

**WELL NAME: Husky Federal 9-25**  
**API NUMBER: 05-103-07657**  
**FIELD/COUNTY/STATE: Rangely, Rio Blanco County, CO**  
**LOCATION: 1980' FSL & 660' FEL NESE Sec 25-T2N-R102W**  
**DATE: 08/6/2019**  
**ENGINEER/ SUPERVISOR: Edith Difima, Tyson Dunham**

**PROCEDURE: Wellbore Clean Up and RTP**

**SUMMARY:** Pump Chemicals + Produced Water at matrix rates and pressures, displacing chemicals into perforated zone down the annulus, soak for 72hours, and RTP.

**VALKYRIE RESOURCES CONTACTS:**

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 Tyson Dunham              307-388-2290 Cell                tdunham@valkyrieoperating.com

**HS&E**

This workover does not introduce any new equipment, materials or process hazards.

**PROCEDURE:**

- 1) Inspect area for safety hazards. Hold safety meeting to discuss operation
- 2) Check pressure on surface casing valve. If surface casing pressure and intermediate casing pressure are equal, notify Office for updated procedure to replace wellhead seals.
- 3) Blow well down to production equipment or tank.
- 4) Pressure test tubing.
- 5) Pressure test annulus casing-tubing.
- 6) MI Valkyrie Vac Truck
- 7) Pump chemical mix and flush through the annulus with produced water from the lease. (See volumes and composition on the table below). Leave for 72 hours. RTP.

Depending on availability, we might use the WDC-1- Wellbore Damage Cleaner as a replacement for Sylvapine CRBD with the same mix volume as shown below.

The WDC-1 Mixture composition is listed below.

CAS#	Chemical	Product	Per 1,000 gals	Total Job Vol. gals
	H2O	Produced Water	993	3360
99439-28-8	Silicon Dioxide Water	SiLo	4.9	15
Mixture	Nonionic Microemulsion Surfactant	MICROSURF N	2.1	7
1355146-10-6	Micro Biocide	BUSAN 1059 WS	N/A	5#
8002 09 3	Organic Pine Oil	Sylvapine CRDB	990	504
Mixture	Oil Soluble Surfactant	OSS-1	4.9	2.5
Mixture	Paraffin Inhibitor	OPI-2522	4.9	2.5

CAS #	Microsurf N Mixture
67 63 0	Isopropyl Alcohol 5-15%
104 76 7	2 Ethyl hexanol 10-25%
111 76 2	2 Butoxyethanol 35-55%
100 54 3	EO/PO Alcohol 5-15%

CAS #	OSS-1 Mixture
1330 20 7	Xylene 30-40%
108 88 3	Toluene 30-40%
110 82 7	Cyclohexane 5-15%
26264 05 1	Alkyl aryl Sulfonates 5-15%
100 54 3	Hexane 5-15%
104 76 7	2-Ethylhexanol 0-10%
64742 9 6	Solvent naphtha, Petrol, Light Aromatic
95 63 6	Benzene, 1,2,4,-trimethyl 0-5%

CAS #	OPI 2522 Mixture
1330-20-7	Xylene 60-100%
100-41-4	Ethylbenzene 10-30 %
64742-47-8	Petroleum Distillate 5-10%
98-82-8	Cumene 0-1%

CAS #	WDC-1 Wellbore Damage Cleaner Mixture
1330 20 7	Xylene 30-40%
108 88 3	Toluene 30-40%
110 82 7	Cyclohexane 5-15%
26264 05 1	Alkyl aryl Sulfonates 5-15%
100 54 3	Hexane 5-15%
104 76 7	2-Ethylhexanol 0-10%
64742 9 6	Solvent naphtha, Petrol, Light Aromatic
95 63 6	Benzene, 1,2,4,-trimethyl 0-5%

### **OPERATIONAL PRESSURE**

Max injection pressure (pumping pressure): < 1,000psi

Flowback disposal program / description: There will be no flowback during the well cleaning/enhancement process.