



Technical
Report

**DEEPWELL STIMULATION REPORT
CLASS I NON-HAZARDOUS DEEPWELL**

WDW-1
(OCD UIC Permit: UICI-008-1)
(API Number: 30-015-27592)



Navajo Refining Company
Artesia, New Mexico

Section 31, Township 17S, Range 28E
659 FSL, 2377 FEL

October 2025

5935 South Zang Street, Suite 200
Littleton, Colorado 80127
Phone: (303) 290-9414
Fax: (303) 290-9580

TECHNICAL REPORT
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1.0 INTRODUCTION

This report summarizes the stimulation activities performed on the WDW-1 well at the HF Sinclair Navajo Refining Company (HFSNR) facility in Artesia, New Mexico on September 3, 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 August 27, 2025. OCD approved the Stimulation Plan in correspondence dated August 27, 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-1 via 4 ½-inch diameter 11.6 lb/ft, L-80 steel injection tubing.

The annulus area between the protective casing and injection tubing is filled with brine and corrosion inhibitor. 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-1. Cameron Kerr of Petrotek supervised all field activities. On September 2, 2025, CUDD Pressure Control (CUDD) mobilized a pump truck, acid transports, and associated equipment to location. On September 3, 2-inch 1502 iron was rigged up to the 2 3/8-inch swab valve connection.

The following provides a summary of the work performed on WDW-1, presented in chronological order.

On September 3, approximately 508 bbls of 15% HCl plus additives were pumped from surface. The injection tubing was displaced with 100 bbls of fresh water and approximately 35 bbls of HFSNR injectate. The treatment was left to soak for approximately one hour before HFSNR resumed injection operations on WDW-1. Table 1 presents the approximate 15% HCl solution and additive quantities pumped on September 3.

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 Table 1 is presented as Attachment 2.

During the stimulation, the acid blend was pumped at a rate of approximately 4 barrels per minute and below the maximum allowable surface injection pressure of 1,431 psig calculated for the specific gravity of the acid blend of 1.051, consistent with the Oil Conservation Division Underground Injection Control Permit UICI-008-1. Wellhead pressures ranged from 1,170 to 1,347 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 the WDW-1 bullhead stimulation.

Tuesday, September 2, 2025

Petrotek and CUDD mobilized to Artesia, NM. CUDD completed site-specific safety training for contractor access to WDW-1 location.

Wednesday, September 3, 2025

Arrived on location at 0715 hours and conducted tailgate safety meeting and completed JHA for approved procedures.

Acquired safe work permit from operations department at 1010 hours, well shut-in at 1220 hours.

Rigged up pump truck, acid transports, and manifold 1502 iron to wellhead. Pressure tested iron and CUDD equipment and lines to 1,892 psig. No leaks observed. Opened well at 1305 hours at 1,100 psig and started on acid. Pumped approximately 508 bbls of 15% HCl with additives and displaced injection tubing with 100 bbls fresh water. Shut-in well at 1602 hours with an initial shut-in pressure of 1,233 psig. Flushed 1502 iron back to acid transports with fresh water. Rigged down 1502 iron from wellhead and secured acid transports and pump truck. At 1710 hours, HFSNR operators opened the well and flushed the tubing with approximately 35 bbls of HFSNR injectate. Shut-in well at 1750 hours for one-hour soak. Well back online at 1850 hours, secured location, returned control of well to HFSNR.

SDFN at 1900 hours.

ATTACHMENTS

Petrotek

Attachment 1 OCD Notification and Approval Correspondence

Petrotek

From: [Alba, Teresa](#)
To: [Chavez, Carl, EMNRD](#)
Cc: [Ken Schlieper](#); [Jeremiah Demuth](#); [Cameron Kerr](#); [Lee Shafer](#); [Holder, Mike](#); [Paudel, Shreejaya](#)
Subject: HFNSR: C-103 Forms for WDW-1 and WDW-2 Bullhead Acid Stimulations
Date: Wednesday, August 27, 2025 10:48:48 AM

External sender <teresa.alba@hfsinclair.com>
Make sure you trust this sender before taking any actions.

Hi Carl,

The C-103 forms for WDW-1 and WDW-2 Bullhead Acid Stimulations were uploaded to the OCD portal today. Action IDs listed below:

- WDW-1: Action ID 499720
- WDW-2: Action ID 499724

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



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Ken Schlieper

From: OCDOnline@state.nm.us
Sent: Wednesday, August 27, 2025 2:11 PM
To: Alba, Teresa
Subject: [EXTERNAL Email]: The Oil Conservation Division (OCD) has approved the application, Application ID: 499720

CAUTION: This email originated from outside of the HF Sinclair organization. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

To whom it may concern (c/o Teresa Alba for HF Sinclair Navajo Refining LLC),

The OCD has approved the submitted *Subsequent Report - Remedial Workover* (C-103R), for API number (30-#) 30-015-27592,
with the following conditions:

- **None**

The signed C-103R can be found in the OCD Online: Imaging under the API number (30-#).

If you have any questions regarding this application, please contact me.

Thank you,
Carl Chavez
Environmental Engineer
505-660-7923
CarlJ.Chavez@emnrd.nm.gov

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

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

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

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.)		WELL API NO. 30-015-27592
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other: INJECTION WELL		5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
2. Name of Operator HF SINCLAIR NAVAJO REFINING LLC		6. State Oil & Gas Lease No. B-2071-28
3. Address of Operator 501 E Main St., Artesia, NM 88210		7. Lease Name or Unit Agreement Name Mewbourne WDW-1
4. Well Location Unit Letter: <u>O</u> ; <u>659</u> feet from the <u>South</u> line and <u>2,377</u> feet from the <u>East</u> line Section <u>31</u> Township <u>17S</u> Range <u>28E</u> NMPM County: <u>EDDY</u>		8. Well Number: WDW-1
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3,603.3' GL		9. OGRID Number: 15694 / 255554
		10. Pool name or Wildcat 96918 Navajo Permo-Penn

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

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

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-1 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 from the tubing with approximately 125 bbls of fresh water or injectate. The well will either soak for a period of time or immediately resume injection.

NOTE: Work is expected to be performed during September 2025, pending contractor availability.

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



TITLE Environmental Manager

DATE

8-27-25

Type or print name Case Hinkins E-mail address: case.hinkins@hfsinclair.com PHONE: 575-746-5399

For State Use Only

APPROVED BY:

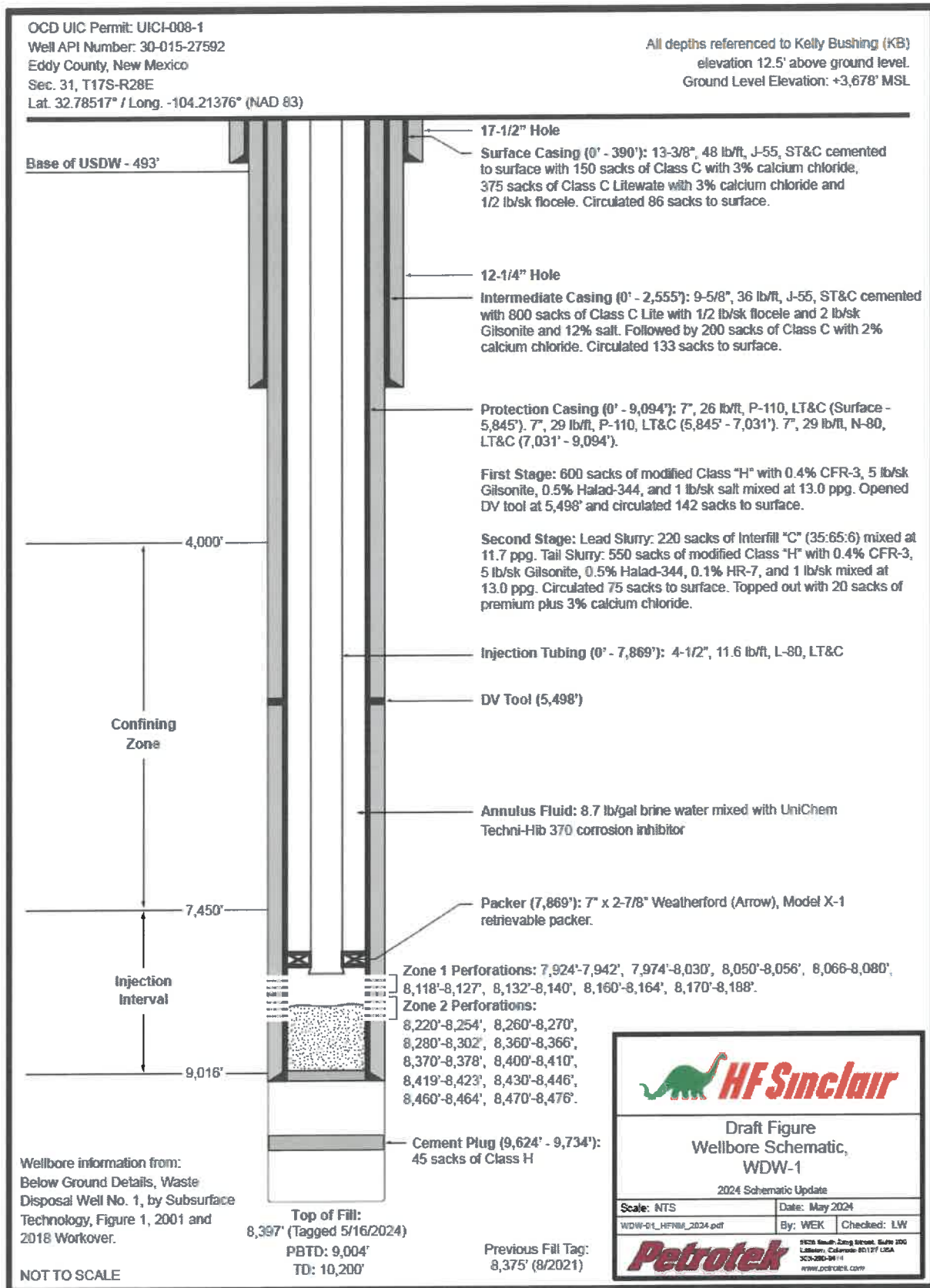
TITLE

DATE

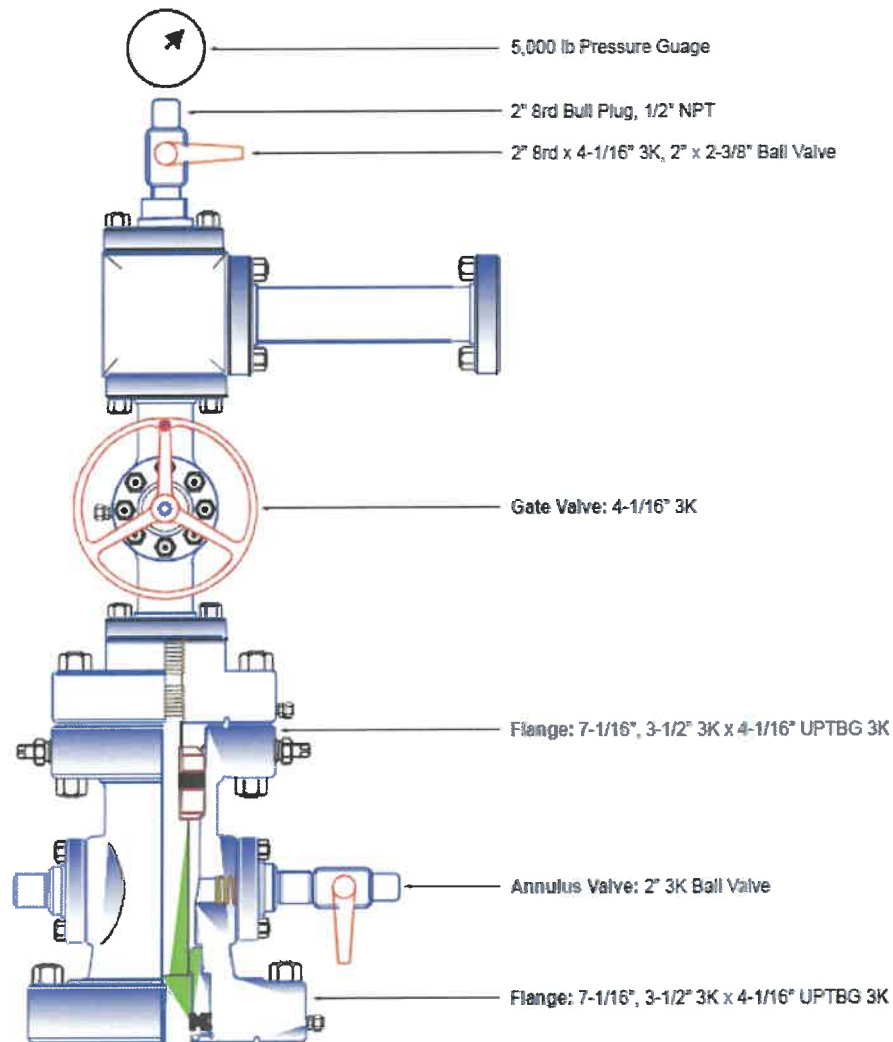
Conditions of Approval (if any):

2025 HF Sinclair Navajo Refining WDW-1 Bullhead Acid Stimulation Job Procedures		
Step No.	~ Time	Description
1	0700	Arrive at WDW-1 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-1, pressure test 1502 iron to 2,000 psi with fresh water from Pressure Services LLC; MASIP: 1,585 psi with site waste; well is currently operating at ~ 55 gpm / 1,350 psi whp; anticipating max treatment rate of ~ 80 - 120 gpm (~2.0 - 3.0 bpm)
	1400	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 125 bbls of fresh water or HFSNR injectate, shut in and soak for 1 hour
	1500	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-088-1
 Well API Number: 30-015-27592
 Eddy County, New Mexico
 Sec. 31, T17S-R28E
 Lat. 32.78517° / Long. -104.21376° (NAD 83)



Well Head information partially
 from: Figure 5, Mewbourne Well
 No. 1 Wellhead Schematic by
 Superior Wellhead.

NOT TO SCALE

	
Figure 2 WDW No. 1, Wellhead Schematic	
2024 FOT/MT Report	
Scale: NTS	Date: June 2024
Fig. 02_WF_Artists_2024_WDWL_01.pdf	By: WEK Checked: LW
	
24931 South Zang Street, Suite 200 Lubbock, Colorado 80121 USA 800-280-9414 www.petrotek.com	



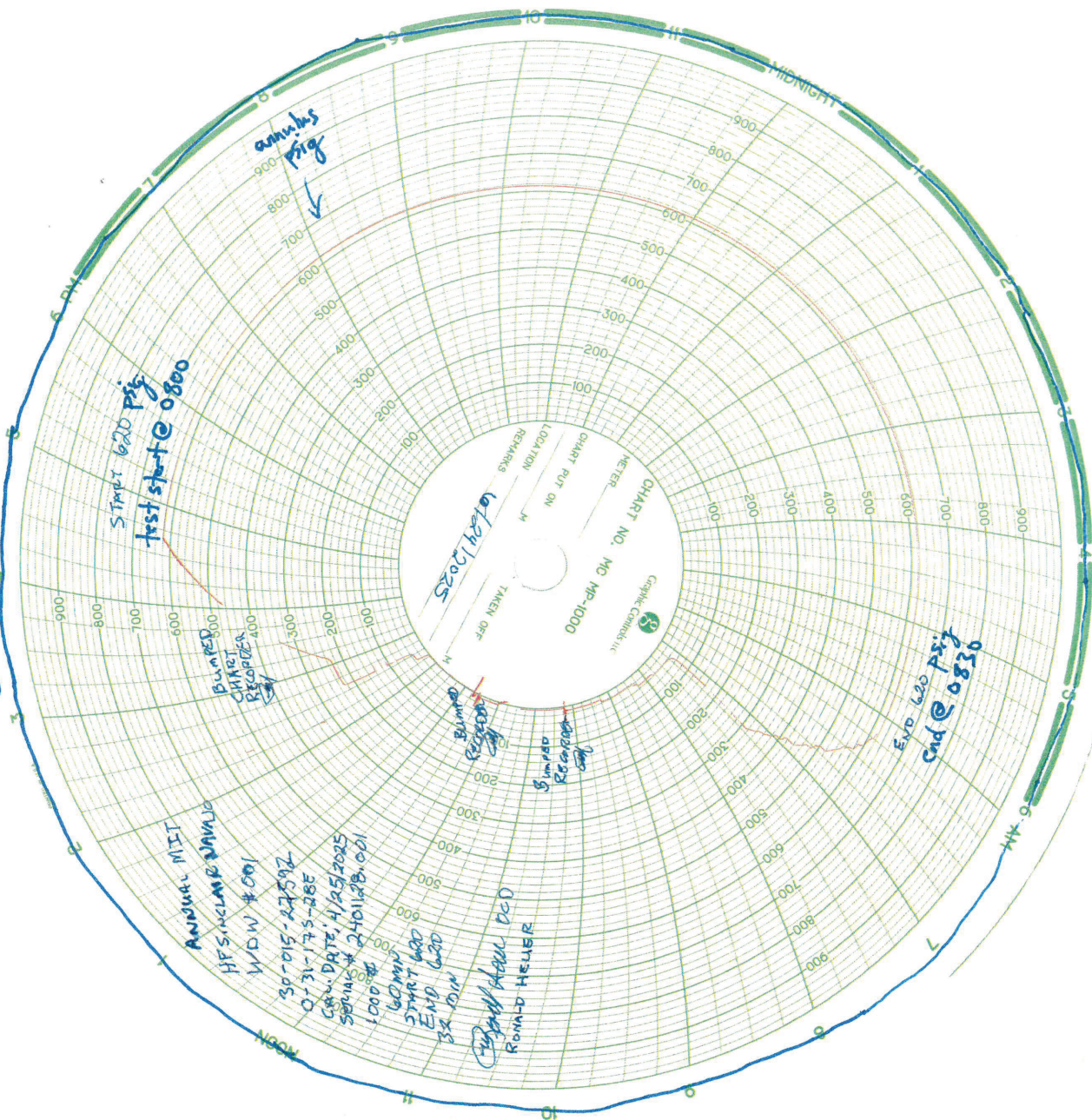
HF Sinclair Navajo Refinery
Tubular Table WDW-1
MASIP: 1,585

Casing Information														
Depth	Size [in.]	Weight	Material	Grade	Connection	Burst	70% Burst	Collapse	ID [in.]	Drift	BBL/ft	cu ft/ft	Coupling OD [in.]	Casing Vol [bbls]
9,094	7	26	CS	P-110	LTC	9,960	6,972	6,210	6.276	6.151	0.0383	0.2148	7.875	348
Injection Tubing														
Depth	Size [in.]	Weight	Material	Grade	Connection	Burst	70% Burst	Collapse	ID [in.]	Drift	BBL/ft	cu ft/ft	Coupling OD [in.]	Casing Vol [bbls]
7,869	4 1/2	11.6	CS	L-80	LTC	10,480	7,336	6,350	4	2.867	0.0155	0.0873	5	122
												Volume to top perf: 124.4		

- 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'

WDW - 1

1 hr chart →



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 499720

COMMENTS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 499720
	Action Type: [C-103] Sub. Workover (C-103R)

COMMENTS

Created By	Comment	Comment Date
cchavez	WDW-1 C-103R Bulkhead Well Stimulation	8/27/2025

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

CONDITIONS

Action 499720

CONDITIONS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 499720
	Action Type: [C-103] Sub. Workover (C-103R)

CONDITIONS

Created By	Condition	Condition Date
cchavez	None	8/27/2025

Attachment 2

Safety Data Sheet: Acid Blend

Petrotek

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

Acute toxicity, Category 4

Acute toxicity, Category 3

Acute toxicity, Category 3

Skin irritation, Category 2

Serious eye damage, Category 1

Specific target organ toxicity – single exposure

H225: Highly flammable liquid and vapor

H302: Harmful if swallowed

H331: Toxic in contact with skin

H331: Toxic if inhaled.

H315: Causes skin irritation.

H318: Causes serious eye damage.

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 if 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 SYMPTOMS 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 (CO₂)
- 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 (NO_x)
- 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 Hygienists
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 provisions of 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.

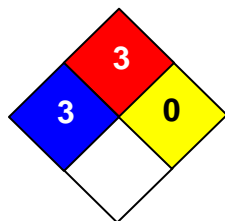
15.3 State Regulations**US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)**

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.

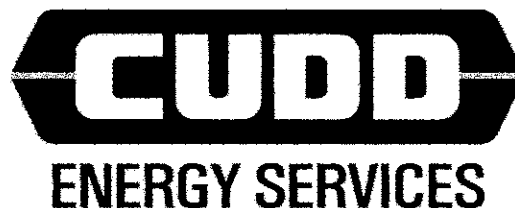
Attachment 3 CUDD Post Job Report

Petrotek

CPS Treatment Report

Customer: HF SINCLAIR	ESO#: EAN5DL4THY
Well Name & No.: WDW 001	Formation:
County: EDDY	Date: September 3, 2025
State: NEW MEXICO	Well type: Disposal Old / Stim.

Customer Information	
Address: P.O. BOX 4618	
City, State: ODESSA TEXAS	
Zip Code: 79760	
Customer Rep.: CAMERON KERR	



Fluid Volumes:	Remarks:

Arrive Location: 10:00AM
Depart Location:
Total Hours: #VALUE!

	O.D	Weight	I.D	Volume	Bbls/linear ft.
Tubing 1 length ft.:	7	26	6.276	0.00 BBLS.	0.03826
Tubing 2 length ft.:				0.00 BBLS.	0.00000
Casing 1 length ft.:	7,869	4 1/2	11.6	122.30 BBLS.	0.01554
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.:				0.00 BBLS.	-0.03206
Annular Vol. #					

Top Perf/Open Hole:	Depth	Vol.	Maximum Pressure: 1380	ISIP: 1,280
Bottom Perf/Open Hole:			Average Pressure: 1280	5 MIN:
Number of Perfs:			Maximum Rate: 4.0	10 MIN:
Perf Size:	in.		Average Rate: 3.7	15 MIN:
Packer Depth:	ft.		Fluid to Recover: 608.0	SALT / BALLS:

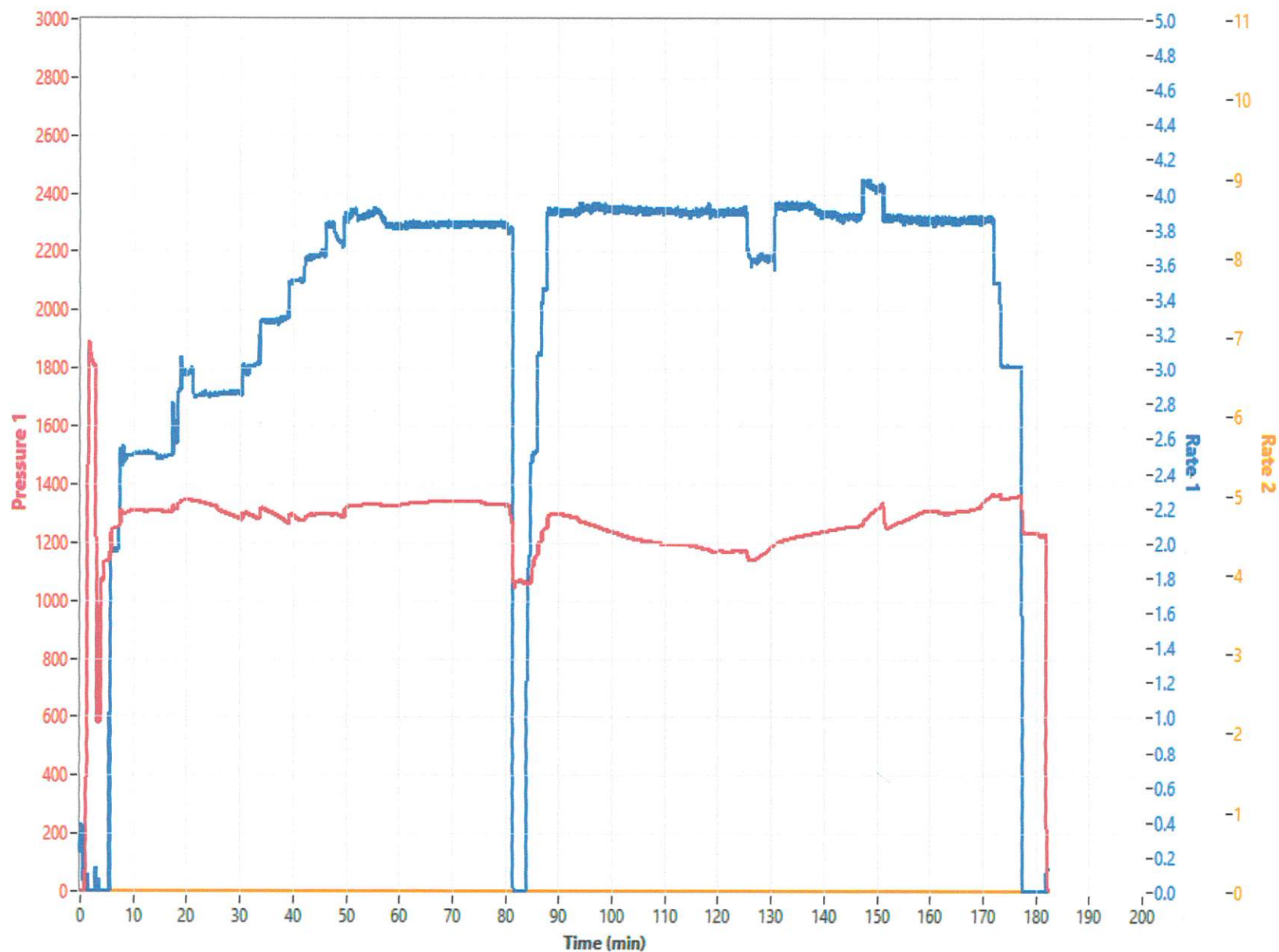
Time	Pressure 1	Pressure 2	Rate	Stage	Total	Comments
1:50PM					0.0	SAFETY MEETING
2:00PM	1892				0.0	TEST LINES OPEN PSI 1114
2:05PM	1310		2.5	20.0	20.0	START ON ACID 508BBLS
2:25PM	1347		3.0	20.0	40.0	RATE&PSI CHECK
2:32PM	1293		3.0	20.0	60.0	RATE&PSI CHECK
2:39PM	1316		3.3	20.0	80.0	RATE&PSI CHECK
2:42PM	1297		3.5	20.0	100.0	RATE&PSI CHECK
2:50PM	1297		3.7	20.0	120.0	RATE&PSI CHECK
2:55PM	1293		3.7	20.0	140.0	RATE&PSI CHECK
3:01PM	1322		3.9	20.0	160.0	RATE&PSI CHECK
3:06PM	1334		3.9	20.0	180.0	RATE&PSI CHECK
3:11PM	1340		3.9	20.0	200.0	RATE&PSI CHECK
3:17PM	1342		3.8	20.0	220.0	RATE&PSI CHECK
3:22PM	1329		3.8	20.0	240.0	RATE&PSI CHECK
3:30PM	1246		3.5	20.0	260.0	SHUT DOWN FLUSH BACK
3:36PM	1297		4.0	20.0	280.0	TWO TRANSPORTS
3:40PM	1273		4.0	20.0	300.0	RATE&PSI CHECK
3:45PM	1250		4.0	20.0	320.0	RATE&PSI CHECK
3:51PM	1215		4.0	20.0	340.0	RATE&PSI CHECK
3:56PM	1193		4.0	20.0	360.0	RATE&PSI CHECK
4:02PM	1178		4.0	20.0	380.0	RATE&PSI CHECK
4:07PM	1170		4.0	20.0	400.0	RATE&PSI CHECK
4:12PM	1170		4.0	20.0	420.0	RATE&PSI CHECK
4:16PM	1203		4.0	20.0	440.0	RATE&PSI CHECK
4:23PM	1234		4.0	20.0	460.0	RATE&PSI CHECK
4:28PM	1253		4.0	20.0	480.0	RATE&PSI CHECK
4:33PM	1313		4.0	28.0	508.0	RATE&PSI CHECK
4:44PM	1309		4.0	40.0	548.0	START ON FLUSH 100BBLS
4:55PM	1380		4.0	40.0	588.0	RATE&PSI CHECK
5:01PM	1360		3.0	20.0	608.0	RATE&PSI CHECK
5:01PM	1280					SHUT DOWN

HF SINCLAIR

WDW 001 Stage 1

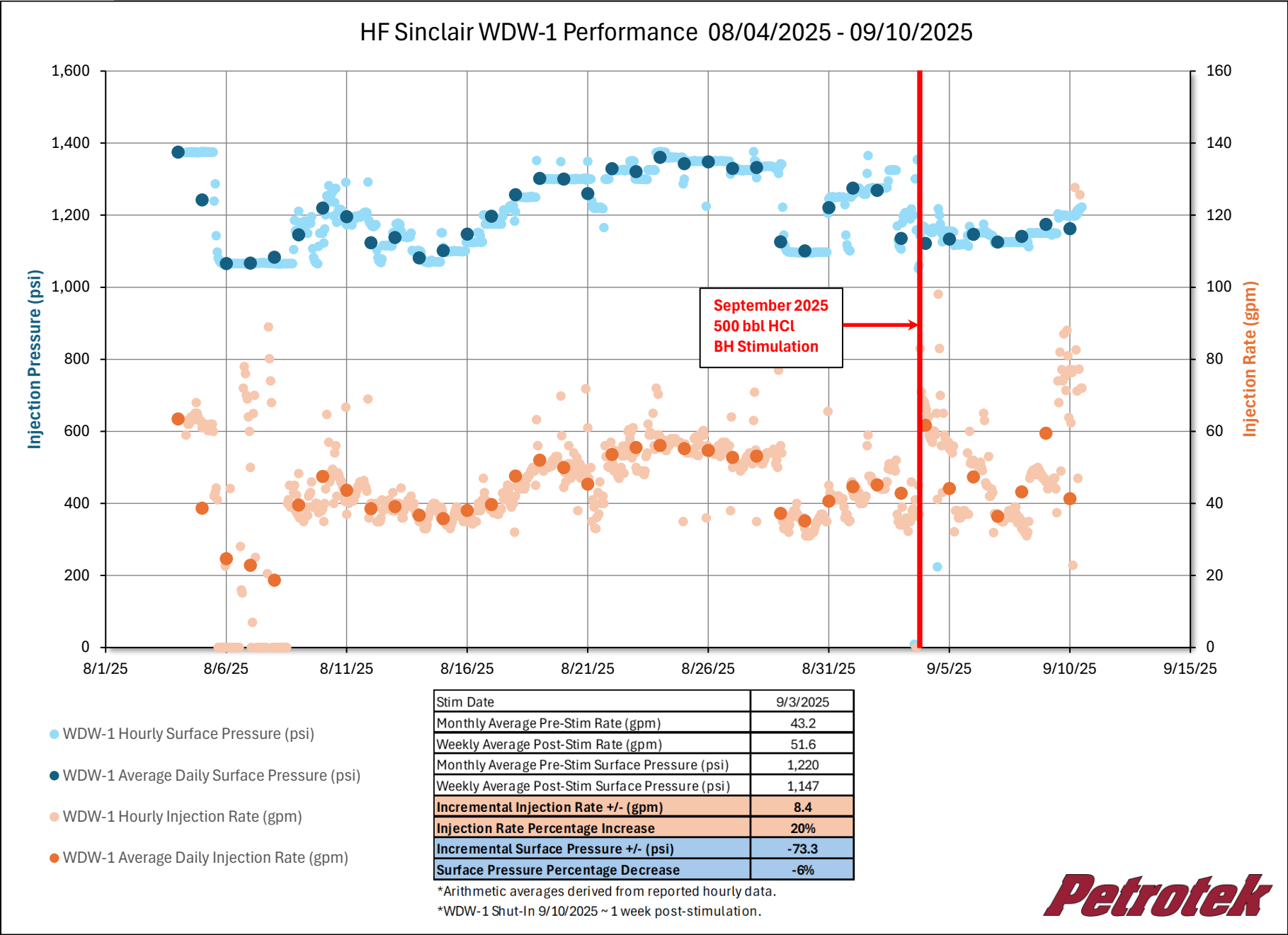
9/3/2025

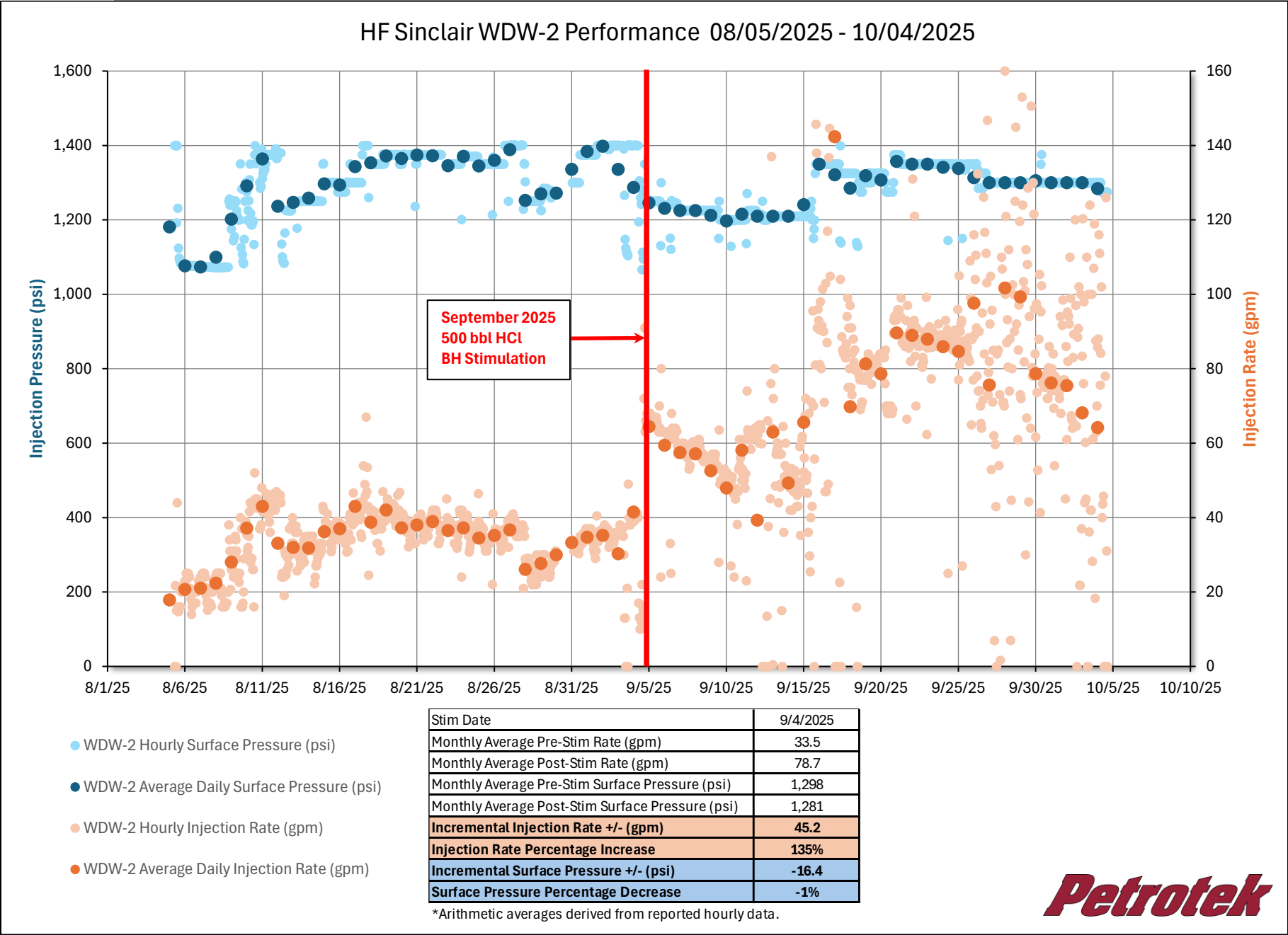
Surface Conditions

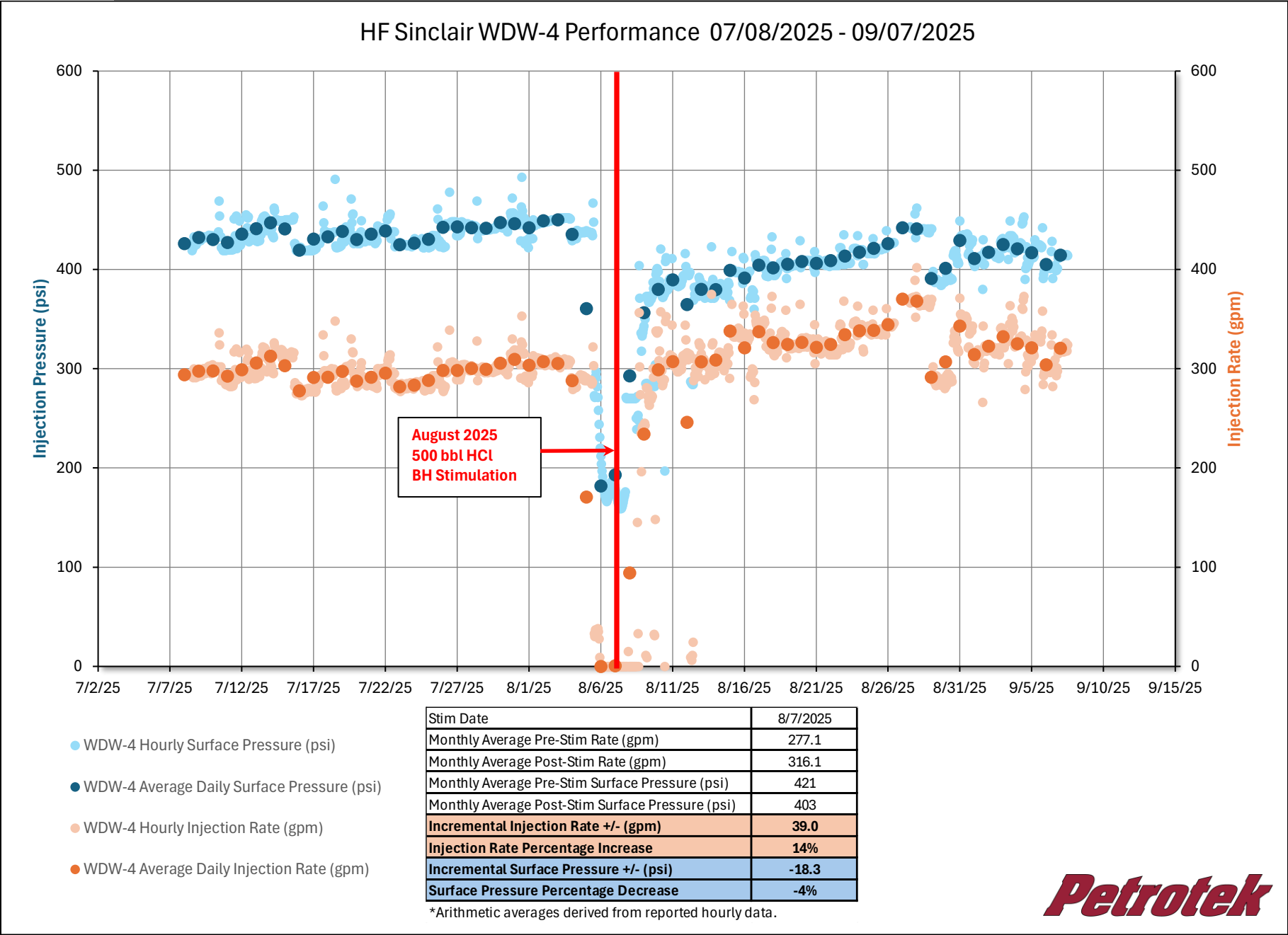


HF Sinclair Pre/Post- Stimulation Assessment

November 13, 2025







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/oed/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 520703

COMMENTS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 520703
	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

Action 520703

CONDITIONS

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CONDITIONS

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