Petrotek

Technical Report

DEEPWELL STIMULATION REPORT
CLASS I NON-HAZARDOUS DEEPWELL

WDW-4
(OCD UIC Permit: UICI-008-4)
(API Number: 30-015-44677)

HF Sinclair

Navajo Refining Company
Artesia, New Mexico

Section 23, Township 17S, Range 27E
1289 FSL, 2470 FWL

September 2025

5935 South Zang Street, Suite 200
Littleton, Colorado 80127
Phone: (303) 290-9414
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TECHNICAL REPORT
DEEPWELL STIMULATION REPORT
CLASS I NON-HAZARDOUS DEEPWELL WDW-4
(OCD UIC Permit: UICI-008-4)
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Navajo Refining Company
Artesia, New Mexico

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Petrotek

1.0 INTRODUCTION

This report summarizes the stimulation activities performed on the WDW-4 well at the HFSinclair Navajo Refining Company (HFSNR) facility in Artesia, New Mexico on August 6 and 7, 2025. These activities were performed in accordance with the Form C-103 Bullhead Stimulation Plan submitted to the New Mexico Oil Conservation Division (OCD) on May 20, 2025. OCD approved the Stimulation Plan in correspondence dated June 2, 2025. The Plan and OCD approval are provided in Attachment 1.

HFSNR currently operates four Class I Non-Hazardous waste injection wells at the HFSNR refinery. Underground sources of drinking water (USDWs) are protected by multiple strings of casing and cement circulated to surface in each of the wells. Waste fluids are delivered to the injection interval in WDW-4 via 7-inch diameter 26 lb/ft, K-55 steel injection tubing.

The annulus area between the protective casing and injection tubing is filled with an inhibited brine, bactericide, and an oxygen scavenger. The annulus pressure is continually monitored to detect any potential leaks in the tubing or casing.

The stimulation activities described below were conducted without removing the tubing, packer or any valves on the wellhead. The annulus seal was not disturbed during the stimulation procedure. No testing or inspections were required as a result of this work.

Unless otherwise noted, depths recorded in this report related to the stimulation are referenced to measured depth from Kelly Bushing (KB).

2.0 BACKGROUND AND SUMMARY

Field activities involved performing a bullhead acid stimulation of WDW-4. Cameron Kerr of Petrotek supervised all field activities. On August 6, 2025, CUDD Pressure Control (CUDD) mobilized a pump truck, acid transports, and associated equipment to location. On August 7, 2-inch 1052 iron was rigged up to the 4-inch 1002 swab valve connection.

The following provides a summary of the work performed on WDW-4, presented in chronological order.

On August 7, approximately 513 bbls of 15% HCL plus additives were pumped from surface. The injection tubing was displaced with 420 bbls of fresh water and the treatment was left to soak overnight before HFSNR resumed injection operations on WDW-4. Table 1 presents the approximate 15% HCL solution and additive quantities pumped on August 7.

Table 1
Acid Blend Stimulation Solution

Acid Blend	Quantity (gallons)
15% HCL	16,000
Solvent Acid Dispersant (ACID LINK 701A) 12 gpt	240
Non-Emulsifier (PLEXBREAK 145) 3 gpt	60
Citric Acid 100 gpt	2,000
Corrosion Inhibitor (PLEXHIB 166) 2 gpt	40
Xylene 200 gpt	4,000
Acid Blend Total:	22,340

The safety data sheet for the acid blend listed in Tables 1 is presented as Attachment 2.

During the stimulation, the acid blend was pumped at a rate of approximately 10.5 barrels per minute and below the maximum allowable surface injection pressure of 1,814 psig calculated for the specific gravity of the acid blend of 1.065, consistent with the Oil Conservation Division Underground Injection Control Permit UICI-008-4. Wellhead pressures ranged from 117 to 721 psig while pumping the acid blend.

A summary of daily activities is presented as Section 3 of this report. A Post Job Report from CUDD is included as Attachment 3.

3.0 SUMMARY OF WORK ACTIVITIES

The following provides a summary of the activities conducted on WDW-4 the bullhead stimulation.

Wednesday, August 6, 2025

Arrived onsite at 0930 hours. Waited on CUDD to complete site-specific safety training for contractor access to WDW-4 location. Acquired safe work permit from operations department and conducted tailgate safety meeting and completed job hazard analysis (JHA) with HFSNR personnel at 1230 hours. Shut-in and locked-out/tagged-out (LOTO) WDW-4 with HFSNR operator.

CUDD arrived on location at 1715 hours to spot equipment for rig up next day.

Shut down for night (SDFN) at 1730 hours.

Thursday, August 7, 2025

Arrived on location at 0600 hours. Acquired safe work permit from operations department and conducted tailgate safety meeting and completed JHA for approved procedures.

Rigged up pump truck, acid transports, and manifold 1502 iron to wellhead. Waited for go ahead from HFSNR. Scheduled additional fresh water transports to displace acid. Pressure tested iron and CUDD equipment and lines to 3,683 psig. No leaks observed. Opened well at 1310 hours and started on acid. Pumped approximately 513 bbls of 15% HCl with additives and displaced injection tubing with 420 bbls fresh water. Shut-in well at 1600 hours with an initial shut-in pressure of 359 psig. Flushed 1502 iron back to acid transports with fresh water. Rigged down 1502 iron from wellhead and secured acid transports and pump truck. Removed LOTO, secured well and returned control of well to HFSNR for overnight soak.

SDFN at 1800 hours.

ATTACHMENTS

Attachment 1
OCD Notification and Approval Correspondence

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

State of New Mexico
Energy, Minerals and Natural Resources

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

Form C-103
Revised July 18, 2013

WELL API NO. 30-015-44677	
5. Indicate Type of Lease STATE ☒ FEE ☐	
6. State Oil & Gas Lease No. NM0255527A	
SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 1. Type of Well: Oil Well ☐ Gas Well ☒ Other: INJECTION WELL	7. Lease Name or Unit Agreement Name WDW-4
	8. Well Number: WDW-4
2. Name of Operator HF SINCLAIR NAVAJO REFINING LLC	9. OGRID Number: 15694 / 255554
3. Address of Operator P.O. Box 159, Artesia, NM 88210	10. Pool name or Wildcat
4. Well Location Unit Letter: N ; 1,289 feet from the South line and 2,470 feet from the West line Section 23 Township 17S Range 27E NMPM County: EDDY	
	11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* 3,563' GL

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

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

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

HF Sinclair Navajo Refinery is planning to conduct a bullhead acid stimulation on WDW-4 to increase injectivity in the permitted injection zone.

The bullhead acid stimulation will consist of pumping approximately 500 bbls of acid blend containing 15% HCl, 20% xylene, 100 gpt 50% citric acid, 12 gpt AcidLink 701A, 2 gpt PlexHib 166, 2 gpt PlexBreak 145. The acid blend will be displaced with approximately 400 bbls of injectate. The well will either soak for a period of time or immediately resume injection.

NOTE: Work is expected to be performed during the May – June 2025 timeframe.

Spud Date: Rig Release Date:

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

SIGNATURE [signature] TITLE Env. Manager DATE 5-20-25

Type or print name Case Hinkins E-mail address: Case.Hinkins@hfsinclair.com PHONE: (575) 746-5262

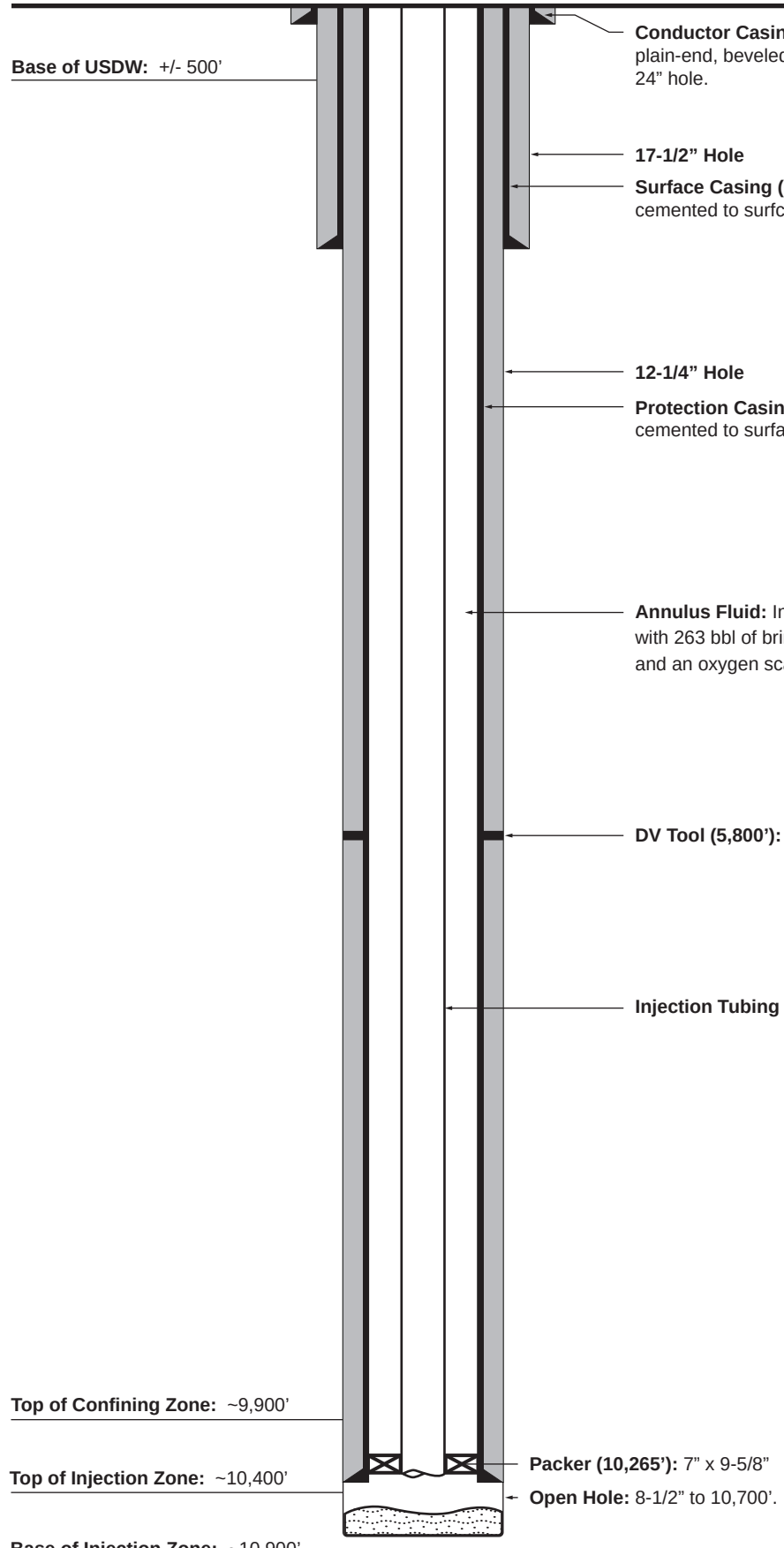
For State Use Only

APPROVED BY: TITLE DATE

Conditions of Approval (if any):

OCD UIC Permit: UICI-008-4
Well API Number: 30-015-44677
Eddy County, New Mexico
Sec. 23, T17S-R27E
Lat. 32.815970° / Long. -104.250174° (NAD 83)

All depths referenced to Kelly Bushing (KB)
elevation 20' above ground level.
Ground Level Elevation: +3,563'



Wellbore information from: Figure 8.2, HollyFrontier Navajo Refining LLC, Artesia, New Mexico, As Built Below Ground Well Schematic by WSP and information found in the 2017 WDW-4 Permit.

HF Sinclair

Figure 1
WDW No. 4,
Wellbore Schematic

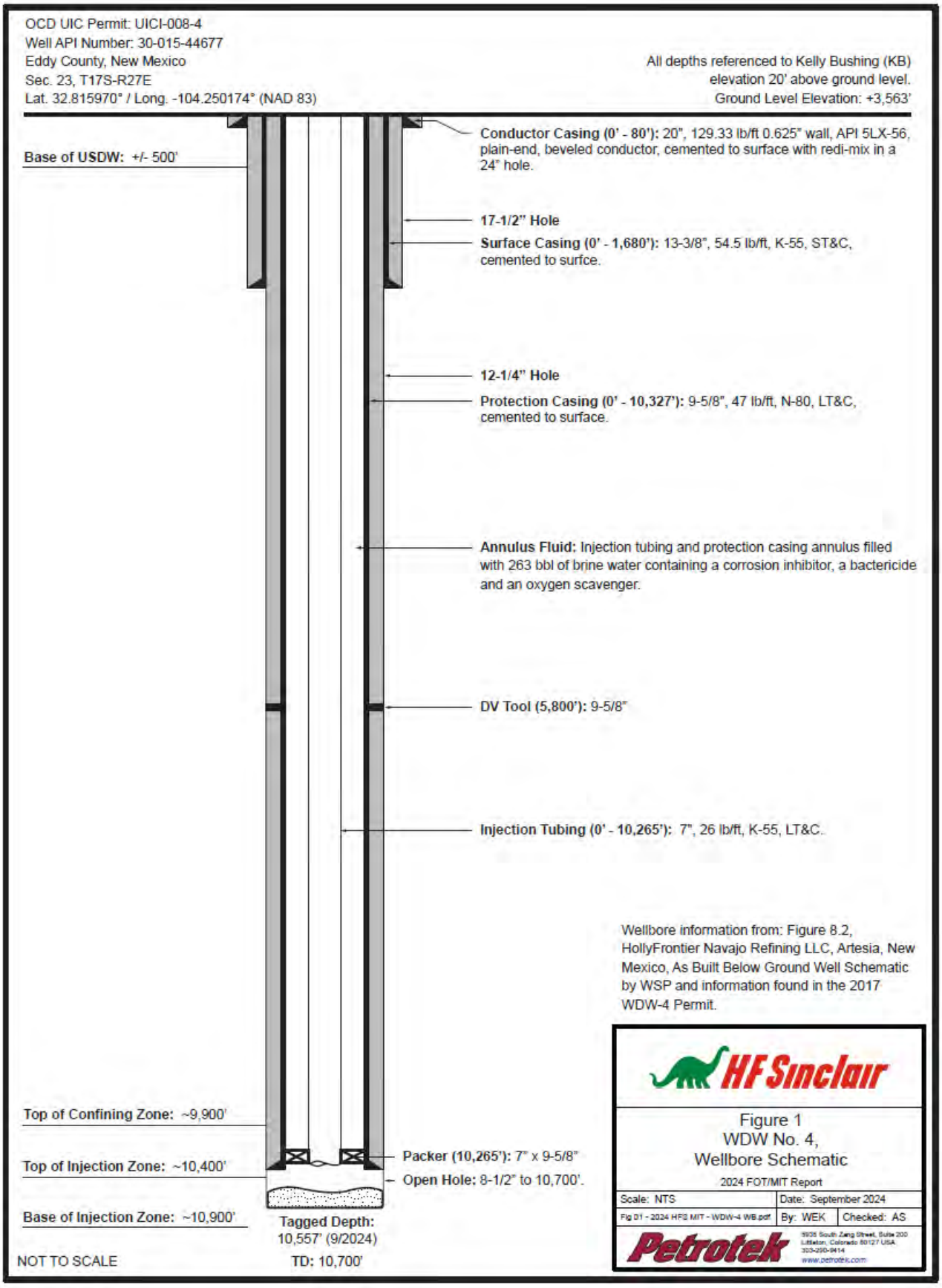
2024 FOT/MIT Report

Scale: NTS	Date: September 2024	
Fig 01 - 2024 HFS MIT - WDW-4 WB.pdf	By: WEK	Checked: AS

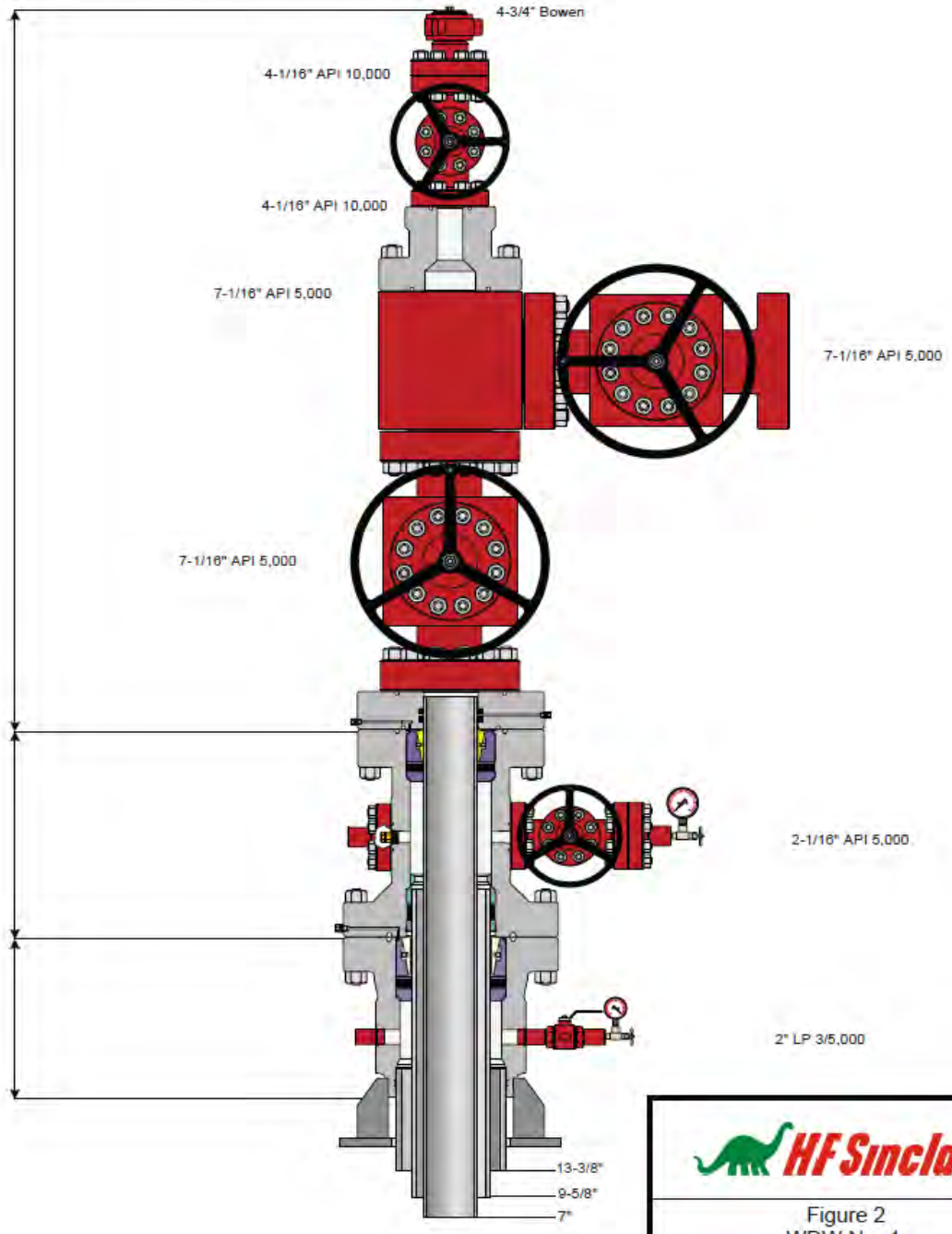
Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

2025 HF Sinclair Navajo Refining WDW-4 Bullhead Acid Stimulation Job Procedures		
Step No.	**~ Time**	**Description**
1	0700	Arrive at WDW-4 location, Safe Work Permit with HFSNR
		Check with HFSNR to make sure well has been shut-in & line disconnected/locked out
		Conduct JHA with HFSNR, CUDD, Petrotek, Pressure Services LLC
2	0800	Make sure personnel operating acid equip have proper PPE (apron, rubber gloves, respirator and face shield)
	0900	Manifold 4 CUDD transports of acid blend containing 15% HCl, 20% xylene, 100 gpt 50% citric acid, 12 gpt AcidLink 701A, 2 gpt PlexHib 166, 2 gpt PlexBreak 145
3	1000	Rig up pump truck on WDW-4, pressure test 1052 iron to 1,500 psi with fresh water from Pressure Services LLC; MASIP: 2,080 psi with site waste; well is currently operating at ~ 270 gpm / 380 psi whp; anticipating max treatment rate of ~ 270 gpm (~6.4 bpm)
	1230	Pump ~20,000 gal 15% HCl plus additives; displace suction lines back to transports and 1502 iron with freshwater; rig down 1502 iron, displace tubing with 400 bbls of HFSNR injectate, shut in and soak for 1 hour
	1330	Resume injection of HFSNR injectate
		Maintain steady injection for at least 24 hours, HFSNR to provide Petrotek hourly injection data 1 week before and 1 week after stimulation.

Note: All vendors/contractors will have completed necessary HFSNR Contractor Onboarding Requirements prior to arriving on location


OCD UIC Permit: UICI-008-4
Well API Number: 30-015-44677
Eddy County, New Mexico
Sec. 23, T17S-R27E
Lat. 32.815970° / Long. -104.250174° (NAD 83)
All depths referenced to Kelly Bushing (KB) elevation 20' above ground level.
Ground Level Elevation: +3,563'
Base of USDW: +/- 500'
Conductor Casing (0' - 80'): 20", 129.33 lb/ft 0.625" wall, API 5LX-56, plain-end, beveled conductor, cemented to surface with redi-mix in a 24" hole.
17-1/2" Hole
Surface Casing (0' - 1,680'): 13-3/8", 54.5 lb/ft, K-55, ST&C, cemented to surfce.
12-1/4" Hole
Protection Casing (0' - 10,327'): 9-5/8", 47 lb/ft, N-80, LT&C, cemented to surface.
Annulus Fluid: Injection tubing and protection casing annulus filled with 263 bbl of brine water containing a corrosion inhibitor, a bactericide and an oxygen scavenger.
DV Tool (5,800'): 9-5/8"
Injection Tubing (0' - 10,265'): 7", 26 lb/ft, K-55, LT&C.
Wellbore information from: Figure 8.2, HollyFrontier Navajo Refining LLC, Artesia, New Mexico, As Built Below Ground Well Schematic by WSP and information found in the 2017 WDW-4 Permit.
Top of Confining Zone: ~9,900'
Top of Injection Zone: ~10,400'
Base of Injection Zone: ~10,900'
Packer (10,265'): 7" x 9-5/8"
Open Hole: 8-1/2" to 10,700'.
Tagged Depth: 10,557' (9/2024)
TD: 10,700'
NOT TO SCALE
HF Sinclair
Figure 1
WDW No. 4,
Wellbore Schematic
2024 FOT/MIT Report
Scale: NTS
Date: September 2024
Fig 01 - 2024 HFS MIT - WDW-4 WB.pdf
By: WEK
Checked: AS
Petrotek
9935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-4
Well API Number: 30-015-44677
Eddy County, New Mexico
Sec. 31, T17S-R27E
Lat. 32.81581° / Long. -104.25003° (NAD 83)



Wellhead information from:
Figure 8.3, Navajo Refining - HollyFrontier
by Weatherford.
NOT TO SCALE

HF Sinclair

Figure 2
WDW No. 4,
Wellhead Schematic
2024 FOT/MIT Report

Scale: NTS	September 2024	
Fig 02 - 2024 HFS MIT - WDW-4 WH.pdf	By: WEK	Checked: AS

Petrotek
5908 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

HF Sinclair Navajo Refinery
Tubular Table WDW-4
MASIP: 2,080

Casing Information														
Depth	**Size**	**Weight**	**Material**	**Grade**	**Connection**	**Burst**	**70% Burst**	**Collapse**	**ID**	**Drift**	**BBL/ft**	**cu ft/ft**	**Coupling OD**	**Casing Vol [bbls]**
10,327	9 5/8	47	CS	N-80	LTC	6,870	4,809	4,750	8.681	8.525	0.0732	0.4111	10.625	756
Injection Tubing														
Depth	**Size**	**Weight**	**Material**	**Grade**	**Connection**	**Burst**	**70% Burst**	**Collapse**	**ID**	**Drift**	**BBL/ft**	**cu ft/ft**	**Coupling OD**	**Tubing Vol [bbls]**
10,265	7	26	CS	K-55	LTC	4,980	3,486	4,320	6.276	6.151	0.0383	0.2148	7.875	393
Open Hole														
Depth	**Size**	**Weight**	**Material**	**Grade**	**Connection**	**Burst**	**70% Burst**	**Collapse**	**ID**	**Drift**	**BBL/ft**	**cu ft/ft**	**Coupling OD**	**OH Vol [bbls]**
Openhole Bottom	10,700	Original TD		-----	-----	-----	-----	-----	8.5	-----	0.0702	0.3941	-----	26
Openhole Bottom	10,557	09/2024 fill tag		-----	-----	-----	-----	-----	8.5	-----	0.0702	0.3941	-----	16

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

COMMENTS

Action 465228

COMMENTS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 465228
	Action Type: [C-103] Sub. Workover (C-103R)

COMMENTS

Created By	Comment	Comment Date
cchavez	C-103R Sundry Well Stimulation	6/2/2025

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Action 465228

CONDITIONS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 465228
	Action Type: [C-103] Sub. Workover (C-103R)

CONDITIONS

Created By	Condition	Condition Date
cchavez	None	6/2/2025

OCD Permitting

[C-103] Sub. Workover (C-103R) Application

Submission Information

Submission ID:	465228	**Districts:**	Artesia
Operator:	[15694] HF Sinclair Navajo Refining LLC	**Counties:**	Eddy
Description:	HF Sinclair Navajo Refining LLC [15694] , WDW 4 #004 , 30-015-44677		
Status:	APPROVED		
Status Date:	06/02/2025		
References (1):	30-015-44677		

Forms

Attachments: C-103R

Work Plan

Questions

This submission type does not have questions, at this time.

Acknowledgments

This submission type does not have acknowledgments, at this time.

Comments

Summary: *cchavez (6/2/2025),* C-103R Sundry Well Stimulation

Conditions

Summary: *cchavez (6/2/2025),* None

Fees

No fees found for this submission.

Go Back

Cameron Kerr

From: Alba, Teresa <Teresa.Alba@HFSinclair.com>
Sent: Tuesday, August 5, 2025 10:01 AM
To: Chavez, Carl, EMNRD
Cc: Cameron Kerr; Jeremiah Demuth; Paudel, Shreejaya; Paengpongsavanh, Nat; Holder, Mike
Subject: HFSNR WDW-4 Testing and Stimulation - 8/7/25
Attachments: C-103 WDW4 Stimulation_signed.pdf

Good morning Carl,

The attached C-103 form for the WDW-4 acid stimulation was uploaded to the OCD portal under Action ID 465228 and approved on 6/2/25. There was no specific date on the original submission, so this email is to inform you that the acid stimulation is scheduled to take place on Thursday, August 7th.

Thanks,
Teresa

Teresa Alba
Environmental Special Projects Lead
O 575-746-5391
M 575-909-1600

Teresa.Alba@hfsinclair.com
www.HFSinclair.com
PO Box 159 Artesia, NM 88211

Attachment 2
Safety Data Sheet: Acid Blend

SAFETY DATA SHEET

Date Prepared: 06/06/2022

Acid Blend #2

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Acid Blend #2

MANUFACTURER

Thru Tubing Solutions
2033 North Main St
Newcastle, OK 73065
Emergency Contact: G. Funkhouser
Emergency Phone: (855) 286-0640
Customer Service: (405) 692-1900

24 HR. EMERGENCY TELEPHONE NUMBERS
Poison Control Center (Medical): (877) 800-5553
CHEMTREC (US Transportation): (800) 424-9300
INTERNATIONAL CHEMTREC: 703-527-3887

2. HAZARDS IDENTIFICATION

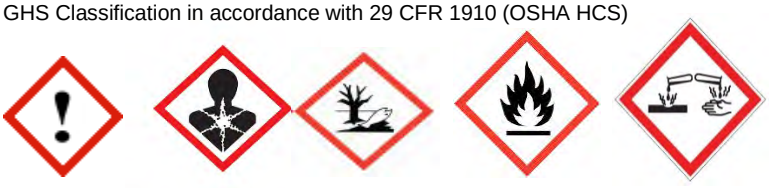
GHS CLASSIFICATIONS

HCS 20112 (29 CFR 1910.1200)

Flammable liquids, Category 2	H225: Highly flammable liquid and vapor
Acute toxicity, Category 4	H302: Harmful is swallowed
Acute toxicity, Category 3	H331: Toxic in contact with skin
Acute toxicity, Category 3	H331: Toxic if inhaled.
Skin irritation, Category 2	H315: Causes skin irritation.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Specific target organ toxicity – single exposure	H370: Causes damage to organs. (Central nervous system, optic nerve

GHS LABEL

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)



HAZARD STATEMENTS

H225: Highly flammable liquid and vapor
H302 + H312 Harmful is swallowed or in contact with skin.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H351: Suspected of causing cancer.
H360: May damage fertility or the unborn child.
H361: Suspected of damaging fertility or the unborn child.
H370: Causes damage to organs.
H373: Causes damage to organs through prolonged or repeated exposure.
.

PRECAUTIONARY STATEMENTS

Prevention:

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof electrical/ventilation/light/equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
P264: Wash skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required.

Response:

P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P311: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P307 + P311: IF exposed: Call a POISON CENTER or doctor/ physician.
P332 + P313: If skin irritation occurs: Get medical advice/ attention.
P362 : Take off contaminated clothing and wash before reuse.
P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
P403 + P235: Store in a well-ventilated place. Keep cool.
P405: Store locked up.

Disposal:

P501: Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification:

H401: Toxic to aquatic life.
H411: Toxic to aquatic life with long lasting effects.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Hydrochloric Acid	5-30	7647-01-0
Xylene/Xylol Nitration Grade	0-20	1330-20-7
50% Citric Acid	0-10	77-92-9
AcidLink 701A	0-2.0	Upon Request
PlexHib 166	0-1.5	Upon Request
Plexaid 803	0-1.5	Upon Request
PlexBreak 145	0-1.5	Upon Request

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water. Get medical attention, if irritation persists. Should accident occur, flush eyes with generous amounts of water for at least 15 minutes. Administer prompt first aid measures.

SKIN: Remove clothing. Immediately flush skin with plenty of water for at least 15 minutes. Wash with soap and water. Obtain medical attention immediately if irritation occurs. Wash clothes before reuse.

INGESTION: Give plenty of water to dilute product. Do not induce vomiting. Keep victim quiet. If vomiting occurs, lower victims head below hips to prevent inhalation of vomited material. Seek medical help promptly.

INHALATION: Rescuers should put on appropriated protective gear. Remove from area of exposure. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Keep victim warm. Get immediate medical attention. To prevent aspiration, keep head below knees.

MOST IMPORTANT SYSMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:

Symptoms of poisoning may not appear for several hours. Keep under medical supervision for at least 48 hours.

Symptoms will depend on the target organs.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

NOTES TO PHYSICIAN

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

5. FIRE FIGHTING MEASURES

Flash point **70 °F (21 °C)**
Flammability class: Flammable

Autoignition temperature **No data available**

Flammability / Explosive limit **No data available**

5.1 Extinguishing media
Suitable extinguishing media
- **Extinguishing media - small fires**
- **Multipurpose powders**
- **Carbon dioxide (CO_2)**
- **Alcohol Resistant Aqueous Film Forming Foam (AR-AFFF)**
- **Alcohol Resistant Aqueous Film Forming Foam (AR-AFFF)**

Unsuitable extinguishing media

- **Water may be ineffective.**

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting

- Flammable liquid and vapor.

- May burn with a colourless flame
- The pressure in sealed containers can increase under the influence of heat.

- In case of heating:
- Highly flammable gas is released, which increases fire / explosion hazards.
- Flash back possible over considerable distance.

- In case of heating:
- Harmful or toxic vapors are released.
- Hazardous decomposition products formed under fire conditions.
- (following evaporation of water)
- High concentrations of toxic or harmful products may remain in the residual liquid once the fire has been extinguished.

Hazardous combustion products:

- On combustion or on thermal decomposition (pyrolysis), releases:
- Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
- Nitrogen oxides (NOx)
- Oxides of phosphorus

5.3 Advice for firefighters
Special protective equipment for fire-fighters

- Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

- Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

Specific fire fighting methods

- Stay upwind.

- Pay attention to flashback.
- Fight fire remotely due to the risk of explosion.

- Suppress (knock down) gases/vapors/mists with a water spray jet.
- Do not use a solid water stream as it may scatter and spread fire.
- Cool down the containers / equipment exposed to heat with a water spray. Ensure that there is NO direct contact between the water and the product.
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

- Persons who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

Further information

- Evacuate personnel to safe areas.

- Intervention only by capable personnel who are trained and aware of the hazards of the product.
- Never approach containers which have been exposed to fire, without cooling them sufficiently.

- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

- Immediately evacuate personnel to safe areas.
- Stay upwind.
- Only qualified personnel equipped with suitable protective equipment may intervene.
- Avoid inhalation, ingestion and contact with skin and eyes.
- Wear chemical resistant personal protective equipment
- Wear suitable gloves.
- Wear suitable protective clothing.
- Respiratory protection

- Wear as appropriate:
- Face-shield
- Tightly fitting safety goggles
- In the case of dust or aerosol formation use respirator with an approved filter.
- In the case of vapor formation use a respirator with an approved filter.
- Eliminate all ignition sources if safe to do so.
- Ventilate the area.

- Stop leak if safe to do so.
- If spillage occurs on the public highway, indicate the danger and notify the authorities

(police, fire service).

- For further information refer to section 8 "Exposure controls / personal protection."

6.2 Environmental precautions

- Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.
    - Prevent further leakage or spillage if safe to do so.
    - Contain the spilled material by diking.
    - The product should not be allowed to enter drains, water courses or the soil.
    - Local authorities should be advised if significant spillages cannot be contained.
    - If the product contaminates rivers and lakes or drains inform respective authorities.
    - If the spill area is porous, the contaminated material must be collected for subsequent treatment or disposal.
- Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies

6.3 Methods and materials for containment and cleaning up

- No sparking tools should be used.

- Stop leak if safe to do so.
    - Dam up with sand or inert earth (do not use combustible materials).

    - Control the vapors with:
    - Alcohol Resistant Aqueous Film Forming Foam (AR-AFFF)

    - Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder).
    - Shovel or sweep up.
    - Keep in suitable, closed containers for disposal.
    - Never return spills in original containers for re-use.

- Wash nonrecoverable remainder with large amounts of water.
- Clean contaminated surface thoroughly.
- Recover the cleaning water for subsequent disposal.
- Decontaminate tools, equipment and personal protective equipment in a segregated area.

- Dispose of as hazardous waste in compliance with local and national regulations.

Additional advice

- Possible need to alert the neighborhood.
- Mark the contaminated area with signs and prevent access to unauthorized personnel.
- Only qualified personnel equipped with suitable protective equipment may intervene.
- Ventilate the area.

- Following decontamination, wait several hours before allowing anyone to enter the area.
- Material can create slippery conditions.

6.4 Reference to other sections

- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
  13. DISPOSAL CONSIDERATIONS

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

- Do not use sparking tools.
- Ensure all equipment is electrically grounded before beginning transfer operations.

- Handle in accordance with good industrial hygiene and safety practice.
- Avoid contact with skin and eyes.

- Do not ingest.
- Do not breathe vapors or spray mist.

- Handle in accordance with good industrial hygiene and safety practice.

- The product must only be handled by specifically trained employees.

- Provide sufficient air exchange and/or exhaust in work rooms.
- Vapor extraction at source
- Do not use in areas without adequate ventilation.
- Do NOT handle in a confined space.
- Extracted air must not be allowed to return to the workplace.
- - The product should only be used in areas from which all naked lights and other sources of ignition have been
- excluded.
- - Use explosion-proof electrical/ ventilating/ lighting/ equipment.
- - Take precautionary measures against static discharges.
- - Ground/bond container and receiving equipment.
- - To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.
- - Ensure all equipment is electrically grounded before beginning transfer operations.
- - Use only non-sparking tools.
- - Avoid high temperatures.
- - Wear personal protective equipment.
- - Wear suitable protective clothing.
- - Avoid inhalation, ingestion and contact with skin and eyes.
- - Do NOT handle without gloves.
- - Do NOT handle if hands have any cuts or wounds.
- - Avoid splashes.
- - Avoid formation of aerosol.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling these materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.

- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.
- The user is responsible for monitoring the working environment in accordance with local laws and regulations.

- Exposed employees should have regular medical check-ups

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Take appropriate measures to prevent static discharges, which may include thorough electrical interconnecting, grounding of equipment, and/or conveyance under inert gas.
- Vapour space above stored liquid may be flammable/explosive unless blanketed with inert gas.
- Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.
- Keep in a contained area
- The floor of the storage area should be impermeable and designed to form a water-tight basin.
- Keep locked up or in an area accessible only to qualified or authorized persons.
- Keep containers tightly closed in a dry, cool and well-ventilated place.
- Keep away from open flames, hot surfaces and sources of ignition.
- Keep away from incompatible materials to be indicated by the manufacturer

- Keep away from: Hazardous reactions may occur on contact with certain chemicals. (Refer to the list of incompatible materials section 10: "Stability-Reactivity").

Packaging material

Suitable material
- Electrical conducting materials

Unsuitable material
- Electrical insulating materials

7.3 Specific end use(s)

- no data available

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

Components	Value type	Value	Basis
Methanol	TWA	200 ppm 260 mg/m3	National Institute for Occupational Safety and Health
	Potential for dermal absorption		
Methanol	ST	250 ppm 325 mg/m3	National Institute for Occupational Safety and Health
	Potential for dermal absorption		

Methanol	**STEL**	**250 ppm**	**American Conference of Governmental Industrial Hygienists**
	Danger of cutaneous absorption		
Methanol	**TWA**	**200 ppm 260 mg/m3**	**Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants**
	The value in mg/m3 is approximate.		
Ethylene Glycol Monobutyl Ether	**TWA**	**5 ppm 24 mg/m3**	**National Institute for Occupational Safety and Health**
	Potential for dermal absorption		
Ethylene Glycol Monobutyl Ether	**TWA**	**20 ppm**	**American Conference of Governmental Industrial**
Ethylene Glycol Monobutyl Ether	**TWA**	**50 ppm 240 mg/m3**	**Occupational Safety and Health Administration**

Danger of cutaneous absorption
Skin designation

NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

Components	CAS-No.	Concentration
Methanol	67-56-1	6000 parts per million
Ethylene Glycol Monobutyl Ether	111-76-2	700 parts per million

Components	Value type	Value	Basis
Methanol	**BEI**	**15 mg/l Methanol Urine End of shift (As soon as possible after exposure ceases)**	**American Conference of Governmental Industrial Hygienists**
Ethylene Glycol Monobutyl Ether	**BEI**	**200 mg/g Creatinine Butoxyacetic acid (BAA) Urine End of shift (As soon as possible after exposure ceases)**	**American Conference of Governmental Industrial Hygienists**

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Xylenes (o-, m-, p- isomers) 1330-20-7	100 ppm TWA; 435 mg/m3 TWA	150 ppm STEL 100 ppm TWA	
Ethylbenzene 100-41-4	100 ppm TWA; 435 mg/m3 TWA	20 ppm TWA	NIOSH: 100 ppm TWA; 435 mg/m3 TWA 125 ppm STEL; 545 mg/m3 STEL

Biological Exposure Indices

With hydrolyses

8.2 Exposure controls

Control measures

Engineering measures

- Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures

- Effective exhaust ventilation system
- Ensure adequate ventilation.

- Extract at emission point.
- Ensure that extracted air cannot be returned to the workplace through the ventilation system.

- Use mechanical handling to reduce human contact with materials.
- Use closed processing systems or containment technologies.
- Avoid splashes.
- Avoid formation of aerosol.

Individual protection measures

Respiratory protection

- Recommended Filter type: Organic gas and low boiling vapor type
- This should be achieved by a good general extraction and -if practically feasible- by the use of a local exhaust ventilation.
- When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.
- If mist is formed:
- If vapor is released:
- Wear a positive-pressure supplied-air respirator with full facepiece.

Hand protection

- Where there is a risk of contact with hands, use appropriate gloves
- Gloves must be inspected prior to use.
- Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
- Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Suitable material

- butyl-rubber

Eye protection

- Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.
- Eye contact should be prevented through the use of:

- Tightly fitting safety goggles
- Face-shield

Skin and body protection

- Workers should wear antistatic footwear.
- Full protective suit
- Footwear protecting against chemicals
- Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling these materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

- The user is responsible for monitoring the working environment in accordance with local laws and regulations.

- Exposed employees should have regular medical check-ups

Protective measures

- Emergency equipment immediately accessible, with instructions for use.
- Ensure that eyewash stations and safety showers are close to the workstation location.
- Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards, and/or risks that may occur during use.

- Emergency equipment must be selected in accordance with current local regulations and in cooperation with the supplier of the protective equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid
ODOR: Acrid
ODOR THRESHOLD: Not available
COLOR: Off-white, opaque
pH: <2
PERCENT VOLATILE:
FLASH POINT: 70° F (21°C)
LEL: 1.00
AUTOIGNITION TEMPERATURE: Unknown
VAPOR PRESSURE: Not Available
VAPOR DENSITY: Not Available
MELTING POINT: Not available
FREEZING POINT: Not Available
POUR POINT: Not Available
THERMAL DECOMPOSITION: Not Available
SOLUBILITY IN WATER: Not Available
EVAPORATION RATE: Not Available
DENSITY: ND
SPECIFIC GRAVITY: ND
VISCOSITY #1:
(VOC):

10. STABILITY AND REACTIVITY

10.1 Reactivity
- Stable at normal ambient temperature and pressure.
10.2 Chemical stability
- Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
- Explosion possible with gas/vapor and air mixtures above flash point. Vapors may form explosive mixture with air.
10.4 Conditions to avoid
- Prevent the build-up of electrostatic charge.
- Avoid high temperatures.
- Keep away from open flames, hot surfaces and sources of ignition.
10.5 Incompatible materials
- Strong oxidizing agents

10.6 Hazardous decomposition products
- On combustion or on thermal decomposition (pyrolysis), releases:
- Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
- Nitrogen oxides (NOx)

- Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
Acute oral toxicity This product is classified as acute toxicity category 4
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Acute inhalation toxicity
Methanol LC50 - 4 h: > 115.9 mg/l - Rat, female
Unpublished reports
LC50 - 4 h (vapor) : 130.7 mg/l - Rat, male
Unpublished reports
Humans
Target Organs: Central nervous system, optic nerve
Symptoms: Inhalation may provoke the following symptoms, Dizziness, Nausea, acidosis, Blurred vision, Impairment of vision, Symptoms may be delayed.

This product is classified as acute toxicity category 3
Published data
Alkyl Phenol Ethoxylated No data available
Ethylene Glycol Monobutyl Ether LC50 - 4 h (vapor) : 2.2 mg/l - Rat , male and female
This product is classified as acute toxicity category 3
Acute dermal toxicity This product is classified as acute toxicity category 4
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Acute toxicity (other routes of administration)
Not applicable
Skin corrosion/irritation Irritating to skin.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Serious eye damage/eye irritation Risk of serious damage to eyes.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Respiratory or skin sensitization Does not cause skin sensitization.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Mutagenicity
Genotoxicity in vitro Product is not considered to be genotoxic
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Genotoxicity in vivo Product is not considered to be genotoxic
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Carcinogenicity The product is not considered to be carcinogenic.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
This product does not contain any ingredient designated as probable or suspected human carcinogens by:
NTP
IARC
OSHA
Toxicity for reproduction and development
Toxicity to reproduction / fertility the product is not considered to affect fertility.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Developmental Toxicity/Teratogenicity The product is not considered to be toxic for development.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
STOT
STOT-single exposure Routes of exposure: Inhalation, Skin contact, inhalation (vapor)
Target Organs: Central nervous system, optic nerve
The substance or mixture is classified as specific target organ toxicant, single exposure, category 1 according to GHS criteria.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
STOT-repeated exposure the substance or mixture is not classified as specific target organ toxicant, repeated exposure according to GHS criteria.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
The product itself has not been tested.
Experience with human exposure
Experience with human exposure: Inhalation
Methanol Target Organs: Central nervous system
Target Organs: optic nerve
Symptoms: Inhalation may provoke the following symptoms:

Dizziness
Nausea
acidosis
Blurred vision
Impairment of vision
Published data
Experience with human exposure: Ingestion
Methanol Target Organs: Central nervous system
Target Organs: optic nerve
Symptoms: Ingestion may provoke the following symptoms:
Dizziness
Nausea
acidosis
Abdominal pain
Vomiting
Central nervous system depression
Headache
Breathing difficulties
Impairment of vision
Blurred vision
Coma
Death
May cause respiratory arrest.
Poison may be fatal or cause blindness if swallowed.
Aspiration toxicity Not classified for aspiration toxicity according to GHS criteria
According to the available data on the components, According to the classification criteria for mixtures., internal evaluation

.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Aquatic Compartment
Acute toxicity to fish the product itself has not been tested. Global ecotoxicity assessment available below.
Acute toxicity to daphnia and other aquatic invertebrates
The product itself has not been tested. Global ecotoxicity assessment available below.
Toxicity to aquatic plants the product itself has not been tested. Global ecotoxicity assessment available below.
Toxicity to microorganisms the product itself has not been tested.
Chronic toxicity to fish the product itself has not been tested. Global ecotoxicity assessment available below.
Chronic toxicity to daphnia and other aquatic invertebrates
The product itself has not been tested. Global ecotoxicity assessment available below.
Sediment compartment
Toxicity to benthic organisms the product itself has not been tested.
Terrestrial Compartment
Toxicity to soil dwelling organisms the product itself has not been tested.
Toxicity to terrestrial plants The product itself has not been tested.
Toxicity to above ground organisms The product itself has not been tested.
M-Factor
Tall Oil Diethanolamide Acute aquatic toxicity = 1
(according to the Globally Harmonized System (GHS))
12.2 Persistence and degradability
Abiotic degradation
Stability in water Conclusion is not possible for a mixture as a whole.
Photodegradation Conclusion is not possible for a mixture as a whole.
Physical- and photo-chemical elimination
Physico-chemical removability Conclusion is not possible for a mixture as a whole.
Biodegradation
Biodegradability As (bio)degradability is not relevant for mixtures, all the components of the mixture were assessed individually (rapid degradability assessment available below).
Degradability assessment Conclusion is not possible due to incomplete or heterogeneous data on the

components
12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
Methanol Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.
Ethylene Glycol Monobutyl Ether Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

Bioconcentration factor (BCF) None of the components are considered to be potentially bioaccumulable
12.4 Mobility in soil
Adsorption potential (Koc) Conclusion is not possible for a mixture as a whole.
Known distribution to environmental compartments
Methanol Ultimate destination of the product: Air
Water
12.5 Results of PBT and vPvB assessment This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).
This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).
12.6 Other adverse effects
Ecotoxicity assessment
Short-term (acute) aquatic hazard Toxic to aquatic life.
According to the available data on the components.
According to the classification criteria for mixtures.
Unpublished reports and/or published data.
Long-term (chronic) aquatic hazard Toxic to aquatic life with long lasting effects.
According to the available data on the components.
According to the classification criteria for mixtures.

Unpublished reports and/or published data.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product Disposal
Prohibition
- Do not discharge directly into the environment.
- Do not dispose of with domestic refuse.
- Dispose of as hazardous waste in compliance with local and national regulations.
- Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Waste Code
- Environmental Protection Agency
- Hazardous Waste – YES
- RCRA Hazardous Waste (40 CFR 302)
- D001 - Ignitable waste – (I)

Advice on cleaning and disposal of packaging
Prohibition
- Do NOT dispose of untreated packaging with industrial waste.
- Do not dispose of with domestic refuse.
- Empty remaining contents.
- Clean using steam.
- Monitor the residual vapors.
- Dispose of rinse water in accordance with local and national regulations.
- Containers that cannot be cleaned must be treated as waste.
- Dispose of contents/ container to an approved waste disposal plant.
- Dispose of in accordance with local regulations.
- In accordance with IMDG regulations containers or tankers that have not been cleaned or deodorized and that previously contained a hazardous product, must either be labeled or have hazard signs.
- Where possible recycling is preferred to disposal or incineration.
- The recycled material must be completely dry and free of pollutants

14. TRANSPORT INFORMATION

UN CODE: UN1307	**UN CODE: UN1789**	**UN CODE: 1992**	**UN CODE: 1993**
DOT NAME: Xylene	**DOT NAME: Hydrochloric acid**	**DOT NAME: Methanol**	**DOT NAME: Isopropyl alcohol**
HAZARD CLASS: 3			

PACKAGE GROUP: II

UN CODE: N 3082

DOT NAME: Ethylene glycol

15. REGULATORY INFORMATION

15.1 Notification status
Inventory Information Status
United States TSCA Inventory - All substances listed as active on the
TSCA inventory
Canadian Domestic Substances List (DSL) - Listed on Inventory
Australia Inventory of Chemical Substances (AICS) - Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances - Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI) - Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC) - Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS) - Listed on Inventory
Taiwan Chemical Substance Inventory (TCSI) - Listed on Inventory
New Zealand. Inventory of Chemical Substances - All components are listed on the NZIOC inventory. The HSNO status of the
product has not been assessed.
EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)
- When purchased from a Solvay legal
entity based in the EEA ("European
Economic Area"), this product is
compliant with the registration provisionsof the REACH Regulation (EC) No. 1907/2006 as all its components are
either excluded, exempt, and/or
registered. When purchased from a legal
entity outside of the EEA, please contact
your local representative for additional
information.

15.2 Federal Regulations
US. EPA EPCRA SARA Title III
SARA Hazard Designation Sections 311/312 (40 CFR 370)
Flammable (gases, aerosols, liquids, or solids) Yes
Acute toxicity (any route of exposure) Yes
Skin corrosion or irritation Yes
Serious eye damage or eye irritation Yes
Specific target organ toxicity (single or repeated exposure) Yes
The categories not mentioned are not relevant for the product.
Section 313 Toxic Chemicals (40 CFR 372.65)
The following components are subject to reporting levels established by SARA Title III, Section 313:
Components CAS-No. Concentration
Methanol 67-56-1 20- 25%
Ethylene Glycol Monobutyl Ether 111-76-2 5- 10%
Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)
This material does not contain any components with a section 302 EHS TPQ.
Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)
Components CAS-No. Reportable quantity
Ethylene Oxide 75-21-8 10 lb
Calculated RQ exceeds reasonably attainable upper limit.
Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)
Components CAS-No. Reportable quantity
Ethylene Oxide 75-21-8 10 lb
Calculated RQ exceeds reasonably attainable upper limit.
US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)
Components CAS-No. Reportable quantity
Methanol 67-56-1 5000 lb
Calculated RQ exceeds reasonably attainable upper limit.
15.3 State Regulations
US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)
This product can expose you to chemicals including 1,4-Dioxane (CAS # 123-91-1), Acetaldehyde (CAS # 75-07-0), Ethylene Oxide (CAS # 75-21-8) , which is/are known to the State of California to cause cancer, and
This product can expose you to chemicals including Methanol (CAS # 67-56-1), Ethylene Oxide (CAS # 75-21-8) , which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

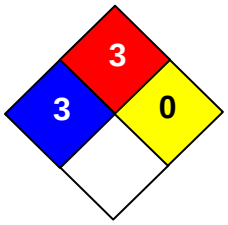
16. OTHER INFORMATION

REASON FOR ISSUE: Original Version
APPROVED BY: Eric Baldridge
TITLE: QHS&E Director
PREPARED BY: Eric Baldridge
DATE PREPARED: 06/07/2022
DATE REVISED:
REV:

HMIS RATING

HEALTH	3
FLAMMABILITY	3
Reactivity	0

NFPA CODES



MANUFACTURER DISCLAIMER: The information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modification of the information, we do not assume any responsibility for the result of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Attachment 3
CUDD Post Job Report

CPS Treatment Report

Page 1

Customer:	HF SINCLAIR	ESO#:	EAN5DKA2Y4
Well Name & No.:	WDW 004	Formation:	
County:	EDDY	Date:	August 7, 2025
State:	NEW MEXICO	Well type:	Oil / Old / Stim.

Customer Information

Address:	2828 N. HARWOOD
City, State:	DALLAS TEXAS
Zip Code:	75201
Customer Rep.:	CAMERON KERR

CUDD ENERGY SERVICES

Fluid Volumes:

Remarks:

Arrive Location:	12:00PM
Depart Location:	
Total Hours:	#VALUE!

		O.D	Weight	I.D		Volume	Bbls/linear ft.
Tubing 1 length ft.:	10,330	7	26	6.276		395.24 BBLS.	0.03826
Tubing 2 length ft.:						0.00 BBLS.	0.00000
Casing 1 length ft.:		5 1/2	15.5	4.950		0.00 BBLS.	0.02380
Casing 2 length ft.:						0.00 BBLS.	0.00000
Open Hole length ft.:		N/A	N/A			0.00 BBLS.	0.00000
Combined Depth ft.:					Annular Vol.: #	0.00 BBLS.	-0.02380

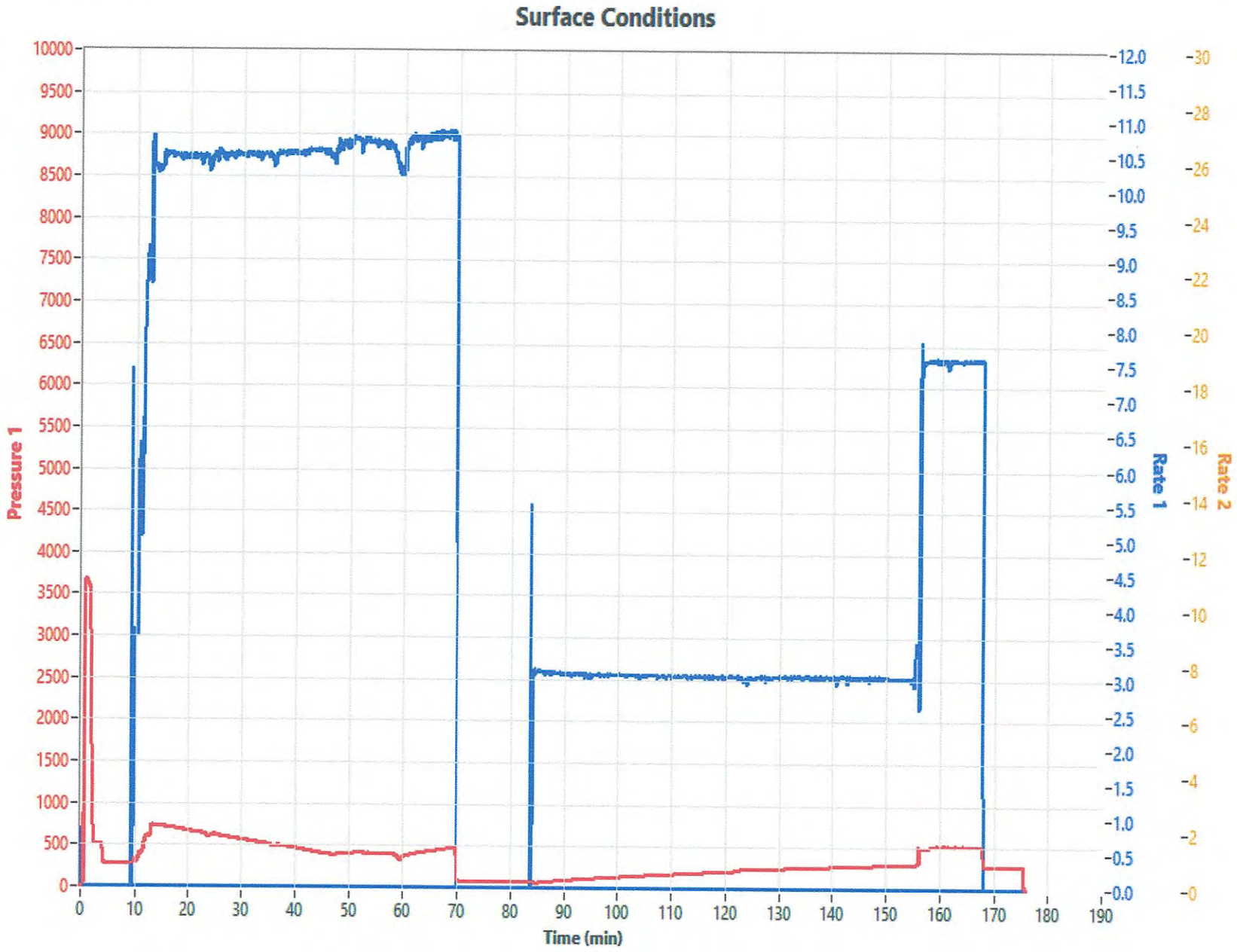
	Depth	Vol.				
Top Perf/Open Hole:			Maximum Pressure:	721	ISIP:	359
Bottom Perf/Open Hole:			Average Pressure:	413	5 MIN:	270
Number of Perfs:			Maximum Rate:	10.8	10 MIN:	
Perf Size:		in.	Average Rate:	7.5	15 MIN:	
Packer Depth:		ft.	Fluid to Recover:	934.0	SALT / BALLS:	

Time	Pressure 1	Pressure 2	Rate	Stage	Total	Comments
6:00AM					0.0	SAFETY MEETING
1:55PM	3683				0.0	TEST LINES OPEN PSI 278
2:06PM	721		10.3	50.0	50.0	START ON ACID
2:19PM	665		10.5	50.0	100.0	RATE&PSI CHECK
2:24PM	656		10.5	50.0	150.0	RATE&PSI CHECK
2:26PM	526		10.5	50.0	200.0	RATE&PSI CHECK
2:34PM	521		10.5	50.0	250.0	RATE&PSI CHECK
2:39PM	499		10.5	50.0	300.0	RATE&PSI CHECK
2:44PM	436		10.5	50.0	350.0	RATE&PSI CHECK
2:48PM	394		10.5	50.0	400.0	RATE&PSI CHECK
2:53PM	400		10.5	50.0	450.0	RATE&PSI CHECK
2:59PM	386		10.7	63.0	513.0	START ON FLUSH 513BBLS
3:04PM	397		10.8	50.0	563.0	RATE&PSI CHECK
3:09PM	472		10.8	60.0	623.0	RATE&PSI CHECK
3:40PM	117		3.0	50.0	673.0	RATE&PSI CHECK
3:52PM	178		3.0	37.0	710.0	RATE&PSI CHECK
3:58PM	199		3.0	20.0	730.0	RATE&PSI CHECK
4:02PM	210		3.0	20.0	750.0	RATE&PSI CHECK
4:13PM	249		3.0	25.0	775.0	RATE&PSI CHECK
4:20PM	263		3.0	25.0	800.0	RATE&PSI CHECK
4:27PM	281		3.0	20.0	820.0	RATE&PSI CHECK
4:32PM	290		3.0	10.0	830.0	RATE&PSI CHECK
4:39PM	520		7.5	40.0	870.0	RATE&PSI CHECK
4:44PM	516		7.6	30.0	900.0	RATE&PSI CHECK
4:46PM	519		7.6	20.0	920.0	RATE&PSI CHECK
4:47PM	515		7.6	13.0	933.0	RATE&PSI CHECK 420 BBLS
4:48PM	359					
4:53PM						

HF SINCLAIR

WDW 004 Stage 1

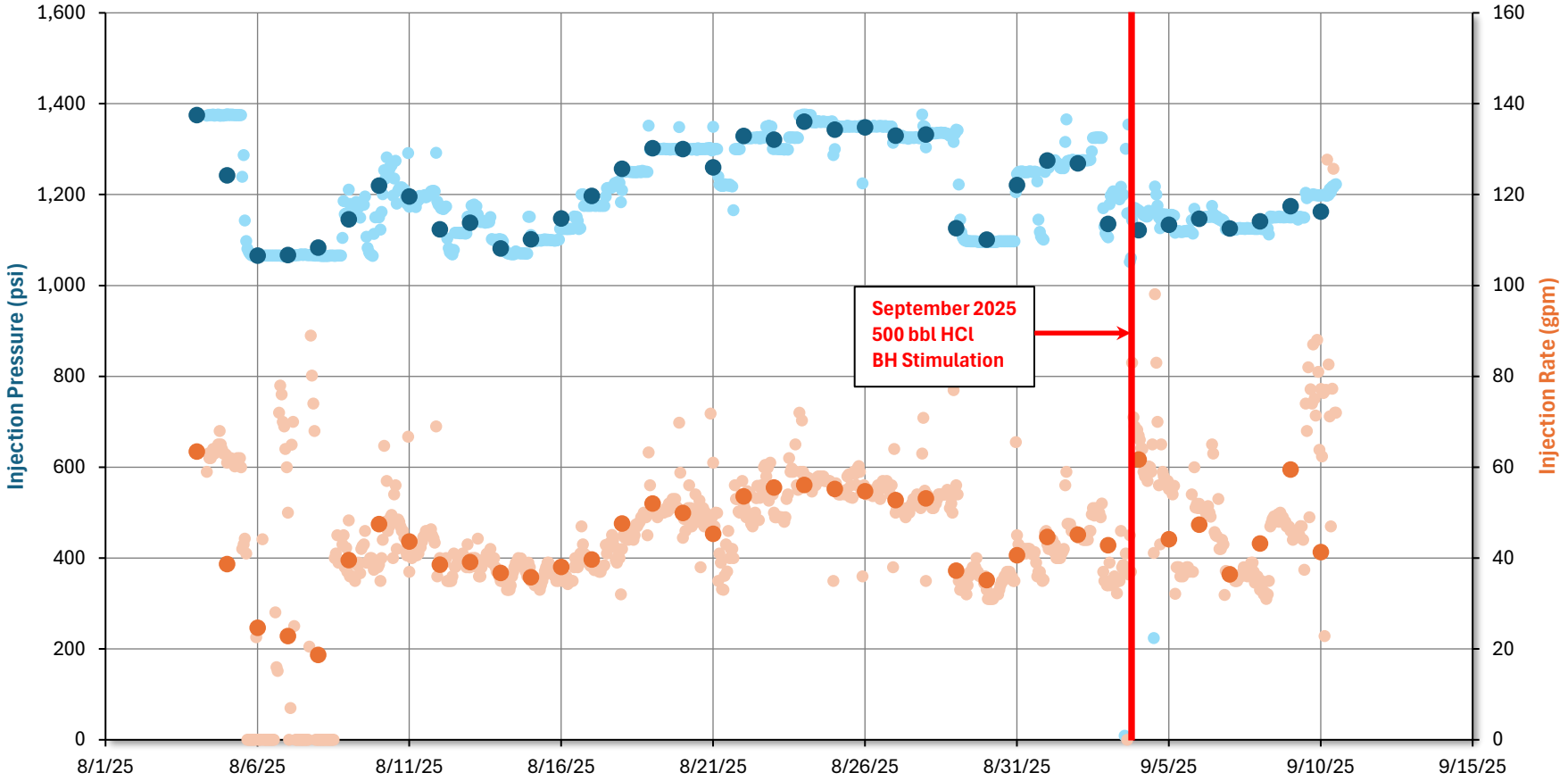
8/7/2025



HF Sinclair Pre/Post-Stimulation Assessment

November 13, 2025

HF Sinclair WDW-1 Performance 08/04/2025 - 09/10/2025



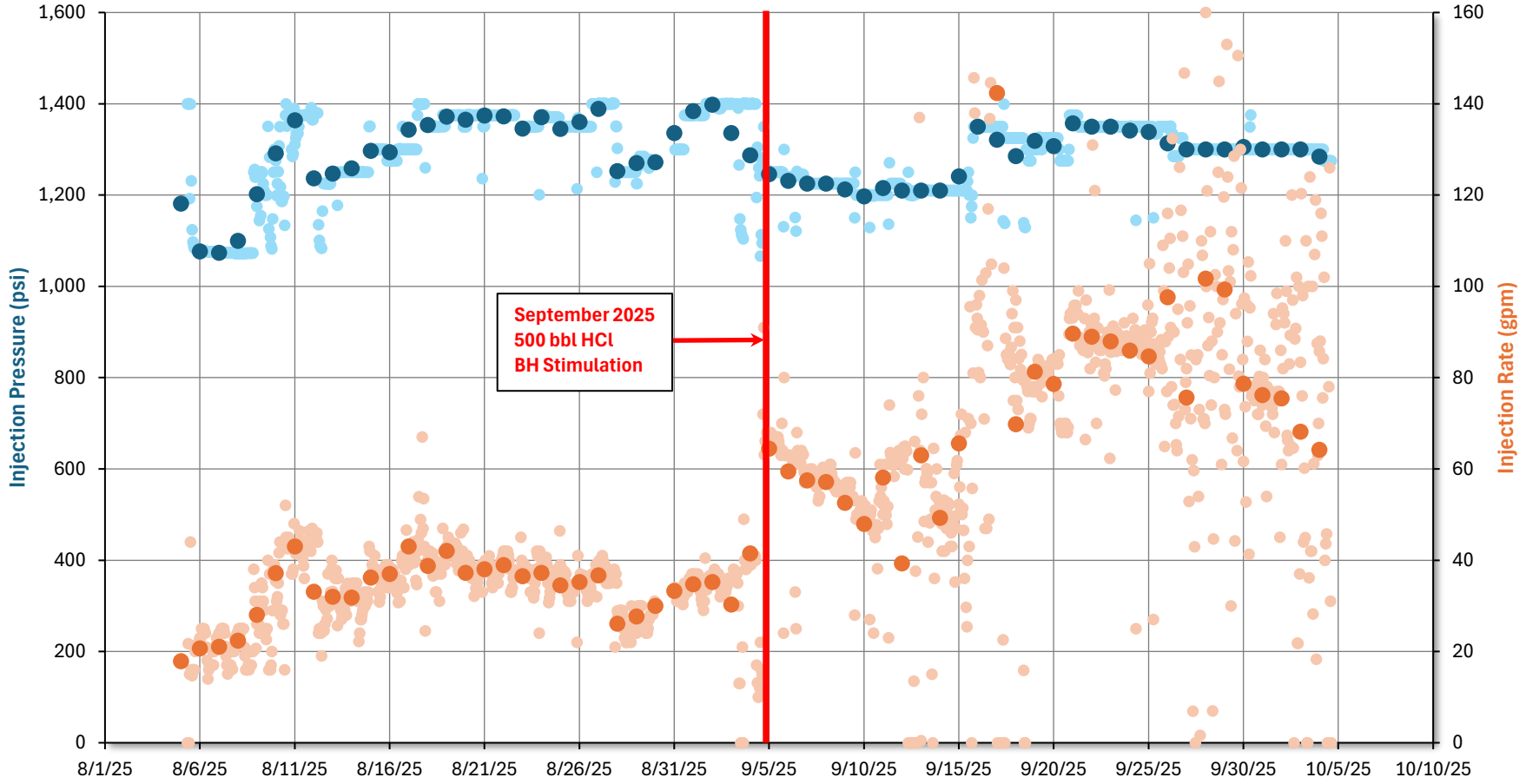
Stim Date	9/3/2025
Monthly Average Pre-Stim Rate (gpm)	43.2
Weekly Average Post-Stim Rate (gpm)	51.6
Monthly Average Pre-Stim Surface Pressure (psi)	1,220
Weekly Average Post-Stim Surface Pressure (psi)	1,147
Incremental Injection Rate +/- (gpm)	**8.4**
Injection Rate Percentage Increase	**20%**
Incremental Surface Pressure +/- (psi)	**-73.3**
Surface Pressure Percentage Decrease	**-6%**

*Arithmetic averages derived from reported hourly data.

*WDW-1 Shut-In 9/10/2025 ~ 1 week post-stimulation.

Petrotek

HF Sinclair WDW-2 Performance 08/05/2025 - 10/04/2025

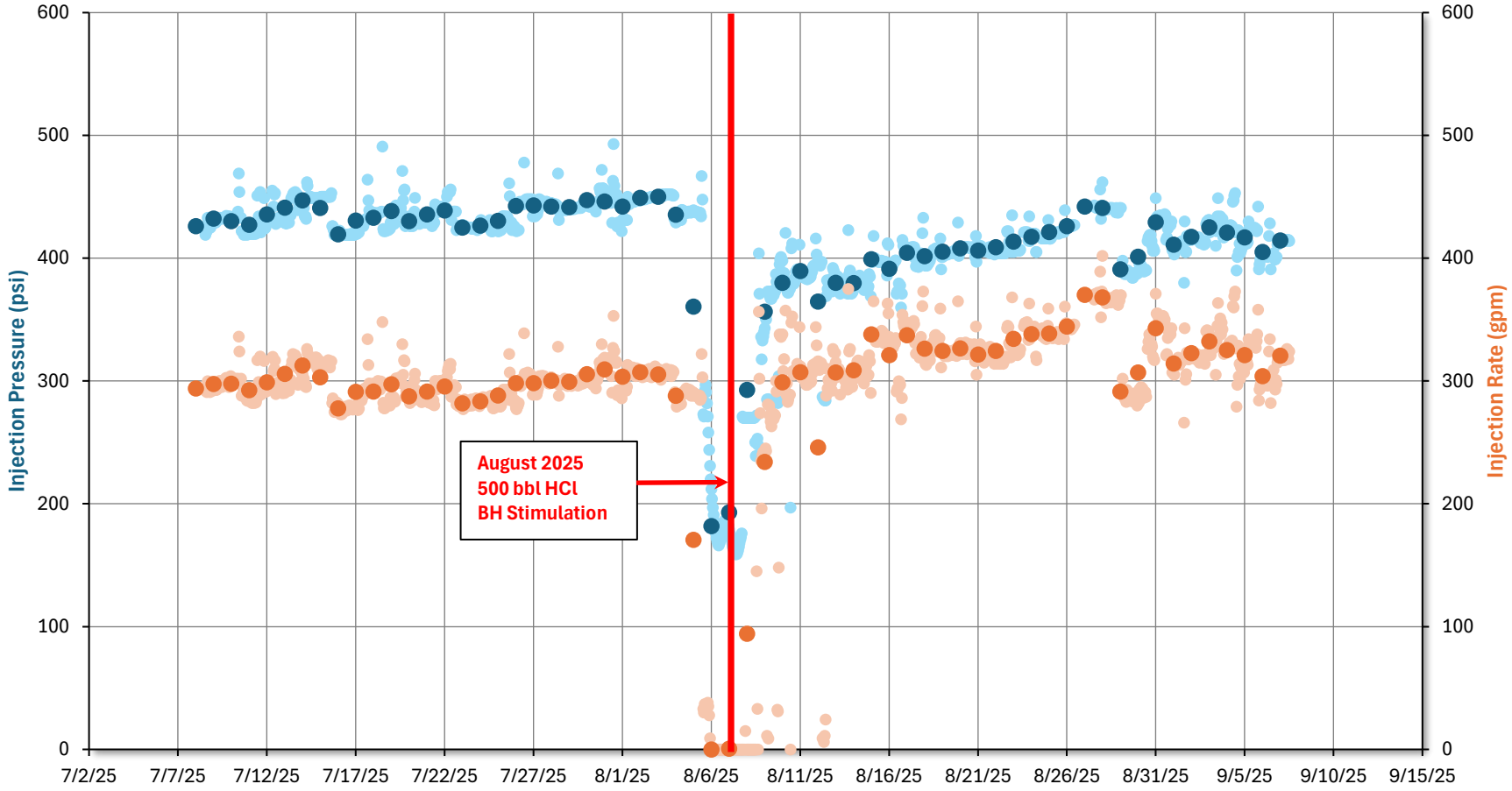


Stim Date	9/4/2025
Monthly Average Pre-Stim Rate (gpm)	33.5
Monthly Average Post-Stim Rate (gpm)	78.7
Monthly Average Pre-Stim Surface Pressure (psi)	1,298
Monthly Average Post-Stim Surface Pressure (psi)	1,281
Incremental Injection Rate +/- (gpm)	**45.2**
Injection Rate Percentage Increase	**135%**
Incremental Surface Pressure +/- (psi)	**-16.4**
Surface Pressure Percentage Decrease	**-1%**

*Arithmetic averages derived from reported hourly data.

Petrotek

HF Sinclair WDW-4 Performance 07/08/2025 - 09/07/2025



Stim Date	8/7/2025
Monthly Average Pre-Stim Rate (gpm)	277.1
Monthly Average Post-Stim Rate (gpm)	316.1
Monthly Average Pre-Stim Surface Pressure (psi)	421
Monthly Average Post-Stim Surface Pressure (psi)	403
Incremental Injection Rate +/- (gpm)	**39.0**
Injection Rate Percentage Increase	**14%**
Incremental Surface Pressure +/- (psi)	**-18.3**
Surface Pressure Percentage Decrease	**-4%**

*Arithmetic averages derived from reported hourly data.

Petrotek

Pre/Post-Stimulation Summary:

Well No.	WDW-1	WDW-2	WDW-4
Stim Date	9/3/2025	9/4/2025	8/7/2025
Monthly Average Pre-Stim Rate (gpm)	43.2	33.5	277.1
Monthly Average Post-Stim Rate (gpm)	51.6	78.7	316.1
Monthly Average Pre-Stim Surface Pressure (psi)	1,220	1,298	421
Monthly Average Post-Stim Surface Pressure (psi)	1,147	1,281	403
Incremental Injection Rate +/- (gpm)	**8.4**	**45.2**	**39.0**
Injection Rate Percentage Increase	**20%**	**135%**	**14%**
Incremental Surface Pressure +/- (psi)	**-73.3**	**-16.4**	**-18.3**
Surface Pressure Percentage Decrease	**-6%**	**-1%**	**-4%**

*Arithmetic averages derived from reported hourly data.

*WDW-1 Shut-In 9/10/2025 ~ 1 week post-stimulation.

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

COMMENTS

Action 505348

COMMENTS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 505348
	Action Type: [C-103] Sub. General Sundry (C-103Z)

COMMENTS

Created By	Comment	Comment Date
cchavez	Bullhead Well Stimulation 2025	12/11/2025

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CONDITIONS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 505348
	Action Type: [C-103] Sub. General Sundry (C-103Z)

CONDITIONS

Created By	Condition	Condition Date
cchavez	None	12/11/2025