 07, 2022 Page 2 of 5FieldRed LakeCountyEddyVertical Section Azimuth89.65Well NameHickory Fee 2HStateNew MexicoSurvey Calculation MethodMinimum Curvature

Map Zone UTM

**Surface X** 1841016

**Surface Y** 11894762.6

Plan 1 Country USA Database Access

Location SL: 640 FNL & 1120 FEL Section 11-T18S-R27E BHL:

330 FNL & 1 FEL Section 12-T18S-R26E

Site

Slot Name UWI Well Number 2H API

Number2HAPISurface Z3324.3Global Z RefKBProjectMD/TVD RefKBGround Level3306.3Local North RefGrid

**DIRECTIONAL WELL PLAN** 

BIREGION												
MD*	INC*	AZI*	TVD*	N*	E*	<b>DLS*</b>	V. S.*	MapE*	MapN* S	sysTVD*		
*** LANDING F	POINT (at N	MD = 3600.	.28)			7.11.11.11		"				
3600.28	89.00	89.7	3103.64	310.19	835.97	10.00	837.85	1841851.97	11895072.79	220.66		
3650.00	89.00	89.7	3104.51	310.50	885.68	0.00	887.56	1841901.68	11895073.10	219.79		
3700.00	89.00	89.7	3105.38	310.80	935.67	0.00	937.56	1841951.67	11895073.40	218.92		
3750.00	89.00	89.7	3106.26	311.11	985.67	0.00	987.55	1842001.67	11895073.71	218.04		
3800.00	89.00	89.7	3107.13	311.41	1035.66	0.00	1037.54	1842051.66	11895074.01	217.17		
3850.00	89.00	89.7	3108.00	311.72	1085.65	0.00	1087.53	1842101.65	11895074.32	216.30		
3900.00	89.00	89.7	3108.87	312.02	1135.64	0.00	1137.53	1842151.64	11895074.62	215.43		
3950.00	89.00	89.7	3109.75	312.33	1185.63	0.00	1187.52	1842201.63	11895074.93	214.55		
4000.00	89.00	89.7	3110.62	312.64	1235.62	0.00	1237.51	1842251.62	11895075.24	213.68		
4050.00	89.00	89.7	3111.49	312.94	1285.61	0.00	1287.50	1842301.61	11895075.54	212.81		
4100.00	89.00	89.7	3112.36	313.25	1335.61	0.00	1337.49	1842351.61	11895075.85	211.94		
4150.00	89.00	89.7	3113.24	313.55	1385.60	0.00	1387.49	1842401.60	11895076.15	211.06		
4200.00	89.00	89.7	3114.11	313.86	1435.59	0.00	1437.48	1842451.59	11895076.46	210.19		
4250.00	89.00	89.7	3114.98	314.16	1485.58	0.00	1487.47	1842501.58	11895076.76	209.32		
4300.00	89.00	89.7	3115.85	314.47	1535.57	0.00	1537.46	1842551.57	11895077.07	208.45		
4350.00	89.00	89.7	3116.73	314.77	1585.56	0.00	1587.46	1842601.56	11895077.37	207.57		
4400.00	89.00	89.7	3117.60	315.08	1635.55	0.00	1637.45	1842651.55	11895077.68	206.70		
4450.00	89.00	89.7	3118.47	315.38	1685.55	0.00	1687.44	1842701.55	11895077.98	205.83		
4500.00	89.00	89.7	3119.35	315.69	1735.54	0.00	1737.43	1842751.54	11895078.29	204.95		
4550.00	89.00	89.7	3120.22	315.99	1785.53	0.00	1787.43	1842801.53	11895078.59	204.08		
4600.00	89.00	89.7	3121.09	316.30	1835.52	0.00	1837.42	1842851.52	11895078.90	203.21		
4650.00	89.00	89.7	3121.96	316.61	1885.51	0.00	1887.41	1842901.51	11895079.21	202.34		
4700.00	89.00	89.7	3122.84	316.91	1935.50	0.00	1937.40	1842951.50	11895079.51	201.46		
4750.00	89.00	89.7	3123.71	317.22	1985.49	0.00	1987.40	1843001.49	11895079.82	200.59		
4800.00	89.00	89.7	3124.58	317.52	2035.49	0.00	2037.39	1843051.49	11895080.12	199.72		
4850.00	89.00	89.7	3125.45	317.83	2085.48	0.00	2087.38	1843101.48	11895080.43	198.85		
4900.00	89.00	89.7	3126.33	318.13	2135.47	0.00	2137.37	1843151.47	11895080.73	197.97		
4950.00	89.00	89.7	3127.20	318.44	2185.46	0.00	2187.37	1843201.46	11895081.04	197.10		
5000.00	89.00	89.7	3128.07	318.74	2235.45	0.00	2237.36	1843251.45	11895081.34	196.23		
5050.00	89.00	89.7	3128.94	319.05	2285.44	0.00	2287.35	1843301.44	11895081.65	195.36		
5100.00	89.00	89.7	3129.82	319.35	2335.44	0.00	2337.34	1843351.44	11895081.95	194.48		
5150.00	89.00	89.7	3130.69	319.66	2385.43	0.00	2387.33	1843401.43	11895082.26	193.61		
5200.00	89.00	89.7	3131.56	319.96	2435.42	0.00	2437.33	1843451.42	11895082.56	192.74		
5250.00	89.00	89.7	3132.43	320.27	2485.41	0.00	2487.32	1843501.41	11895082.87	191.87		
5300.00	89.00	89.7	3133.31	320.58	2535.40	0.00	2537.31	1843551.40	11895083.18	190.99		
5350.00	89.00	89.7	3134.18	320.88	2585.39	0.00	2587.30	1843601.39	11895083.48	190.12		

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# Hickory Fee 2H, Plan 1

Operator Redwood Operating LLC
Field Red Lake
County Eddy
Well Name Hickory Fee 2H
Plan 1

Operator Redwood Operating LLC
Units feet, °/100ft
State New Mexico
Survey Calculation Method Minimum Curvature
Database Access

**Location** SL: 640 FNL & 1120 FEL Section 11-T18S-R27E BHL:

330 FNL & 1 FEL Section 12-T18S-R26E

Site

Slot Name Well Number 2H UWI
API
MD/TVD Ref KB

Gr

Surface X 1841016 Surface Y 11894762.6

Surface Z 3324.3 Ground Level 3306.3

Map Zone UTM

Surface Long
Surface Lat
Global Z Ref KB

Lat Long Ref

Local North Ref Grid

### **DIRECTIONAL WELL PLAN**

**Project** 

MD*	INC*	AZI*	TVD*	N*	E*	<b>DLS*</b>	V. S.*	MapE*	MapN*	SysTVD*
5400.00	89.00	89.7	3135.05	321.19	2635.38	0.00	2637.30	1843651.38	11895083.79	189.25
5450.00	89.00	89.7	3135.93	321.49	2685.38	0.00	2687.29	1843701.38	11895084.09	188.37
5500.00	89.00	89.7	3136.80	321.80	2735.37	0.00	2737.28	1843751.37	11895084.40	187.50
5550.00	89.00	89.7	3137.67	322.10	2785.36	0.00	2787.27	1843801.36	11895084.70	186.63
5600.00	89.00	89.7	3138.54	322.41	2835.35	0.00	2837.27	1843851.35	11895085.01	185.76
5650.00	89.00	89.7	3139.42	322.71	2885.34	0.00	2887.26	1843901.34	11895085.31	184.88
5700.00	89.00	89.7	3140.29	323.02	2935.33	0.00	2937.25	1843951.33	11895085.62	184.01
5750.00	89.00	89.7	3141.16	323.32	2985.32	0.00	2987.24	1844001.32	11895085.92	183.14
5800.00	89.00	89.7	3142.03	323.63	3035.32	0.00	3037.24	1844051.32	11895086.23	182.27
5850.00	89.00	89.7	3142.91	323.93	3085.31	0.00	3087.23	1844101.31	11895086.53	181.39
5900.00	89.00	89.7	3143.78	324.24	3135.30	0.00	3137.22	1844151.30	11895086.84	180.52
5950.00	89.00	89.7	3144.65	324.55	3185.29	0.00	3187.21	1844201.29	11895087.15	179.65
6000.00	89.00	89.7	3145.52	324.85	3235.28	0.00	3237.21	1844251.28	11895087.45	178.78
6050.00	89.00	89.7	3146.40	325.16	3285.27	0.00	3287.20	1844301.27	11895087.76	177.90
6100.00	89.00	89.7	3147.27	325.46	3335.26	0.00	3337.19	1844351.26	11895088.06	177.03
6150.00	89.00	89.7	3148.14	325.77	3385.26	0.00	3387.18	1844401.26	11895088.37	176.16
6200.00	89.00	89.7	3149.01	326.07	3435.25	0.00	3437.17	1844451.25	11895088.67	175.29
6250.00	89.00	89.7	3149.89	326.38	3485.24	0.00	3487.17	1844501.24	11895088.98	174.41
6300.00	89.00	89.7	3150.76	326.68	3535.23	0.00	3537.16	1844551.23	11895089.28	173.54
6350.00	89.00	89.7	3151.63	326.99	3585.22	0.00	3587.15	1844601.22	11895089.59	172.67
6400.00	89.00	89.7	3152.51	327.29	3635.21	0.00	3637.14	1844651.21	11895089.89	171.80
6450.00	89.00	89.7	3153.38	327.60	3685.20	0.00	3687.14	1844701.20	11895090.20	170.92
6500.00	89.00	89.7	3154.25	327.90	3735.20	0.00	3737.13	1844751.20	11895090.50	170.05
6550.00	89.00	89.7	3155.12	328.21	3785.19	0.00	3787.12	1844801.19	11895090.81	169.18
6600.00	89.00	89.7	3156.00	328.52	3835.18	0.00	3837.11	1844851.18	11895091.12	168.30
6650.00	89.00	89.7	3156.87	328.82	3885.17	0.00	3887.11	1844901.17	11895091.42	167.43
6700.00	89.00	89.7	3157.74	329.13	3935.16	0.00	3937.10	1844951.16	11895091.73	166.56
6750.00	89.00	89.7	3158.61	329.43	3985.15	0.00	3987.09	1845001.15	11895092.03	165.69
6800.00	89.00	89.7	3159.49	329.74	4035.14	0.00	4037.08	1845051.14	11895092.34	164.81
6850.00	89.00	89.7	3160.36	330.04	4085.14	0.00	4087.08	1845101.14	11895092.64	163.94
6900.00	89.00	89.7	3161.23	330.35	4135.13	0.00	4137.07	1845151.13	11895092.95	163.07
6950.00	89.00	89.7	3162.10	330.65	4185.12	0.00	4187.06	1845201.12	11895093.25	162.20
7000.00	89.00	89.7	3162.98	330.96	4235.11	0.00	4237.05	1845251.11	11895093.56	161.32
7050.00	89.00	89.7	3163.85	331.26	4285.10	0.00	4287.05	1845301.10	11895093.86	160.45
7100.00	89.00	89.7	3164.72	331.57	4335.09	0.00	4337.04	1845351.09	11895094.17	159.58
7150.00	89.00	89.7	3165.59	331.87	4385.08	0.00	4387.03	1845401.08	11895094.47	158.71
7200.00	89.00	89.7	3166.47	332.18	4435.08	0.00	4437.02	1845451.08	11895094.78	157.83

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Lat Long Ref

# Hickory Fee 2H, Plan 1

Units feet, °/100ft 15:48 Monday, February 07, 2022 Page 4 of 5 Operator Redwood Operating LLC Field Red Lake County Eddy Vertical Section Azimuth 89.65 Well Name Hickory Fee 2H State New Mexico Survey Calculation Method Minimum Curvature Plan 1 **Country** USA **Database** Access

Location SL: 640 FNL & 1120 FEL Section 11-T18S-R27E BHL:

Map Zone UTM

330 FNL & 1 FEL Section 12-T18S-R26E

Site **Surface X** 1841016 **Surface Long** UWI **Surface Y** 11894762.6 **Slot Name Surface Lat** Well Number 2H API **Surface Z** 3324.3 Global Z Ref KB **Project** MD/TVD Ref KB Ground Level 3306.3 Local North Ref Grid

**DIRECTIONAL WELL PLAN** 

DINZOTION										
MD*	INC*	AZI*	TVD*	N*	E*	<b>DLS*</b>	V. S.*	MapE*	MapN*	SysTVD*
7250.00	89.00	89.7	3167.34	332.49	4485.07	0.00	4487.01	1845501.07	11895095.09	156.96
7300.00	89.00	89.7	3168.21	332.79	4535.06	0.00	4537.01	1845551.06	11895095.39	156.09
7350.00	89.00	89.7	3169.08	333.10	4585.05	0.00	4587.00	1845601.05	11895095.70	155.22
7400.00	89.00	89.7	3169.96	333.40	4635.04	0.00	4636.99	1845651.04	11895096.00	154.34
7450.00	89.00	89.7	3170.83	333.71	4685.03	0.00	4686.98	1845701.03	11895096.31	153.47
7500.00	89.00	89.7	3171.70	334.01	4735.02	0.00	4736.98	1845751.02	11895096.61	152.60
7550.00	89.00	89.7	3172.58	334.32	4785.02	0.00	4786.97	1845801.02	11895096.92	151.72
7600.00	89.00	89.7	3173.45	334.62	4835.01	0.00	4836.96	1845851.01	11895097.22	150.85
7650.00	89.00	89.7	3174.32	334.93	4885.00	0.00	4886.95	1845901.00	11895097.53	149.98
7700.00	89.00	89.7	3175.19	335.23	4934.99	0.00	4936.95	1845950.99	11895097.83	149.11
7750.00	89.00	89.7	3176.07	335.54	4984.98	0.00	4986.94	1846000.98	11895098.14	148.23
7800.00	89.00	89.7	3176.94	335.84	5034.97	0.00	5036.93	1846050.97	11895098.44	147.36
7850.00	89.00	89.7	3177.81	336.15	5084.96	0.00	5086.92	1846100.96	11895098.75	146.49
7900.00	89.00	89.7	3178.68	336.46	5134.96	0.00	5136.92	1846150.96	11895099.06	145.62
7950.00	89.00	89.7	3179.56	336.76	5184.95	0.00	5186.91	1846200.95	11895099.36	144.74
8000.00	89.00	89.7	3180.43	337.07	5234.94	0.00	5236.90	1846250.94	11895099.67	143.87
8050.00	89.00	89.7	3181.30	337.37	5284.93	0.00	5286.89	1846300.93	11895099.97	143.00
8100.00	89.00	89.7	3182.17	337.68	5334.92	0.00	5336.89	1846350.92	11895100.28	142.13
8150.00	89.00	89.7	3183.05	337.98	5384.91	0.00	5386.88	1846400.91	11895100.58	141.25
8200.00	89.00	89.7	3183.92	338.29	5434.91	0.00	5436.87	1846450.91	11895100.89	140.38
8250.00	89.00	89.7	3184.79	338.59	5484.90	0.00	5486.86	1846500.90	11895101.19	139.51
8300.00	89.00	89.7	3185.66	338.90	5534.89	0.00	5536.85	1846550.89	11895101.50	138.64
8350.00	89.00	89.7	3186.54	339.20	5584.88	0.00	5586.85	1846600.88	11895101.80	137.76
8400.00	89.00	89.7	3187.41	339.51	5634.87	0.00	5636.84	1846650.87	11895102.11	136.89
8450.00	89.00	89.7	3188.28	339.81	5684.86	0.00	5686.83	1846700.86	11895102.41	136.02
8500.00	89.00	89.7	3189.16	340.12	5734.85	0.00	5736.82	1846750.85	11895102.72	135.14
8550.00	89.00	89.7	3190.03	340.43	5784.85	0.00	5786.82	1846800.85	11895103.03	134.27
8600.00	89.00	89.7	3190.90	340.73	5834.84	0.00	5836.81	1846850.84	11895103.33	133.40
8650.00	89.00	89.7	3191.77	341.04	5884.83	0.00	5886.80	1846900.83	11895103.64	132.53
8700.00	89.00	89.7	3192.65	341.34	5934.82	0.00	5936.79	1846950.82	11895103.94	131.65
8750.00	89.00	89.7	3193.52	341.65	5984.81	0.00	5986.79	1847000.81	11895104.25	130.78
8800.00	89.00	89.7	3194.39	341.95	6034.80	0.00	6036.78	1847050.80	11895104.55	129.91
8850.00	89.00	89.7	3195.26	342.26	6084.79	0.00	6086.77	1847100.79	11895104.86	129.04
8900.00	89.00	89.7	3196.14	342.56	6134.79	0.00	6136.76	1847150.79	11895105.16	128.16
8950.00	89.00	89.7	3197.01	342.87	6184.78	0.00	6186.76	1847200.78	11895105.47	127.29
9000.00	89.00	89.7	3197.88	343.17	6234.77	0.00	6236.75	1847250.77	11895105.77	126.42
9050.00	89.00	89.7	3198.75	343.48	6284.76	0.00	6286.74	1847300.76	11895106.08	125.55

# Hickory Fee 2H, Plan 1

OperatorRedwood Operating LLCUnitsfeet, °/100ft15:48 Monday, February 07, 2022 Page 5 of 5FieldRed LakeCountyEddyVertical Section Azimuth 89.65

Well Name Hickory Fee 2H State New Mexico Survey Calculation Method Minimum Curvature
Plan 1 Country USA Database Access

Location SL: 640 FNL & 1120 FEL Section 11-T18S-R27E BHL: Map Zone UTM Lat Long Ref

330 FNL & 1 FEL Section 12-T18S-R26E

 Site
 Surface X
 1841016
 Surface Long

 Slot Name
 UWI
 Surface Y
 11894762.6
 Surface Lat

 Well Number 2H
 API
 Surface Z
 3324.3
 Global Z Ref KB

Project MD/TVD Ref KB Ground Level 3306.3 Local North Ref Grid

### **DIRECTIONAL WELL PLAN**

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN* S	sysTVD*
ft	dog	dog	ft	ft	ft	°/100ft	ft	ff	ft	ft
9100.00	89.00	89.7	3199.63	343.78	6334.75	0.00	6336.73	1847350.75	11895106.38	124.67
9150.00	89.00	89.7	3200.50	344.09	6384.74	0.00	6386.73	1847400.74	11895106.69	123.80
9200.00	89.00	89.7	3201.37	344.40	6434.73	0.00	6436.72	1847450.73	11895107.00	122.93
9250.00	89.00	89.7	3202.24	344.70	6484.73	0.00	6486.71	1847500.73	11895107.30	122.06
9300.00	89.00	89.7	3203.12	345.01	6534.72	0.00	6536.70	1847550.72	11895107.61	121.18
*** TD (at MD = 9327.28)										
9327.28	89.00	89.7	3203.59	345.17	6561.99	0.00	6563.97	1847577.99	11895107.77	120.71

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