June 15, 2023

Ms. Leigh Barr
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
LeighP.Barr@emnrd.nm.gov

Re: Submittal of the *2022 Annual Discharge Report* and the *2022 Annual Groundwater Monitoring Report* for the HF Sinclair Navajo Refining LLC, Artesia Refinery, Discharge Permit GW-028

Dear Ms. Barr:

Please find attached electronic copies of the *2022 Annual Discharge Report* and the *2022 Annual Groundwater Monitoring Report*. The *2022 Annual Groundwater Monitoring Report* was submitted in February 2023 and is included as an attachment to the *2022 Annual Discharge Report*. Together these reports fulfill the requirements of Section 2.K of Discharge Permit GW-028. If you should have any questions or comments regarding this report, please feel free to contact Jason Roberts at (575) 703-6164 or Michael Holder at (575) 308-1115.

Sincerely,

Vee Mills behalf of Kawika

Kawika Tupou
Environmental Manager
HF Sinclair Navajo Refining LLC

cc: OCD: R. Romero
HF Sinclair: M. Holder; J. Roberts
TRC: J. Speer, D. Helbert, C. Smith

2022 Annual Discharge Permit Report, GW-028

June 15, 2023

HF Sinclair Navajo Refining LLC
Artesia Refinery, GW-028

Prepared For:

HF Sinclair Navajo Refining LLC
501 E Main Street,
Artesia, NM 88210

Prepared By:

TRC
505 East Huntland Drive, Suite 250
Austin, TX 78752

TABLE OF CONTENTS

TABLE

APPENDIX

ATTACHMENT

ABBREVIATION AND ACRONYM LIST

2022 Groundwater Report	*2022 Annual Groundwater Monitoring Report*
AOC	Area of Concern
ACO	Agreed Compliance Order
BTEX	Benzene, toluene, ethylbenzene, and xylene
CGWSL	Critical Groundwater Screening Level
COCs	Constituents of concern
DRO	Diesel range organics
gpm	Gallons per minute
GRO	Gasoline range organics
HFSNR	HF Sinclair Navajo Refining LLC
MTBE	Methyl tert-butyl ether
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
O&M	Operation and maintenance
OCD	Oil Conservation Division
ORP	Oxidation-reduction potential
PSH	Phase-separated hydrocarbon
PCC	Post Closure Care
POTW	Publicly Owned Treatment Works
RCRA	Resource Conservation and Recovery Act
RO	Reverse osmosis
Stage 1 Abatement Plan	*Stage 1 Abatement Plan for the Reverse Osmosis Reject Discharge Fields*
Stage 1 AP Report	*Reverse Osmosis Reject Discharge Fields Stage 1 Abatement – Final Report*
Stage 2 AP Work Plan	*Stage 2 Abatement Work Plan for the Reverse Osmosis Reject Discharge Fields*
SVOCs	Semi-volatile organic compounds
SWMU	Solid Waste Management Unit
TDS	Total dissolved solids
TPH	Total petroleum hydrocarbons
UIC	Underground Injection Control

VOC	Volatile organic compound
WDW	Wastewater Disposal Well
WQCC	Water Quality Control Commission
WWTP	Wastewater treatment plan

Introduction

This report was prepared to fulfill the requirement in Section 2.K. of Discharge Permit GW-028 (GW-028), issued by the Oil Conservation Division (OCD) on August 16, 2022, for the HF Sinclair Navajo Refining LLC (HFSNR) Artesia Refinery (Refinery) located at 501 East Main Street in Artesia, New Mexico. The requirement specifies that an Annual Report be submitted to the OCD by June 15 following the reporting (calendar) year and should include all components of the Annual Groundwater Monitoring Report and a summary "Section" demonstrating compliance with GW-028. The Section should include the following:

A. Summary of major Refinery activities and events.

B. Summary of all leaks, spills, and releases and corrective actions taken.

C. Summary of any new discoveries of groundwater and/or vadose zone contamination, including recommendations for further investigation and/or abatement.

D. Summary of any Water Quality Control Commission (WQCC) constituents found to exceed the groundwater standards.

E. Summary of all waste and wastewater disposed of, sold, or treated onsite.

F. Summary of fluids detected in any leak detection system.

G. Documentation regarding the closure of any Underground Injection Control (UIC) Class V wells.

H. Conclusions and recommendations.

The required summary Section with all the above components is presented in this report. The *2022 Annual Groundwater Monitoring Report* (2022 Groundwater Report) that was submitted to the NMED on February 28, 2023, is attached to this report.

A. Major Refinery Activities for 2022

The Refinery conducted normal operations during 2022. No new tanks were brought online in 2022.

Additional capital projects were completed to improve operability. Construction of the renewal diesel unit (RDU) and pretreatment unit (PTU) and associated infrastructure was completed in 2022. The RDU and PTU were brought online in July 2022.

Discharge Permit GW-028 Modifications and Renewal

During 2022, the Refinery operated in accordance with the former GW-028 until the renewed permit was issued on August 16, 2022. The former GW-028 was issued on May 25, 2017, and modifications were issued on June 29, 2017, October 25, 2018, December 14, 2018, June 28, 2019, and August 30, 2019. The former GW-028 included a stipulation that land application of reverse osmosis (RO) reject water must cease upon the completion of a new Class I disposal well. The Class I wastewater disposal well (WDW) WDW-4 was installed, and land application of RO reject water was discontinued after January 22, 2019.

The former GW-028 was set to expire on April 21, 2022. HFSNR submitted a Groundwater Discharge Plan to renew and modify GW-28 to the OCD on December 22, 2021. The OCD responded on January 21, 2022, that the permit application was administratively incomplete and requested submittal of additional information. HFSNR submitted an amended application to the OCD on February 18, 2022. In a letter on March 4, 2022, OCD indicated that the permit application was administratively complete. HFSNR provided public notice in accordance with 20.6.2.3108(B) New Mexico Administrative Code (NMAC) and submitted required proof of posting and notifications to the OCD on April 18, 2022. The OCD issued the renewal to Discharge Permit GW-028 on August 16, 2022.

RO Reject Fields Investigation and Abatement Plan

On August 20, 2015, HFSNR submitted a *Reverse Osmosis Reject Fields Hydrogeologic and Water Quality Evaluation* memo to the OCD that fulfilled the Site investigation requirements of Section 6.D of the former GW-028 (dated August 22, 2012). A subsequent revision to this memo was submitted to OCD on January 19, 2016, to provide corrections to the RO reject stream water quality results. HFSNR met with the OCD and New Mexico Environment Department (NMED) at the OCD office on March 11, 2016, to discuss the results of the background groundwater evaluation (submitted to NMED and OCD in September 2015) as well as the hydrogeologic model and loading report. No agreement was reached regarding the results and recommendations of either of these evaluations.

HFSNR began discussions with OCD in March 2017 regarding the potential to abate WQCC constituents in the RO reject water and in the RO reject discharge fields via phytoremediation. HFSNR conducted a phytoremediation feasibility study at the RO reject fields from August 2017 to March 2018. Results of the phytoremediation feasibility study were documented in the *Phytoremediation Feasibility Study Summary Report* that was included as an appendix to the required Abatement Plan, described below.

The former GW-028 (dated May 25, 2017) required discharge of RO reject water to the fields to cease upon the completion of a Class I disposal well and submittal of an Abatement Plan within 60 days of cessation of discharge of RO reject water to the fields. As described above, WDW-4 became operational in January 2019 and land application of RO reject water ceased after January 22, 2019.

HFSNR submitted to OCD a *Stage 1 Abatement Plan for the Reverse Osmosis Reject Discharge Fields* (Stage 1 Abatement Plan) on March 21, 2019, and an *Amendment of the March 2019 Stage 1 Abatement Plan for the Reverse Osmosis Reject Discharge Fields* on May 24, 2019, which was approved via email on June 7, 2019. HFSNR characterized the RO reject fields after cessation of land application of RO reject water in accordance with the amended Stage 1 Abatement Plan. The first progress report, *Reverse Osmosis Reject Discharge Fields Stage 1 Abatement – First Quarterly Progress Report*, was submitted to OCD on August 28, 2019. The progress report provided a summary of Stage 1 Abatement Plan activities and results, including:

- Installation of soil moisture probes;
- Collection of soil samples from moisture probe borings;
- Installation of additional groundwater monitoring wells;
- Collection of groundwater samples from new and existing monitoring wells;
- Laboratory analyses for soil and groundwater samples;
- Soil moisture data collected throughout the vadose zone within each of the two RO reject discharge fields; and
- Updated schedule for two years of investigation and monitoring implementation.

Subsequent progress reports were submitted in January 2020 and April 2020, and contained a summary of ongoing Stage 1 Abatement Plan activities and results related to cessation of land application of RO reject water. *Reverse Osmosis Reject Discharge Fields Stage 1 Abatement – Final Report* (Stage 1 AP Report), was submitted to OCD on November 19, 2020, and included a summary of all Stage 1 Abatement Plan activities and results, an evaluation of the results, and

recommendations for future activities. The following future activities were recommended in the Stage 1 AP Report:

- Installation of two additional groundwater monitoring wells;
- Semiannual gauging and sampling of Abatement Plan monitoring wells as part of the facility-wide groundwater monitoring program; and
- Preparation and submittal of a Stage 2 Abatement Work Plan in accordance with 20.6.2.4106.D NMAC, with the objective of evaluating remedial alternatives focused on removal of fluoride (and potentially other inorganics) from shallow soil and/or groundwater or removal of the potential infiltration pathway.

The OCD approved the Stage 1 AP Report on August 22, 2022. HFSNR submitted a Stage 2 Abatement Work Plan (Stage 2 AP Work Plan) on October 19, 2022. The OCD indicated the Stage 2 AP Work Plan was administratively incomplete in a letter on December 5, 2022. An amended Stage 2 AP Work Plan was submitted on January 4, 2023. At the time of this submittal, the OCD has not responded to the amended Stage 2 AP Work Plan. Installation of the two monitoring wells proposed in the Stage 1 AP Report will be completed upon OCD approval of the Stage 2 AP Work Plan. Semiannual gauging and sampling of the existing Abatement Plan monitoring wells as part of the facility-wide groundwater monitoring program commenced in April 2023.

B. Summary of All Leaks, Spills, and Releases and Corrective Actions Taken

Reportable spills that occurred at the Refinery in 2022 and corrective actions taken are summarized **Table 1**.

All of the reportable releases occurred within the active operating Refinery that is continuously secured to prevent access from unauthorized personnel and the general public. All of the releases occurred in areas which are included in the Refinery's facility-wide groundwater monitoring program and recovery system. All of the releases also occurred within Area of Concerns (AOCs) or Solid Waste Management Units (SWMUs) designated in the Refinery's Resource Conservation and Recovery Act (RCRA) Post-Closure Care Permit (PCC) issued by the New Mexico Environment Department (NMED) in December 2010. AOCs and SWMUs are subject to corrective action per the requirements of the Refinery's PCC Permit. None of the releases reached a watercourse or fresh water well or spring.

C. Summary of New Groundwater and/or Vadose Zone Contamination and Recommendations for Investigation and/or Abatement

Groundwater monitoring results and any notable changes from previous results that would indicate new groundwater or vadose zone contamination are discussed in Sections 4 and 5 of the attached 2022 Groundwater Report. None of the observed changes are believed to be attributable to new groundwater or vadose zone contamination. Groundwater conditions measured during 2022 semiannual events were generally consistent with historical results and are summarized below:

- The presence and distribution of phase-separated hydrocarbon (PSH) during 2022 were generally consistent with previous monitoring results, with minor fluctuations inversely related to groundwater elevations, as discussed in detail in Section 4 of the attached 2022 Groundwater Report. No new occurrence of measurable PSH was observed in any well in 2022. PSH thicknesses are generally stable to declining over time despite fluctuations inversely related to groundwater elevations. Recent increases of PSH thicknesses in parts of the North Refinery, South Refinery, closed tetra ethyl lead surface impoundment (TEL), and Field East of Refinery areas are attributable to declining groundwater elevations and are not indicative of a new release or PSH migration. Groundwater elevations have generally decreased since 2017 and remained historically low in many wells with PSH in 2022. The reduction in groundwater elevations since 2017 is consistent with the occurrence of drought conditions across southeastern New Mexico during this time. The presence of PSH and measured PSH thicknesses based on the 2022 semiannual gauging results are shown on Figures 8 and 9 of the attached 2022 Groundwater Report. Plots presenting PSH thicknesses and static groundwater elevations over time for wells that have historically contained measurable PSH are provided in Appendix C of the attached 2022 Groundwater Report.
- On February 10, 2022, a PSH sample was collected from South Refinery Area well MW-28 for hydrocarbon fingerprint (capillary gas chromatography) analysis to evaluate the increase of apparent PSH thickness observed in April 2021 and September 2021. The sample was submitted to NewFields Companies, LLC in Rockland, Massachusetts for analysis and interpretation of results. The results of the PSH hydrocarbon fingerprint analysis indicate that the PSH thickness increase observed in MW-28 during 2021 is not associated with a new or undiscovered release. PSH thicknesses in MW-28 decreased in 2022.
- Concentrations of constituents of concern (COCs) in groundwater have generally remained stable over time, although some exceptions were observed during 2022 as discussed in detail in Section 5 of the attached 2022 Groundwater Report. Plots

presenting historical concentrations of target (or key indicator) COCs and static groundwater elevations over time in wells are provided in Appendix C of the attached 2022 Groundwater Report. During 2022 and previous years, the following COCs were detected in groundwater at concentrations in exceedance of their respective critical groundwater screening level (CGWSL):

  - Total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO);
  - Volatile organic compounds (VOCs) including target COCs benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tert-butyl ether (MTBE), and naphthalene;
  - Total metals including target COC arsenic;
  - Semi-volatile organic compounds (SVOCs); and
  - Water quality parameters chloride, fluoride, sulfate, total dissolved solids (TDS), and nitrate/nitrite.

- The extent of CGWSL exceedance areas during 2022 were generally consistent with historical results. The extent of the CGWSL exceedance areas of the following target COCs based on the 2022 semiannual sampling results are presented on Figures 10 through 19 of the attached 2022 Groundwater Report: DRO, arsenic, benzene, naphthalene, and MTBE. The extent of the CGWSL exceedance areas of the following water quality parameters based on the 2022 semiannual sampling results are presented on Figures 20 through 29 of the attached 2022 Groundwater Report: chloride, fluoride, sulfate, TDS, and nitrate/nitrite.

- Many of the concentrations of inorganic COCs (manganese, chloride, fluoride, nitrate/nitrite, sulfate, and TDS) noted as “exceedances” of CGWSLs in 2022 may actually be similar to and reflective of groundwater concentrations upgradient of the Refinery, as detailed in the background groundwater evaluation that was submitted to NMED and OCD in September 2015.

No additional investigation is recommended based on the 2022 groundwater monitoring results. HFSNR plans to install two additional groundwater monitoring wells in 2023 to better define the cross-gradient extent of the PSH and benzene and MTBE CGWSL exceedance areas within HFSNR-owned property south of Highway 82. The wells will be installed in accordance with the December 2022 *Crossgradient Well Installation Work Plan* that was approved by NMED. Any investigation and corrective action of groundwater and/or vadose contamination in areas designated as AOCs or SWMUs will be conducted in accordance with the RCRA PCC Permit under the direction of NMED.

PSH and impacted groundwater were continually recovered at the Refinery from an automated system of recovery trenches and recovery wells throughout 2022, as described in Section 6 of

the attached 2022 Groundwater Report. Volumes of groundwater and PSH recovered by the recovery system during 2022 are summarized in Table 5 of the attached 2022 Groundwater Report. Additional recovery system details, including routine system gauging results, are provided in Appendix E of the attached 2022 Groundwater Report. An estimated 6,102,398 gallons (145,295 barrels) of groundwater and an estimated 159,042 gallons (3,787 barrels) of PSH were recovered through operation of the automated recovery system in 2022. PSH from wells not connected to the system is also periodically recovered. Operation and maintenance of the automated recovery system are recommended to continue to recover and control impacted groundwater and PSH.

A groundwater reinjection pilot test is planned to be conducted in the Field East of the Refinery, as detailed in December 2019 *Revised Groundwater and Phase-Separated Hydrocarbon Recovery System Enhancements: Reinjection Pilot Test Work Plan*, with replacement pages dated May 2020. The initial pilot test tasks were completed in 2021 and included a geophysical survey, well installation, and aquifer testing. Installation and startup of the pilot test system were delayed pending NMED response to status reports and responses submitted in March 2022 and July 2022. The NMED provided notice to proceed in May 2023 and the pilot test system components are now tentatively scheduled to be installed in January 2024 with subsequent startup and operation of the system. The pilot test is planned to run for an 18-month duration and the results will be used to enhance the facility-wide recovery system.

D. Summary of WQCC Constituents Exceeding Groundwater Standards

WQCC constituents that exceeded groundwater standards (CGWSLs) during 2022 are discussed in Section 5 of the 2022 Groundwater Report. The facility-wide groundwater monitoring program also includes COCs that are not WQCC constituents (e.g., TPH GRO and DRO). As noted above, the following COCs were detected above their respective CGWSL during 2022:

- TPH GRO and DRO;
- VOCs including target COCs BTEX, MTBE, and naphthalene;
- Total metals including target COC arsenic;
- SVOCs; and
- Water quality parameters chloride, fluoride, sulfate, TDS, and nitrate/nitrite.

Laboratory analytical results of all wells sampled in 2022, and during at least the three previous sampling events, are summarized and compared to CGWSLs in Tables 4A through 4D of the attached 2022 Groundwater Report as follows:

- Table 4A – TPH GRO and DRO and select VOCs (VOCs that have had at least one detected value reported above the CGWSL in more than one well in 2022)
- Table 4B – Total Metals
- Table 4C – Water quality parameters (TDS, nitrate/nitrite, major cations, major anions) and Cyanide
- Table 4D – Select SVOCs (SVOCs detected above the CGWSL in at least one well from 2019 to 2022).

Exceedances of CGWSLs are highlighted in yellow on Tables 4A through 4C. Copies of laboratory analytical reports are provided in Appendix B of the attached 2022 Groundwater Report. Laboratory analytical results were reviewed and validated. The data validation and a discussion of any data quality exceptions are provided in Appendix D of the attached 2022 Groundwater Report.

The extent of the CGWSL exceedance areas of the following target COCs based on the 2022 semiannual sampling results are presented on Figures 10 through 19 of the attached 2022 Groundwater Report: DRO, arsenic, benzene, naphthalene, and MTBE. The extent of the CGWSL exceedance areas of the following water quality parameters based on the 2022 semiannual sampling results are presented on Figures 20 through 29 of the attached 2022 Groundwater Report: chloride, fluoride, sulfate, TDS, and nitrate/nitrite.

E. Summary of All Wastewater Volumes Disposed, Sold, or Treated Onsite

The refinery's primary discharge streams are treated wastewater from the wastewater treatment plant (WWTP) effluent and the RO reject water. The WWTP effluent is discharged to HFSNR's injection wells (WDW-1, WDW-2, WDW-3, and WDW-4) and to the City of Artesia's Publicly Owned Treatment Works (POTW). RO reject water is further processed in a secondary RO unit, which produces a permeate stream that is utilized in the refinery's cooling towers. Water reject from the secondary RO system is ultimately discharged to HFSNR's injection wells or the City of Artesia's POTW. A summary of discharges to HFSNR's injection wells and the City of Artesia POTW are provided in the following subsections.

HFSNR is authorized to divert some of its treated effluent from injection wells WDW-1 and WDW-4 for reuse by third parties for oil and gas exploration and production-related uses, in accordance with the OCD-approved August 2021 *Water Reuse Plan*. However, HFSNR did not divert any treated effluent to third parties during 2022.

No other waste is disposed, sold, or treated onsite.

Injection Wells

The injection rates, volume, and quality of treated wastewater disposed of in the injection wells are reported quarterly to OCD, in addition to monthly C-115 reports. Injection rates and volumes are also summarized in a table provided as Appendix A.1. The total injected water volume in 2022 was 8,557,163 barrels (359,400,846 gallons).

Treated Wastewater

The flow rates and volumes of treated wastewater discharged to the City of Artesia POTW are recorded monthly and provided as Appendix A.2. The total transferred water volume in 2021 was 2,201,746 gallons or 52,423 barrels.

HFSNR continued to discharge the blow-down from refinery cooling towers to the City of Artesia POTW in 2022. The total volume of blow-down discharged to the City of Artesia POTW in 2022 is estimated to be 57,880,267 gallons or 1,378,102 barrels, based on an average discharge rate of 110 gallons per minute (gpm).

F. Summary of Fluids Detected in Leak Detection Systems

There are no automatic leak detection systems in use at the Refinery. Equipment, tanks, and piping are routinely inspected and monitored by Refinery personnel.. Any identified leaks are reported through shift leadership and managed through the Refinery's standard operating and incident management procedures. Any leak determined to be reportable based on the volume or nature of the leak is reported to the OCD and any other appropriate agency. All reportable releases are summarized in Table 2.

G. Documentation Regarding the Closure of Any UIC Class V Wells

No UIC Class V wells were closed during 2022.

H. Conclusions and Recommendations

Discharge activities at the Refinery during 2022 were conducted in accordance with GW-028. Groundwater conditions at the Refinery were generally consistent with previous years and no new indication of groundwater and/or vadose zone contamination was observed during 2022. HFSNR continued to recover PSH and impacted groundwater through operation and maintenance of the facility-wide recovery system. HFSNR will continue to conduct facility-wide groundwater monitoring in accordance with the current approved *Facility-Wide Groundwater Monitoring Work Plan*. HFSNR will also continue to conduct routine operation and maintenance

of the automated recovery system pending completion of the groundwater reinjection pilot test.

HFSNR characterized the RO reject fields from 2019-2020 in accordance with the amended Stage 1 Abatement Plan and the November 2020 Stage 1 AP Report was approved in August 2022. HFSNR submitted a Stage 2 AP Work Plan in October 2022 and an amended Stage 2 AP Work Plan in January 2023. HFSNR will implement the Stage 2 AP Work Plan upon OCD approval.

TABLE 1

Table 1. Summary of 2022 Reportable Spills

2022 Annual Discharge Permit Report, GW-028
HF Sinclair Navajo Refining LLC, Artesia, New Mexico

Date	Description	Location	In AOC or SWMU?	Material	Released Volume (bbl)	Recovered Volume (bbl)	Status
1/4/2022	Release occurred due to a clogged sewer line which caused water to mix with residual caustic in the sewer line. Release occurred in same area as October 2021 caustic water release.	Sewer east of Tank 1223	Yes	Caustic water	200	130	Initial C-141 submitted January 9, 2022. Release occurred in same area as October 2021 caustic water release and soils from both releases were managed together. Liquid recovered by vacuum truck and apparently affected soil excavated and disposed offsite. Soil assessment completed. Site Characterization, Assessment, and Closure Reports pending. Any further investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
1/21/2022	Release occurred due to expansion of liquid in the loading arm, caused by heat tracing.	West Loading Rack (Spot 4)	Yes	Light cycle oil (LCO)	15	13	Initial C-141 submitted January 26, 2022. Leak was stopped and loading arm repaired. Liquid recovered by vacuum truck and apparently affected soil excavated and disposed offsite. Any further investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
2/6/2022	Release occurred due to a failure of a weld during prolonged freezing temperatures.	Pipe Rack near Tank 435	Yes	Stripped sour water	> 390	390	Initial C-141 submitted February 12, 2022. The released was entirely contained within earthen secondary containment system. Liquid recovered by vacuum truck. Any further investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
3/22/2022	Release occurred due to failure of seal on P-1019 pump.	Y-11 Cooling Tower (P-1019 Seal)	Yes	Cooling Tower Water	15	10	Initial C-141 submitted March 25, 2022. Liquid recovered by vacuum truck. Any investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
3/31/2022	Release occurred due to a failed coupling on a reverse osmosis (RO) reject line.	RO Reject Line within SWMU 25	Yes	RO Reject Water	8	6	Initial C-141 submitted April 6, 2022. Liquid recovered by vacuum truck. Any further investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
6/27/2022	Release discovered by observation of liquid coming up through concrete within the SRU. Source of release was underground line leading to a sump.	Sulfur Recovery Unit (SRU) 100 TGU Anime Line	Yes	Lean Amine (methyl-diethanolamine [MDEA] solution)	Unknown (potentially >5 bbl)	Unknown	Initial C-141 submitted July 5, 2022. All amine that released aboveground was released to concrete within the SRU and was washed to process sewers that carry material to the wastewater treatment unit. Any investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.

Table 1. Summary of 2022 Reportable Spills

2022 Annual Discharge Permit Report, GW-028
HF Sinclair Navajo Refining LLC, Artesia, New Mexico

Date	Description	Location	In AOC or SWMU?	Material	Released Volume (bbl)	Recovered Volume (bbl)	Status
7/17/2022	Release occurred due to failure of seal on pump used for loading pitch.	Pitch Pump at Tank 814	Yes	Pitch	70	70	Initial C-141 submitted July 25, 2022. The pitch and pitch-contaminated media (soil, gravel) were removed and placed into a roll-off bin for proper disposal. Any investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
10/23/2022	Release occurred due to a faulty sump pump and potentially a compromised sump wall.	Tank-834/ Tank-838 dyke	Yes	Diesel/ Water	200	180 bbl of oil/water mixture (estimated 50 bbl of diesel)	Initial C-141 submitted November 9, 2022. Liquid recovered with a vacuum truck and apparently affected soil excavated and disposed offsite. A limited area surrounding the north and east side of the sump was excavated to evaluate the condition of the sump wall and allow for any necessary repairs. Any investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
10/25/2022	Release occurred due to overfill of the D-21 desalter caused by a leaking valve.	D-81 Salt Dryer	Yes	Diesel/ Water	60	60	Initial C-141 submitted November 9, 2022. Liquid recovered with a vacuum truck and apparently affected soil excavated and disposed offsite. Any investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.
11/15/2022	Release occurred due to overfilling of a railcar.	West Rack LCO	Yes	LCO	5.5	--	Initial C-141 submitted November 30, 2022. All LCO and LCO-impacted soil/gravel was removed and placed in a roll-off bin for offsite disposal. Any investigation and corrective action will be conducted in accordance with the RCRA PCC Permit under the direction of NMED. Groundwater monitoring to continue in accordance with facility-wide groundwater monitoring program.

Notes:

AOC Area of Concern
bbl barrels
LCO Light cycle oil
MDEA Methyldiethanolamine
MHC Mild Hydrocracking
NMED New Mexico Environment Department
PCC Post-Closure Care
RCRA Resource Conservation and Recovery Act
SRU Sulfur Recovery Unit
SWMU Solid Waste Management Unit
TGU Thermal Gas Unit

APPENDIX A
Refinery Discharges

APPENDIX A.1
Refinery Discharges - Treated Wastewater to Injection Wells

Appendix A.1 - Summary of Treated Wastewater to Injection Wells
2022 Annual Dishcarge Permit Report, GW-028
HF Sinclair Navajo Refining LLC, Artesia Refinery

2022 Month	API No. and Well Name	Volume (bbl)	Average Pressure (psig)
January	30-015-27592 WDW - 1	205,131	917
	30-015-20894 WDW - 2	129,699	907
	30-015-26575 WDW - 3	73,337	786
	30-015-44677 WDW - 4	327,360	230
February	30-015-27592 WDW - 1	192,000	858
	30-015-20894 WDW - 2	77,760	814
	30-015-26575 WDW - 3	67,200	760
	30-015-44677 WDW - 4	349,440	339
March	30-015-27592 WDW - 1	251,897	1,158
	30-015-20894 WDW - 2	108,411	1,010
	30-015-26575 WDW - 3	103,097	881
	30-015-44677 WDW - 4	212,571	167
April	30-015-27592 WDW - 1	256,114	1,114
	30-015-20894 WDW - 2	229,371	1,000
	30-015-26575 WDW - 3	97,714	881
	30-015-44677 WDW - 4	200,571	170
May	30-015-27592 WDW - 1	292,286	1,020
	30-015-20894 WDW - 2	239,143	1,101
	30-015-26575 WDW - 3	119,040	979
	30-015-44677 WDW - 4	264,651	209
June	30-015-27592 WDW - 1	288,000	1,062
	30-015-20894 WDW - 2	104,000	1,026
	30-015-26575 WDW - 3	154,080	958
	30-015-44677 WDW - 4	276,800	251
July	30-015-27592 WDW - 1	161,280	955
	30-015-20894 WDW - 2	123,840	1,069
	30-015-26575 WDW - 3	169,920	1,000
	30-015-44677 WDW - 4	383,090	258
August	30-015-27592 WDW - 1	112,663	896
	30-015-20894 WDW - 2	81,840	972
	30-015-26575 WDW - 3	119,040	976
	30-015-44677 WDW - 4	317,794	258
September	30-015-27592 WDW - 1	95,657	765
	30-015-20894 WDW - 2	84,343	1,037
	30-015-26575 WDW - 3	118,286	1,010
	30-015-44677 WDW - 4	309,600	260
October	30-015-27592 WDW - 1	110,537	906
	30-015-20894 WDW - 2	81,840	1,036
	30-015-26575 WDW - 3	122,229	1,044
	30-015-44677 WDW - 4	341,177	289
November	30-015-27592 WDW - 1	105,943	918
	30-015-20894 WDW - 2	81,257	1,073
	30-015-26575 WDW - 3	121,371	1,119
	30-015-44677 WDW - 4	325,029	281
December	30-015-27592 WDW - 1	107,349	916
	30-015-20894 WDW - 2	66,960	1,077
	30-015-26575 WDW - 3	139,234	1,199
	30-015-44677 WDW - 4	257,211	314

API No. and Well Name	Total Volume (bbl)
30-015-27592 WDW - 1	2,178,857
30-015-20894 WDW - 2	1,408,464
30-015-26575 WDW - 3	1,404,548
30-015-44677 WDW - 4	3,565,294
Total Injected fluids	**8,557,163**

API No. and Well Name	Average Pressure (psig)
30-015-27592 WDW - 1	957
30-015-20894 WDW - 2	1,010
30-015-26575 WDW - 3	966
30-015-44677 WDW - 4	252

Notes:
API: American Petroleum Institute
bbl: barrel
psig: pounds per square inch gauge

APPENDIX A.2
Refinery Discharges - Treated Wastewater to City of Artesia POTW

Appendix A.2 - Summary of Treated Wastewater to the City of Artesia POTW
2022 Annual Dishcarge Permit Report, GW-028
HF Sinclair Navajo Refining LLC, Artesia Refinery

Refinery WWTP to City of Artesia POTW		
2022 Month	**Rate (gpm)**	**Volume (gal)**
January	2.1	91,771
February	1.5	61,877
March	3.3	145,325
April	3.0	127,728
May	40.9	120,053
June	2.7	110,880
July	6.1	271,008
August	8.4	374,832
September	5.9	253,152
October	7.0	314,352
November	4.4	188,208
December	3.4	142,560

Average Rate (gpm)	**7.4**
Total Volume (gallons)	**2,201,746**
Total Volume (barrels)	**52,423**

Notes:
POTW: Publicly-Owned Treatment Works
WWTP: Wastewater Treatment Plant
gpm: gallons per minute
gal: gallons

Appendix A.2 - Summary of Treated Wastewater to the City of Artesia POTW
2022 Annual Dishcarge Permit Report, GW-028
HF Sinclair Navajo Refining LLC, Artesia Refinery

Cooling Tower Blow-Down to City of Artesia POTW		
2022 Month	**Rate (gpm)**	**Volume (gal)**
January	68	3,015,360
February	76	3,068,640
March	98	4,390,560
April	108	4,674,384
May	117	5,230,987
June	107	4,613,760
July	116	5,175,504
August	130	5,802,192
September	138	5,955,264
October	129	5,780,736
November	129	5,587,776
December	103	4,585,104

Average (gpm)	**110**
Total Volume (gallons)	**57,880,267**
Total Volume (barrels)	**1,378,102**

Notes:
POTW: Publicly-Owned Treatment Works
gpm: gallons per minute
gal: gallons

Attachment A
***2022 Annual Groundwater Monitoring Report*, February 2023**
(Separate Electronic File)

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 228290

CONDITIONS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 228290
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
lbarr	None	10/3/2023