UICI – 8

WDWs 1 - 3
TEMPERATURE
LOGS

2022

Petrotek

Technical
Report

2022 PART II MECHANICAL INTEGRITY TESTING
CLASS I NON-HAZARDOUS WELLS
WDW-1, WDW-2, & WDW-3
(OCD UIC Permits: UICI-008-1, UICI-008-2, & UICI-008-3)

HollyFrontier Navajo Refining LLC
Artesia, New Mexico

September 9, 2022

Petrotek Corporation
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2022 PART II MECHANICAL INTEGRITY TESTING
CLASS I NON-HAZARDOUS WELLS
WDW-1, WDW-2, & WDW-3

HollyFrontier Navajo Refining LLC
Artesia, New Mexico

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1.0 INTRODUCTION

This report summarizes the successful Part II MIT activities performed at the HollyFrontier Navajo Refining LLC (HFNR) Artesia, New Mexico WDW-1, 2, and 3 wells. Based on the NMAC 20.6.2.5204, all Part II MIT requirements for WDW-1, 2, and 3 were satisfied as a result of the work performed. Under contract, Petrotek Corporation (Petrotek) developed the MIT procedures, provided field supervision, provided log analysis, and prepared the final report documenting the Part II MIT activities on the three Class I non-hazardous injection wells. Unless otherwise noted, all depths in this report are referenced to Kelly Bushing (KB).

NMAC 20.6.2.5204(A) and (B), below, outline the mechanical integrity test (MIT) requirements.

20.6.2.5204 MECHANICAL INTEGRITY FOR CLASS I WELLS AND CLASS III WELLS:

> **A.** A Class I well or Class III well has mechanical integrity if there is no detectable leak in the casing, tubing or packer which the secretary considers to be significant at maximum operating temperature and pressure; and no detectable conduit for fluid movement out of the injection zone through the well bore or vertical channels adjacent to the well bore which the secretary considers to be significant.
>
> **B.** Prior to well injection and at least once every five years or more frequently as the secretary may require for good cause during the life of the well, the discharger must demonstrate that a Class I well or Class III well has mechanical integrity. The demonstration shall be made through use of the following tests:
>
> **(1)** for evaluation of leaks:
>
> **(a)** monitoring of annulus pressure (after an initial pressure test with liquid or gas before operation commences); or
>
> **(b)** pressure test with liquid or gas;
>
> **(2)** for determination of conduits for fluid movement:
>
> **(a)** the results of a temperature or noise log; or
>
> **(b)** where the nature of the casing used for Class III wells precludes use of these logs, cementing records and an appropriate monitoring program as the secretary may require which will demonstrate the presence of adequate cement to prevent such movement;

The Part I MITs in NMAC 20.6.2.5204(B)(1) were performed previously during the 2022 well testing and are outlined in those respective reports. As outlined in NMAC 20.6.2.5204(B)(2)(a), temperature logs were utilized to demonstrate the lack of fluid conduits outside of the injection zone. The Part II MITs conducted August 16 through August 18, 2022 showed no evidence that flow exists behind casing and cement outside of the permitted injection zone.

The notification of the temperature log activities were submitted by HFNR to the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD). No OCD inspector was present to witness the field activities.

The MIT activities consisted of static temperature logs on WDW-1, 2, and 3. All three wells satisfactorily demonstrated mechanical integrity pursuant to the HFNR Underground Injection Control (UIC) permits, applicable guidelines, and regulations.

2.0 MECHANICAL INTEGRITY TESTING

The 2022 Part II MIT activities for the HFNR WDW-1, 2, and 3 were supervised by Petrotek and were conducted August 16 through 18, 2022. The wellbore diagrams illustrating the configuration of the wells during testing for WDW-1, 2, and 3 are shown on Figures 1, 2, and 3, respectively. Note that no changes to the subsurface wellbore configurations were made to the wells at the time of testing.

Temperature Log - The primary purpose of the temperature log is to demonstrate that there is no significant fluid movement from the injection zone upward into an underground source of drinking water (USDW) through vertical channels adjacent to the injection wellbore. As injection takes place through a wellbore, the temperature differential between injected fluids and natural formation temperatures are altered by both convective and conductive heat transfer. As fluid flows into formations and flows through pathways, more convective heat transfer takes place than occurs in areas of a wellbore where different temperature fluids are simply passing by formations where lesser heat transfer is taking place due to conduction through casing. Residual temperature signatures created by injection can be used to infer fluid flow outside of the wellbore. Static temperature logs were conducted in 2022 on WDW-1, 2, and 3 to evaluate temperature signatures generated by the history of injection and for comparison with historical logging data.

Logging was conducted in each well by shutting each well in for at least 36 hours, rigging up pressure control and wireline equipment on the test well, running the temperature tool and casing collar locator (CCL) into the well past the top of the injection interval to tag depth, logging gamma ray (GR) and CCL from tagged TD to surface, rigging down the wireline logging equipment, and then returning the test well to HFNR control. Specific details and analysis of the logging conducted on each well as follows.

WDW - 1

On August 16, 2022 a static temperature survey was conducted on WDW-1 from the surface to approximately 8,400 feet. A schematic of the well is shown on Figure 1. The well had been shut-in approximately 36.5 hours prior to running the temperature log. The temperature tool assembly also included CCL and GR sensors. The CCL and GR data were collected to correlate depth and identify lithologic changes with temperature variations that may be observed during logging. The log data were acquired while running the tool into the undisturbed tubing at a speed of approximately 30 feet per minute.

Attachment 1 contains the temperature log for WDW-1. Within the log, the GR and CCL logs are in track 1 with the differential temperature and temperature logs in track 2. The log indicates no anomalies indicative of upward fluid movement out of the injection zone. The temperature change occurs at the base of the tubing with the majority of injected fluid most likely entering the top two perforated intervals at 7,924 – 7,942 feet and 7,974 – 8,030 feet. Some minor gradient changes are observed that are consistent with lithology.

Based on the lack of any temperature anomalies consistent with upward flow through the confining zone, it was determined that there is no evidence of injected fluid movement out of the injection zone or to the USDW behind casing above the injection zone. A copy of the temperature log in paper form is presented as Attachment 1. Digital data and electronic copies are located on the CD provided as Attachment 4.

WDW - 2

On August 17, 2022 a static temperature survey was conducted on WDW-2 from the surface to approximately 8,318 feet. A schematic of the well is shown on Figure 2. The well had been shut-in approximately 36.5 hours prior to starting the temperature log. The temperature tool assembly also included CCL and GR sensors. The CCL and GR data were collected to correlate depth and identify lithologic changes with temperature variations that may be observed during logging. The log data were acquired while running the tool into the undisturbed tubing at a speed of approximately 30 feet per minute.

Attachment 2 contains the temperature log for WDW-2. Within the log, the GR and CCL logs are in track 1 with the differential temperature and temperature logs in track 2. The log indicates no anomalies indicative of upward fluid movement out of the injection zone. The temperature change occurs at the base of the tubing with the majority of injected fluid most likely entering the top two perforated intervals at 7,570 – 7,620 feet and 7,676 – 7,736 feet. Some minor gradient changes are observed that are consistent with lithology.

Based on the lack of any temperature anomalies consistent with upward flow through the confining zone, it was determined that there is no evidence of injected fluid movement out of the injection zone or to the USDW behind casing above the injection zone. A copy of the temperature log in paper form is presented as Attachment 2. Digital data and electronic copies are located on the CD provided as Attachment 4.

WDW - 3

On August 18, 2022 a static temperature survey was conducted on WDW-3 from the surface to approximately 8,615 feet. A schematic of the well is shown on Figure 3. The well had been shut-in approximately 36.5 hours prior to starting the temperature log. The temperature tool assembly also included CCL and GR sensors. The CCL and GR data were collected to correlate depth and identify lithologic changes with temperature variations that may be observed during logging. The log data were acquired while running the tool into the undisturbed tubing at a speed of approximately 30 feet per minute.

Attachment 3 contains the temperature log for WDW-3. Within the log, the GR and CCL logs are in track 1 with the differential temperature and temperature logs in track 2. The log indicates no anomalies indicative of upward fluid movement out of the injection zone. The temperature change occurs at the base of the tubing with the injected fluid entering the perforated intervals at 7,660 – 8,450 feet and 8,540 – 8,620 feet. Some minor gradient changes are observed that are consistent with lithology.

Based on the lack of any temperature anomalies consistent with upward flow through the confining zone, it was determined that there is no evidence of injected fluid movement out of the injection zone or to the USDW behind casing above the injection zone. A copy of the temperature log in paper form is presented as Attachment 3. Digital data and electronic copies are located on the CD provided as Attachment 4.

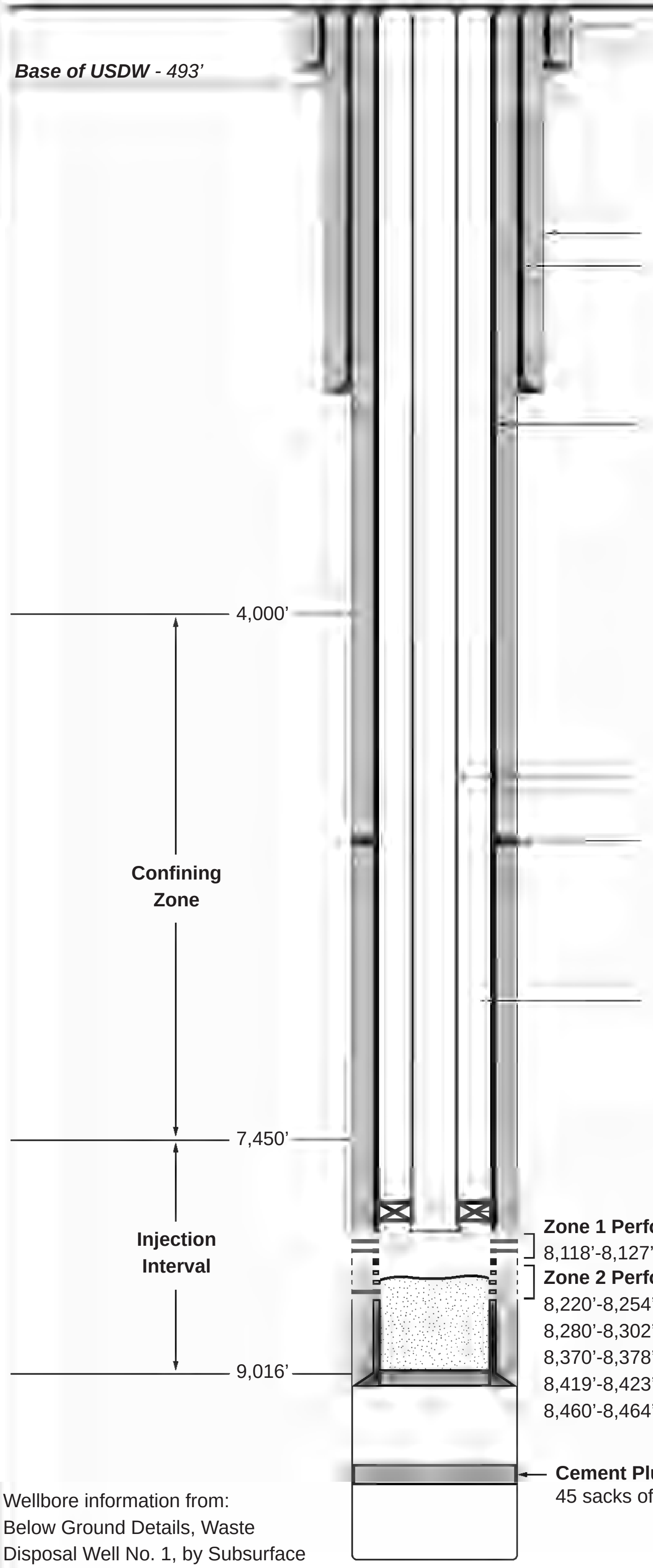
2022 Part II MIT Summary

In summary, Part II mechanical integrity testing requirements of the UIC permits for the three HFNR wells and applicable regulations were satisfied by the static temperature logging performed in August 2022. The 2022 data show the fluid exiting the tubing tail and entering the injection zone via the perforated intervals. No evidence of injected fluid movement out of the injection zone or to the USDW behind casing above the injection zone was observed.

FIGURES

OCD UIC Permit: UICI-008-1
Well API Number: 30-015-27592
Eddy County, New Mexico
Sec. 31, T17S-R28E
Lat. 32.78517° / Long. -104.21376° (NAD 83)

Note: All depths referenced to Kelly Bushing (KB) elevation 2.5' above ground level.
Ground Level Elevation: +3,678' MSL



17-1/2" Hole

Surface Casing (0' - 390'): 13-3/8", 48 lb/ft, J-55, ST&C

Cement: to surface with 150 sacks of Class C with 3% calcium chloride, 375 sacks of Class C Litewate with 3% calcium chloride and 1/2 lb/sk flocele. Circulated 86 sacks to surface.

12-1/4" Hole

Intermediate Casing (0' - 2,555'): 9-5/8", 36 lb/ft, J-55, ST&C

Cement: 800 sacks of Class C Lite with 1/2 lb/sk flocele and 2 lb/sk Gilsonite and 12% salt. Followed by 200 sacks of Class C with 2% calcium chloride. Circulated 133 sacks to surface.

Protection Casing (0' - 9,094'): 7", 26 lb/ft, P-110, LT&C (Surface - 5,845'). 7", 29 lb/ft, P-110, LT&C (5,845' - 7,031'). 7", 29 lb/ft, N-80, LT&C (7,031' - 9,094').

First Stage: 600 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, and 1 lb/sk salt mixed at 13.0 ppg. Opened DV tool at 5,498' and circulated 142 sacks to surface.

Second Stage: Lead Slurry: 220 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, 0.1% HR-7, and 1 lb/sk mixed at 13.0 ppg. Circulated 75 sacks to surface. Topped out with 20 sacks of premium plus 3% calcium chloride.

Injection Tubing (0' - 7,869'): 4-1/2", 11.6 lb/ft, L-80, LT&C

DV Tool (5,498')

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor

Packer (7,869'): 7" x 2-7/8" Weatherford (Arrow), Model X-1 retrievable packer.

Zone 1 Perforations: 7,924'-7,942', 7,974'-8,030', 8,050'-8,056', 8,066-8,080', 8,118'-8,127', 8,132'-8,140', 8,160'-8,164', 8,170'-8,188'.

Zone 2 Perforations:
8,220'-8,254', 8,260'-8,270',
8,280'-8,302', 8,360'-8,366',
8,370'-8,378', 8,400'-8,410',
8,419'-8,423', 8,430'-8,446',
8,460'-8,464', 8,470'-8,476'.

Cement Plug (9,624' - 9,734'): 45 sacks of Class H

Top of Fill: 8,400' (Tagged 8/2022)

PBTD: 9,004'

TD: 10,200'

Wellbore information from: Below Ground Details, Waste Disposal Well No. 1, by Subsurface Technology, Figure 1, 2001 and 2018 Workover.

NOT TO SCALE

HF Sinclair

Figure 1
WDW-1,
Wellbore Schematic
2022 Part II MIT Report

Scale: NTS	Date: August 2022	
Fig_01_HFNM_2022_Part_II_MIT.pdf	By: WEK	Checked: DH

Petrotek
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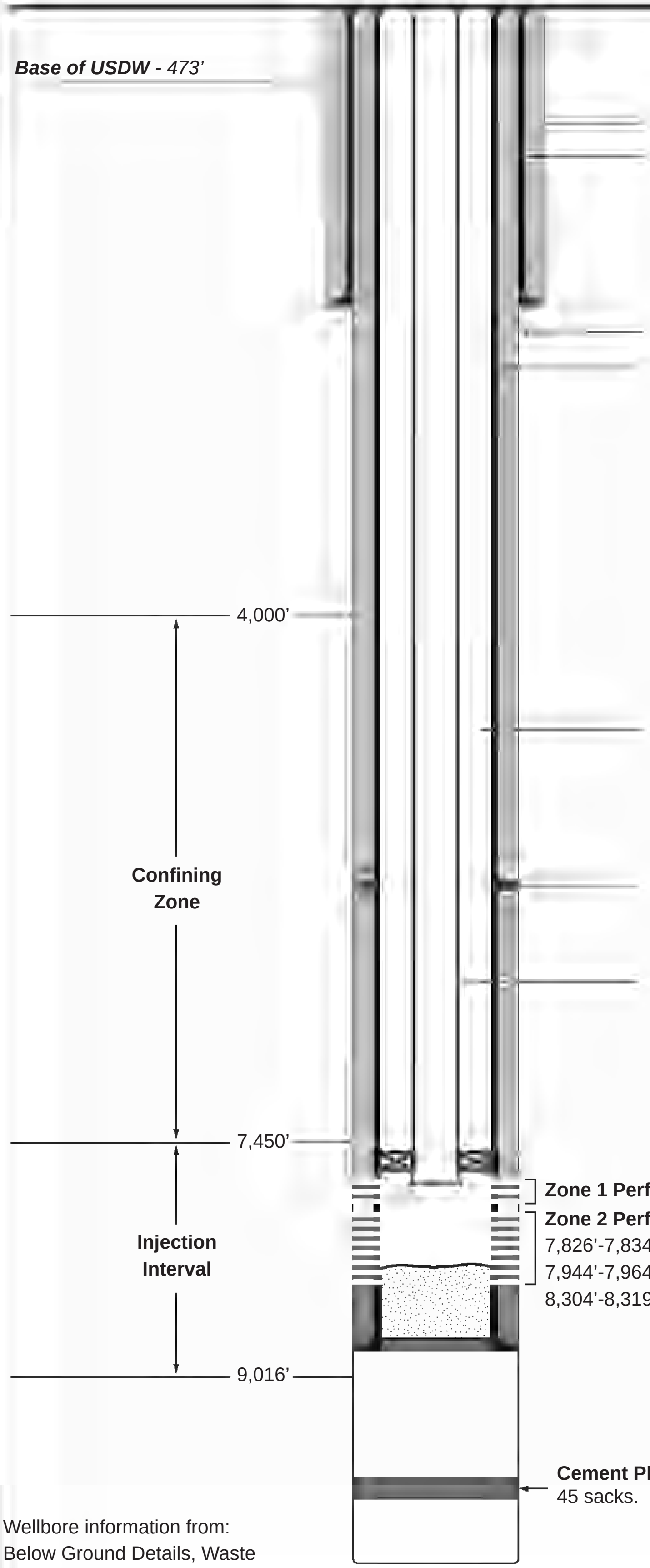
OCD UIC Permit: UICI-008-2
Well API Number: 30-015-20894
Eddy County, New Mexico
Sec. 31, T17S-R27E
Lat. 32.763772° / Long. -104.238508° (NAD 83)

Note: All depths referenced to Kelly Bushing (KB) elevation 13' above ground level. Ground Level Elevation: +3,610' MSL



11" Hole

Surface Casing (0' - 1,955'): 8-5/8", 32 lb/ft

Cement: to surface with 800 sacks of cement.

7-7/8" Hole

Protection Casing (0' - 8,869'): 5-1/2", 17 lb/ft, L-80, LT&C. Casing cemented in two stages.

First Stage: 575 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, and 3 lb/sk salt. Mixed at 13.0 ppg. Opened DV tool at 5,785' and circulated 20 sacks to surface.

Second Stage: Lead Slurry: 300 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 695 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344 and 3 lb/sk salt, mixed at 13.0 ppg. Circulated 150 sacks to surface. Topped out with 10 yards of Redi-Mix.

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor

DV Tool (5,785')

Injection Tubing (0' - 7,528'): 3-1/2", 9.2 lb/ft, J-55, smls, NUE 10rd.

Packer (7,528'): 5-1/2" x 2-7/8" Weatherford Completion Tools (Arrow) Model X-1 retrievable packer. Minimum I.D. = 2.4375". Wireline re-entry guide at bottom. To release, turn 1/4-turn to the right and pick up.

Zone 1 Perforations: 7,570'-7,620', 7,676'-7,736'

Zone 2 Perforations:
7,826'-7,834', 7,858'-7,880', 7,886'-7,904', 7,916'-7,936',
7,944'-7,964', 7,990'-8,042', 8,096'-8,116', 8,191'-8,201'
8,304'-8,319', 8,395'-8,399'

Cement Plug (9,675 - 9,775'): 45 sacks.

Top of Fill:
8,318' (Tagged 8/2022)
PBTD: 8,770'
TD: 10,372'

Wellbore information from:
Below Ground Details, Waste Disposal Well No. 2, by Subsurface Technology, Figure 1, 2001.

NOT TO SCALE

HF Sinclair

Figure 2
WDW-2
Wellbore Schematic

2022 Part II MIT Report

Scale: NTS	Date: August 2022
Fig_02_HFNM_2022_Part_II_MIT.pdf	By: WEK / Checked: DH

Petrotek
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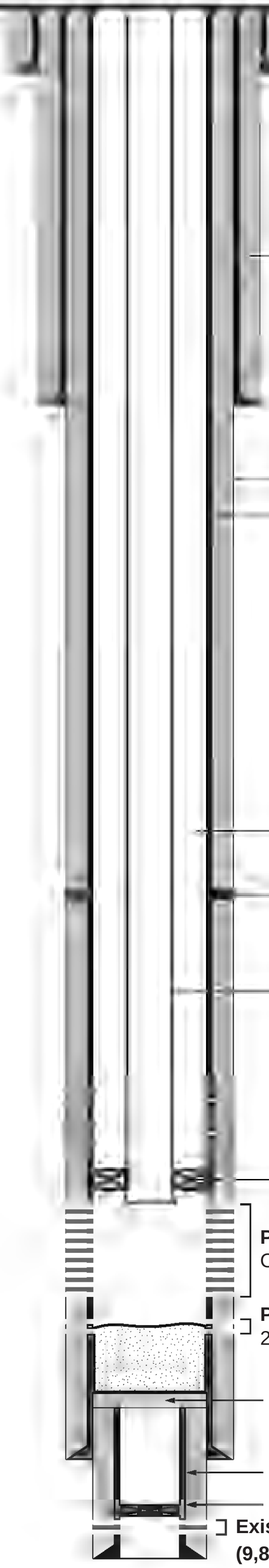
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-3
Well API Number: 30-015-26575
Eddy County, New Mexico
Sec. 31, T18S-R27E
Lat. 32.771186° / Long. -104.233306° (NAD 83)



17.5” Hole
Conductor Casing (0’ - 400’): 13-3/8”, 54.5 lb/ft, J-55 STC Steel.
Cement: to surface with 425 sacks.

12.25” Hole
Surface Casing (0’ - 2,604’): 9-5/8”, 36 lb/ft, J-55 STC Steel.
Cement: to surface with 1,025 sacks.

8-3/4” Hole
Protection Casing (0’ - 9,450’): 7”, 26 lb/ft & 29 lb/ft, N-80 & P110 Steel.
Cement: 1,350 sacks, top of cement at 900’.

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor.

DV Tool (5,785’)

Injection Tubing (0’ - 7,568’): 4-1/2”, 11.6 lb/ft, J-55 LTC Steel, no nipples, Injection Tubing - 10/24/06.

Packer (7,575’): 7” x 2-7/8” Arrow X-1 Packer, no nipples, 37K Tension.

Perforations (7,660’ - 8,450’): 2 JSPF, 60°, 0.5”
Old Perforations Open: 7,676’ - 7,698’

Perforations (8,540’ - 8,620’):
2 JSPF, 60°, 0.5”

Cement (9,022’)

4-1/2” Liner (9,051’ - 10,119’)

CIPB (9,800’): 35’ of cement.

Existing Perforations
(9,861’ - 9,967’)

Top of Fill:
8,615’ (Tagged 8/2022)
PBTD: 9,022’
TD: 10,119’

Wellbore information from:
Gaines Well #3 Navajo
Refining schematic by
Subsurface Technology, 2009.

NOT TO SCALE

HF Sinclair

Figure 3
WDW-3
Wellbore Schematic
2022 Part II MIT Report

Scale: NTS	Date: August 2022
Fig_03_HFNM_2022_Part_II_MIT.pdf	By: WEK Checked: DH

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ATTACHMENTS

Attachment 1

WDW-1 Temperature Log

Company	H.F. SINCLAIR
Well	WDW-1
Field	
County	EDDY
State	NEW MEXICO
Country	USA

RENEGADE SERVICES

TEMPERATURE/ GAMMA RAY SURVEY

Company	H.F. SINCLAIR		
Well	WDW-1		
Field			
County	EDDY		
State	NEW MEXICO	Country	USA
Location:	API #: 30-015-27592 LAT: 32.78517 LONG: -104.21376 SEC 31 TWP 17S RGE 28E	Other Services	CCL
Permanent Datum	G.L.	Elevation 3678'	Elevation
Log Measured From	7' ABOVE G.L		K.B. 3680.5' D.F. 3679.5' G.L. 3678'
Drilling Measured From	K.B.		

Date	AUGUST 16, 2022	
Run Number	ONE	
Depth Driller	10200'	PBTD 9004'
Depth Logger	8400'	
Bottom Logged Interval	8400'	
Top Log Interval	20'	
Open Hole Size	N/A	
Type Fluid	H2O	
Density / Viscosity	N/A	
Max. Recorded Temp.	110.8 DEG F	
Estimated Cement Top	N/A	
Time Well Ready	ON ARRIVAL	
Time Logger on Bottom	1:00 PM	
Equipment Number	104	
Location	LEVELLAND	
Recorded By	C. JORDAN	
Witnessed By	NOLAN BEASLEY	

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
				4.5"	11.6#	SURFACE	7879'

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	13.375"	48#	SURFACE	390'
Prot. String	9.625"	36#	SURFACE	2555'
Production String	7"	26#	SURFACE	9094'
Liner				

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

Comments

THIS LOG WAS SET TO GRAY WIRELINE TEMPERATURE LOG ON 11-13-2011.

PERFORATIONS: 7924'-7942', 7974'-8030', 8050'-8056', 8066'-8080', 8118'-8127', 8132'-8140', 8160'-8164', 8170'-8188', 8220'-8254', 8260'-8270', 8280'-8302', 8360'-8366', 8370'-8378', 8400'-8410', 8419'-8423', 8430'-8446', 8460'-8464', 8470'-8476'

Sensor	Offset (ft)	Description	Length (ft)	O.D. (in)	Weight (lb
		CHD-GO	1.03	1.44	4.00
		7' 1.375" Sinker Bar-1_375 Sinker bar Tungsten 7' Tungsten Weight Bar	7.00	1.38	54.00
CCL	5.98	CCL-Probe (Probe_1) 1 3/8" Probe Logging CCL	1.80	1.38	5.00
		DumDET-dumprobe (p0012) 1.375" probe	3.95	1.38	10.00
TEMP	0.13	TEMP-1.375_Pos_Pulse (IG7C2-01) Titan 1 3/8" 400 Deg. F. Temperature Tool Positive Pulse	1.45	1.38	6.00

Dataset: hfsinclair-wdw#1.db: NAVAJOREFINE/1/BASETEMP/pass1
Total length: 15.23 ft
Total weight: 79.00 lb
O.D.: 1.44 in

RENEGADE SERVICES

TEMPERATURE SURVEY

Database File	hfsinclair-wdw#1.db
Dataset Pathname	NAVAJOREFINE/1/BASETEMP/pass1.2
Presentation Format	trccomp1
Dataset Creation	Wed Aug 17 08:11:19 2022
Charted by	Depth in Feet scaled 1:500

Company	H.F. SINCLAIR		
Well	WDW-1		
Field			
County	EDDY	State	NEW MEXICO

RENEGADE SERVICES

TEMPERATURE/GAMMA RAY SURVEY

Attachment 2

WDW-2 Temperature Log

TEMPERATURE/ GAMMA RAY SURVEY

Company	H.F. SINCLAIR
Well	WDW-2
Field	
County	EDDY
State	NEW MEXICO
Country	USA

Company H.F. SINCLAIR
Well WDW-2
Field
County EDDY
State NEW MEXICO Country USA
Location: API #: 30-015-20894
LAT: 32.763772
LONG: -104.238508
SEC 31 TWP 17S RGE 27E

Other Services
CCL

			Elevation
Permanent Datum	G.L.	Elevation 3610'	K.B. 3623'
Log Measured From	7' ABOVE G.L		D.F. 3622'
Drilling Measured From	K.B.		G.L. 3610'

Date	AUGUST 17, 2022	
Run Number	ONE	
Depth Driller	10372'	PBTD 8770'
Depth Logger	8318'	
Bottom Logged Interval	8318'	
Top Log Interval	20'	
Open Hole Size	N/A	
Type Fluid	H2O	
Density / Viscosity	N/A	
Max. Recorded Temp.	115.2 DEG F	
Estimated Cement Top	N/A	
Time Well Ready	ON ARRIVAL	
Time Logger on Bottom	1:00 PM	
Equipment Number	104	
Location	LEVELLAND	
Recorded By	C. JORDAN	
Witnessed By	NOLAN BEASLEY	

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
				3.5"	9.2#	SURFACE	7528'

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	8.625"	32#	SURFACE	1955'
Prot. String				
Production String	5.5"	17#	SURFACE	8869'
Liner				

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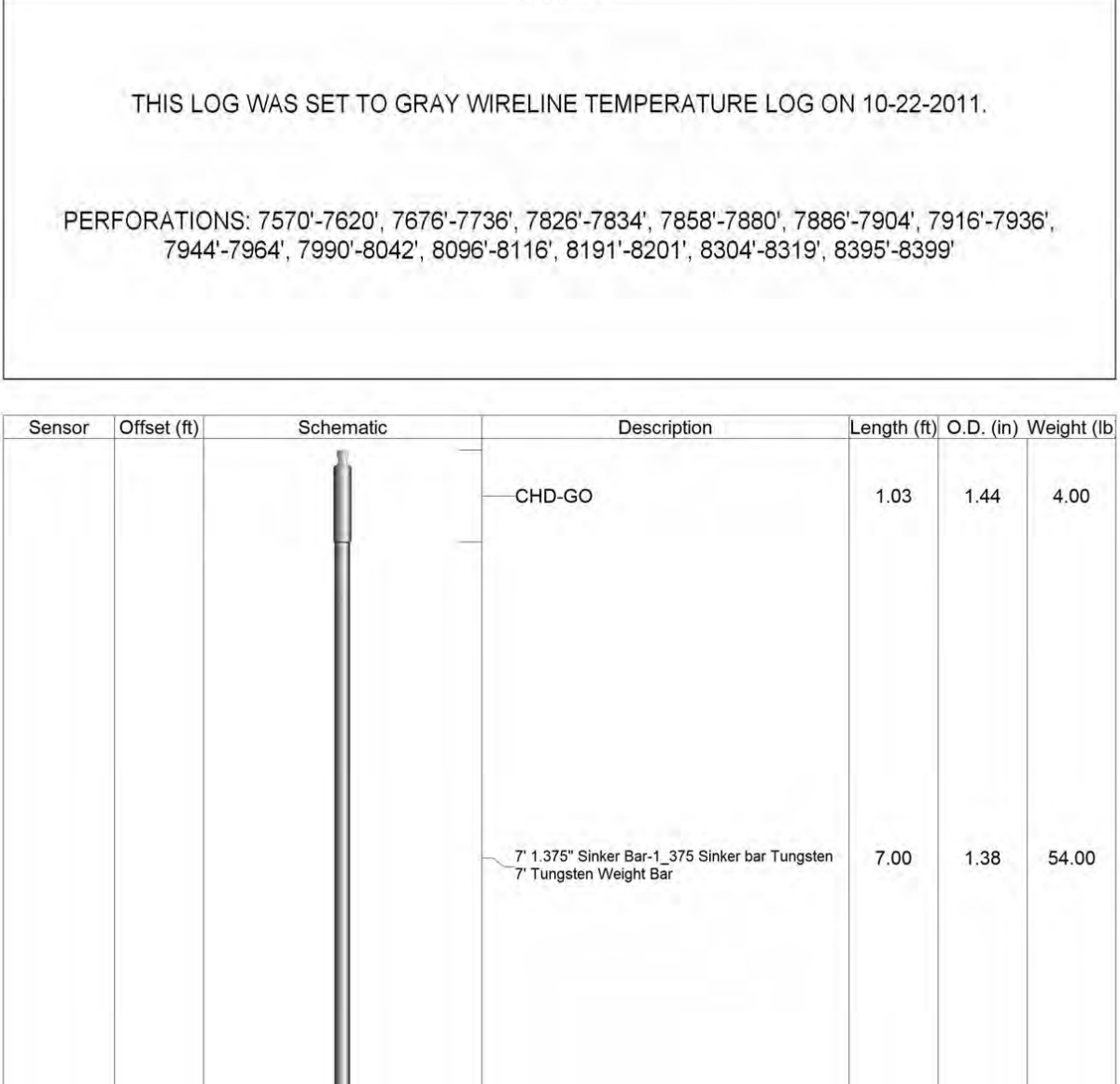
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

Comments

THIS LOG WAS SET TO GRAY WIRELINE TEMPERATURE LOG ON 10-22-2011.

PERFORATIONS: 7570'-7620', 7676'-7736', 7826'-7834', 7858'-7880', 7886'-7904', 7916'-7936', 7944'-7964', 7990'-8042', 8096'-8116', 8191'-8201', 8304'-8319', 8395'-8399'



Sensor	Offset (ft)	Description	Length (ft)	O.D. (in)	Weight (lb
		CHD-GO	1.03	1.44	4.00
		7' 1.375" Sinker Bar-1_375 Sinker bar Tungsten 7' Tungsten Weight Bar	7.00	1.38	54.00
CCL	5.98	CCL-Probe (Probe_1) 1 3/8" Probe Logging CCL	1.80	1.38	5.00
		DumDET-dumprobe (p0012) 1.375" probe	3.95	1.38	10.00
TEMP	0.13	TEMP-1.375_Pos_Pulse (IG7C2-01) Titan 1 3/8" 400 Deg. F. Temperature Tool Positive Pulse	1.45	1.38	6.00

Dataset: hfsinclair-wdw#2.db: HFSINCLAIR/2/BASETEMP/pass2
Total length: 15.23 ft
Total weight: 79.00 lb
O.D.: 1.44 in

TEMPERATURE SURVEY

Database File hfsinclair-wdw#2.db
Dataset Pathname HFSINCLAIR/2/BASETEMP/pass1.2
Presentation Format trccomp1
Dataset Creation Thu Aug 18 08:49:11 2022
Charted by Depth in Feet scaled 1:500

Company	H.F. SINCLAIR		
Well	WDW-2		
Field			
County	EDDY	State	NEW MEXICO

RENEGADE SERVICES

TEMPERATURE/GAMMA RAY SURVEY

Attachment 3
WDW-3 Temperature Log

TEMPERATURE/ GAMMA RAY SURVEY

Company	H.F. SINCLAIR		
Well	WDW-3		
Field			
County	EDDY		
State	NEW MEXICO	Country USA	

Company H.F. SINCLAIR
Well WDW-3
Field
County EDDY
State NEW MEXICO Country USA

Location: API # : 30-015-26575
LAT: 32.771186
LONG: -104.233306
SEC 31 TWP 18S RGE 28E

Other Services
CCL

Permanent Datum	G.L.	Elevation 3609'	Elevation
Log Measured From	7' ABOVE G.L.		K.B. 3625'
Drilling Measured From	K.B.		D.F. 3624' G.L. 3609'

Date	AUGUST 18, 2022	
Run Number	ONE	
Depth Driller	10119'	PBTD 9022'
Depth Logger	8615'	
Bottom Logged Interval	8615'	
Top Log Interval	20'	
Open Hole Size	N/A	
Type Fluid	H2O	
Density / Viscosity	N/A	
Max. Recorded Temp.	116 DEG F	
Estimated Cement Top	N/A	
Time Well Ready	ON ARRIVAL	
Time Logger on Bottom	1:00 PM	
Equipment Number	104	
Location	LEVELLAND	
Recorded By	C. JORDAN	
Witnessed By	NOLAN BEASLEY	

Borehole Record			Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
				4.5"	11.6#	SURFACE	7568'

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	13.375"	54.5#	SURFACE	400'
Pr String	9.625"	36#	SURFACE	2600'
Production String	7"	26#	SURFACE	9450'
Li	4.5"	N/A	9051'	10119'

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

Comments

THIS LOG WAS SET TO WOOD GROUP TEMPERATURE SURVEY ON 10-13-2006.

PERFORATIONS: 7660'-8450', 8540'-8620'

Sensor	Offset (ft)	Description	Length (ft)	O.D. (in)	Weight (lb
		CHD-GO	1.03	1.44	4.00
		7' 1.375" Sinker Bar-1_375 Sinker bar Tungsten 7' Tungsten Weight Bar	7.00	1.38	54.00
CCL	5.98	CCL-Probe (Probe_1) 1 3/8" Probe Logging CCL	1.80	1.38	5.00
		DumDET-dumprobe (p0012) 1.375" probe	3.95	1.38	10.00
TEMP	0.13	TEMP-1.375_Pos_Pulse (IG7C2-01) Titan 1 3/8" 400 Deg. F. Temperature Tool Positive Pulse	1.45	1.38	6.00

Dataset: hfsinclair-wdw-3.db: SINCLAIR/3/BASETEMP/pass1
Total length: 15.23 ft
Total weight: 79.00 lb
O.D.: 1.44 in

TEMPERATURE SURVEY

Database File	hfsinclair-wdw-3.db
Dataset Pathname	SINCLAIR/3/BASETEMP/pass1.1
Presentation Format	trccomp1
Dataset Creation	Thu Aug 18 14:43:16 2022
Charted by	Depth in Feet scaled 1:500

Company	H.F. SINCLAIR		
Well	WDW-3		
Field			
County	EDDY	State	NEW MEXICO

TEMPERATURE/GAMMA RAY SURVEY

Attachment 4
Digital Log Data

District I
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
District IV
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

COMMENTS

Action 142056

COMMENTS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 142056
	Action Type: [C-103] NOI General Sundry (C-103X)

COMMENTS

Created By	Comment	Comment Date
cchavez	UIC External MIT "Temperature Log" August 2022	9/27/2022

District I
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CONDITIONS

Action 142056

CONDITIONS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 142056
	Action Type: [C-103] NOI General Sundry (C-103X)

CONDITIONS

Created By	Condition	Condition Date
cchavez	Note: NOI for UIC Tests initially submit OCD Form 103X for OCD approval and Final Test Reports are submitted under OCD Form 103Z.	9/27/2022