From: Holder, Mike
To: Chavez, Carl J, EMNRD; Goetze, Phillip, EMNRD
Cc: Dade, Randy; Holder, Mike
Subject: RE: [EXTERNAL] OCD Upload for RDU Injection
Date: Monday, February 28, 2022 7:22:35 AM

Carl – we will add the pesticides to the PSP. I think this addresses your remaining comments but let me know if I've missed something. Thanks, Mike

From: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Sent: Wednesday, February 23, 2022 9:18 AM
To: Holder, Mike <Michael.Holder@hollyfrontier.com>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>
Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

Mike, et al.,

Good morning!

Based on your responses below, my comment is that the key PSP Sampling objective of OCD is to evaluate the EPA RCRA Hazardous Parameters in effluent. While I understand your comment on pesticides, OCD is aware that crude oil can contain many constituents, including insecticides, some constituents of which have yet to be identified due to laboratory interferences, capabilities, etc., I recommend that they be included and evaluated for the PSP so we can conclude our evaluation. Since the laboratories provide complete scans, this wouldn't seem to be more than a reporting issue for the lab. Isn't this correct? I can confirm with our QAPP Lab (Hall Environmental).

Thank you.

Carl J. Chavez ● UIC Group
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EMNRD - Oil Conservation Division
5200 Oakland Avenue, N.E. Suite 100 | Albuquerque, NM 87113
505.660.7923
www.emnrd.nm.gov

From: Holder, Mike <Michael.Holder@hollyfrontier.com>
Sent: Tuesday, February 22, 2022 7:36 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Goetze, Phillip, EMNRD

<Phillip.Goetze@state.nm.us>
Cc: Holder, Mike <Michael.Holder@hollyfrontier.com>; Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection
Importance: High

Thanks Carl! Seebelow & let me know if we need to discuss. Thanks, Mike

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From: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Sent: Tuesday, February 22, 2022 3:42 PM
To: Holder, Mike <Michael.Holder@hollyfrontier.com>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>
Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

HFNR is probably planning to schedule around the next quarterly sampling event or around the discharge permit quarterly sampling schedule? A PSP schedule for implementation would be good.We will be planning to sample independent of the 1/4ly sampling although if they overlap that works too. Mainly we are trying to get scheduled around RDU start-up – which is still April 30 but we'll be checking to make sure as these things tend to drag out.

Also, I double-checked the PSP sampling list and don't see: Lindane; Methoxychlor; and Toxaphene; 2,4,5-TP (Silvex). These hazardous toxicity parameters need to be added for the PSP sampling.These are pesticides that we don't have in the permit for TCLP testing as the refinery neither uses in the process or produces. During permit renewal discussions in 2014 we left these out for that reason and would still recommend not including. Chlordane somehow is still in there even though we discussed it should come out. See attached correspondence related to this issue.

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My recommendation to Phil on receiving revisions is that we are good to go with all of our additional correspondences on the PSP in writing (e-mail).

Phil's call on a communication meeting.

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Sent: Tuesday, February 22, 2022 2:08 PM
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Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

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Thanks for all your help!

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Sent: Tuesday, February 22, 2022 10:42 AM
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Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

Mike, et al.,

Good morning!

OCD has reviewed the response and concurs with the communication below from HollyFrontier Navajo Refining, LLC (HFNR).

The only clarification that I have is on the Pre-RDU sampling. Is the Pre-RDU sampling consistent with the Post-RDU sampling, i.e., weekly (4-weeks) before Post-RDU sampling begins and then concurrently with Post-RDU sampling?

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Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

Carl/Phil – thanks for your comments! Below we've provided a response to the items you had

included in your transmission to us. Please review and we can set a time to discuss – let me know if later this week works for y'all.

Thanks,
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Comment #1 *- The permittee is planning to sample for current permit parameters and this does not address OCD's concerns about Hazardous Toxicity Characteristics Parameters (see attachment). I am confused by sole mention of hazardous characteristics testing (i.e., ignitability, reactivity & corrosivity) and permit listed constituents. OCD is attempting to make sure disposed effluent total concentrations are not RCRA hazardous as per 40 CFR 261.24 Table 1.*

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For clarification, the pre-RDU sampling of cooling tower blowdown (only) will occur 1/week for three weeks prior to RDU operations and will be subject to the expedited lab turnaround time. Further, no weekly pre-RDU sampling for the WWTP effluent to the wells is planned or necessary due to the existence of the historical quarterly database.

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Response #4 – Navajo concurs with OCD that sampling for constituents as totals should be the principal focus of effluent sampling, consistent with historical quarterly sampling, and that it is not necessary to analyze dissolved fractions. In Attachment 2, the third bullet on the top of page 2 states: "One sample is labeled to be filtered (use the filter provided in the ice chest)". This refers only to the sample bottle for the cation parameters of calcium, magnesium, potassium, and sodium (all non-TCLP). Field filtration of these samples is necessary for the lab to properly generate the cation/anion balance required under Section 2.A of the UICI-8 Permit. No other parameters besides these four cations are (or will be) filtered; this methodology will be carried forward in the PSP for consistent historical comparison. Navajo will revise the text to Attachment 2 to clarify that the only dissolved fraction sampling (i.e., field filtering) occurs for the cations mentioned above.

***Comment #5** - The permittee shall follow EPA QA/QC and DQOs for the sampling and environmental analytical laboratory requirements where the prescribed sampling deviates from EPA Standard Methods.*

Response #5 – Noted. No deviations from EPA Standard Methods are anticipated.

From: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Sent: Monday, February 14, 2022 12:17 PM
To: Holder, Mike <Michael.Holder@hollyfrontier.com>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>
Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

Mike, et al.,

Good morning!

OCD has had an epiphany on the RDU Pilot Sampling Plan.

Phil has allowed me to reach out to you to see how receptive you'd be and any finalization of extraneous details to move this process forward.

Please contact me at your earliest convenience to communicate on this matter.

Thank you.

Carl J. Chavez ● UIC Group
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From: Holder, Mike <Michael.Holder@hollyfrontier.com>
Sent: Thursday, February 10, 2022 8:33 PM
To: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Holder, Mike <Michael.Holder@hollyfrontier.com>; Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Phil/Carl – hope y'all are doing well! Just checking in to see if you have any questions on the UIC/RDU sampling plan. I did notice one issue w/the upload – it seems to strip the figure associated with attachment 3 (now attached) – this shows the CTB sampling location. Please don't hesitate to contact me with any questions. Thanks, Mike

---

From: Holder, Mike <Michael.Holder@hollyfrontier.com>
Sent: Tuesday, February 1, 2022 9:01 AM
To: Phillip Goetze (Phillip.Goetze@state.nm.us) <Phillip.Goetze@state.nm.us>
Cc: Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: OCD Upload for RDU Injection

Phil – fyi. Took longer than I hoped but did get this in. Please let us know if you have any questions. We are currently looking at a late April commissioning. Thanks, Mike

From: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Sent: Tuesday, February 1, 2022 8:29 AM
To: CARL J. CHAVEZ (CarlJ.Chavez@state.nm.us) <CarlJ.Chavez@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Tupou, Kawika <Kawika.Tupou@HollyFrontier.com>
Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: OCD Upload for RDU Injection

Carl,
I have uploaded into [UF-DP] NOI Discharge Permit, each of the Injection Well Folders a copy of the signed RDU Injection Sampling Plan. Each upload is attached to the Facility ID#s that you gave us. Please let me know if there is anything else needed on this.
Thanks for the help, Randy

I have uploaded the signed doc. And these are the Action ID # for each.
WDW 1 : Action ID # 77114
WDW-2 : Action ID # 77116
WDW-3 : Action ID # 77119
WDW-4 : Action ID # 77122

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
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Cc:	Holder, Mike; Dade, Randy
Subject:	RE: [EXTERNAL] OCD Upload for RDU Injection
Date:	Tuesday, February 22, 2022 7:38:06 PM
Attachments:	RE UIC Class I Injection Wells.msg RE UIC Class I Injection Wells.msg RE Revised draft UIC Class I discharge permits.msg
Importance:	High

Thanks Carl! See below & let me know if we need to discuss. Thanks, Mike

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***Comment #5** - The permittee shall follow EPA QA/QC and DQOs for the sampling and environmental analytical laboratory requirements where the prescribed sampling deviates from EPA Standard Methods.*

Response #5 – Noted. No deviations from EPA Standard Methods are anticipated.

From: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Sent: Monday, February 14, 2022 12:17 PM
To: Holder, Mike <Michael.Holder@hollyfrontier.com>; Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>
Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

Mike, et al.,

Good morning!

OCD has had an epiphany on the RDU Pilot Sampling Plan.

Phil has allowed me to reach out to you to see how receptive you'd be and any finalization of extraneous details to move this process forward.

Please contact me at your earliest convenience to communicate on this matter.

Thank you.

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505.660.7923
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From: Holder, Mike <Michael.Holder@hollyfrontier.com>
Sent: Thursday, February 10, 2022 8:33 PM
To: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Holder, Mike <Michael.Holder@hollyfrontier.com>; Dade, Randy <Lewis.Dade@HollyFrontier.com>
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To: Phillip Goetze (Phillip.Goetze@state.nm.us) <Phillip.Goetze@state.nm.us>
Cc: Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: OCD Upload for RDU Injection

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Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: OCD Upload for RDU Injection

Carl,
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Thanks for the help, Randy

I have uploaded the signed doc. And these are the Action ID # for each.
WDW 1 : Action ID # 77114
WDW-2 : Action ID # 77116
WDW-3 : Action ID # 77119
WDW-4 : Action ID # 77122

Lewis R. (Randy) Dade
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From: Holder, Mike
To: Chavez, Carl J, EMNRD; Goetze, Phillip, EMNRD
Cc: Dade, Randy; Holder, Mike
Subject: RE: [EXTERNAL] OCD Upload for RDU Injection
Date: Tuesday, February 22, 2022 10:16:32 AM
Attachments: Carls Compiled RDU Review Cmts to PRG Final 2-14-22.pdf

Carl/Phil – thanks for your comments! Below we've provided a response to the items you had included in your transmission to us. Please review and we can set a time to discuss – let me know if later this week works for y'all.

Thanks,
Mike

Comment #1 *- The permittee is planning to sample for current permit parameters and this does not address OCD's concerns about Hazardous Toxicity Characteristics Parameters (see attachment). I am confused by sole mention of hazardous characteristics testing (i.e., ignitability, reactivity & corrosivity) and permit listed constituents. OCD is attempting to make sure disposed effluent total concentrations are not RCRA hazardous as per 40 CFR 261.24 Table 1.*

Response #1 – The current UICI-8 Permit requires quarterly monitoring for all parameters listed in 40 CFR 261.24 Table 1 except for 7 pesticides: D012, D013, D014, D015, D016, D017, and D031. As discussed between HFNR and the OCD during the 2014 UIC permit renewal process, there is no reason to include pesticides in the monitoring program as the refinery does not use or manufacture these substances. The addition of the RDU does not change this premise as this operation also does not use or manufacture pesticides and pesticides are not expected to be in the effluent. Therefore the list of toxicity parameters provided in Attachment 4 of the PSP (which reproduces the monitoring list contained in Section 2.A of the four well permits) will provide data that can be directly compared to the historical quarterly monitoring to assess any potential effects of the RDU on effluent quality, including whether the effluent exhibits a hazardous characteristic. As also indicated at the bottom of Attachment 4, ignitability, corrosivity, and reactivity (ICR) are measured quarterly in the laboratory in accordance with 40 CFR 261 as follows:

- Ignitability (D001) – Flashpoint (Method D93/1010A) – per 40 CFR 261.21(a)(1)
- Corrosivity (D002) – pH (Method 9040C) – per 40 CFR 261.22(a)(1)
- Reactivity (D003) – Reactive cyanide (Method 4500 CN E-2016) and reactive sulfide (Method 4500 S2 D-2011) – per 40 CFR 261.23(a)(5)

The above methodologies will be used for the PSP to be consistent with historical quarterly monitoring.

Comment #2 *- The permittee shall ensure that all samples are collected around the same time and exactly 1-week apart in order to generate accurate effluent quality measurements. There is nebulous language on possible variations between weekly sampling that may result in a longer than a 1-month sampling period. The operator shall ensure that all samples are collected around the same time and exactly 1-week apart in order to generate accurate effluent quality measurements.*

Response #2 – Per the OCD request, Navajo will modify the PSP to consistently collect representative weekly samples on the same day of the week and at the same time of the day. However, if the day/time must be slightly altered due to weather, safety, or operational (e.g., upset conditions that prevent discharge) issues, Navajo will notify OCD at the time of sampling and when

submitting the corresponding lab report (see Comment #3 below).

Comment #3 *- The permittee shall complete expedited discrete evaluation of each weekly environmental analytical laboratory data results and forward data results and a review of any exceedances identified to the OCD. This means the lab turn-around of samples must be expedited. There are only 2-sample locations. The permittee shall be prepared for any corrective actions from the OCD including shut-down.*

Response #3 – Per the OCD request, Navajo will expedite lab results. According to Hall Environmental Analysis Laboratory (contractor), the standard turnaround time for the quarterly UIC sampling is 10 days, but this can be expedited to about 5 days. Each of the four weekly post-RDU sample results will be submitted individually to OCD upon Navajo receipt/review from the lab to facilitate dialog for any potential actions/corrections. As detailed in the PSP, after the last sample event, a summary report will be prepared and include full pre- and post-RDU comparisons (including the use of UCL 95% baseline calculations and other statistical methods, as appropriate based on the data set) as well as evaluation against TCLP and ICR regulatory criteria. After the PSP has been completed, Navajo will continue the permitted quarterly sampling program, including assessment for one year of any changes over PSP baseline levels.

For clarification, the pre-RDU sampling of cooling tower blowdown (only) will occur 1/week for three weeks prior to RDU operations and will be subject to the expedited lab turnaround time. Further, no weekly pre-RDU sampling for the WWTP effluent to the wells is planned or necessary due to the existence of the historical quarterly database.

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Sent: Monday, February 14, 2022 12:17 PM

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Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: [EXTERNAL] OCD Upload for RDU Injection

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From: ~~Chavez, Carl J, EMNRD~~
To: ~~Goetze, Phillip, EMNRD~~
Subject: RE: Post-RDU Pilot Sampling Plan (PSP): Review Comments for Meeting w HollyFrontier
Date: Tuesday, February 8, 2022 8:42:00 AM

Phil,

So, my final recommendation is:

1. Focus on Pre-RDU and Post-RDU sampling
2. Sample for Hazardous Characteristics (i.e., ignitability, reactivity & corrosivity) and Haz. Tox. Characteristics Parameters for RCRA Haz. Assessment
3. Focus on evaluating pre and post against each other for any changes, etc. related to solely hazardous evaluation
4. Complete UCL 95% Statistical Baseline of historical quarterly monitoring data (we have it)
5. Continue with quarterly permit sampling regime and evaluate any changes over a year of quarterly monitoring against the baseline.

This will significantly reduce the burden on the operator while focusing on OCD's concern with RCRA Haz. disposal conditions.

Thanks.

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From: Chavez, Carl J, EMNRD
Sent: Tuesday, February 8, 2022 8:13 AM
To: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>
Subject: RE: Post-RDU Pilot Sampling Plan (PSP): Review Comments for Meeting w HollyFrontier

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Since they are going to also perform some weekly pre-RDU start-up, it would be good for them to sample the wastewater effluent going to the injection wells for the parameters mentioned to evaluate RCRA Hazardous Conditions before and post-RDU start-up.

For metals, total unfiltered is what I'm interested in knowing because we are not filtering to evaluate

contaminant hydrogeology here. We are assessing the effluent. I noticed that they are planning to filter samples in the field. This presents problems of its own for our purposes. I would let the lab do the filtering of any filtered metals. They should have the option to do both filtered and unfiltered.

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From: Chavez, Carl J, EMNRD
Sent: Monday, February 7, 2022 4:52 PM
To: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>
Subject: Post-RDU Pilot Sampling Plan (PSP): Review Comments for Meeting w HollyFrontier

Phil,

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   Page 12. Attachment 3:
   CTB Sample Collection Procedure

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From: ~~Chavez, Carl J, EMNRD~~
To: ~~Goetze, Phillip, EMNRD~~
Subject: RE: Post-RDU Pilot Sampling Plan (PSP): Review Comments for Meeting w HollyFrontier
Date: Tuesday, February 8, 2022 8:12:00 AM

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To: Goetze, Phillip, EMNRD
Subject: Post-RDU Pilot Sampling Plan (PSP): Review Comments for Meeting w HollyFrontier
Date: Monday, February 7, 2022 4:52:00 PM
Attachments: Tox Characteristics.pdf
RDU Pilot Sampling Plan 2-3-2022.pdf

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   Pg. 7: PSP Reporting Appendix A:
   Division (OCD) within four weeks of receipt of the lab report for the final (fourth) sampling event. Based on this report, it is anticipated that OCD and Navajo will together make a determination as to whether further sampling may be warranted and/or if any other changes/revisions to the current Discharge Permit UICl-8 are necessary during permit renewal in 2022. If during the PSP program no impacts from RDU operations are observed on the discharge to the UIC wells, quarterly monitoring will resume in accordance with the current UICl-8 Discharge Permit.

4. OCD Post- RDU sampling is interested in non-filtered" or totals effluent samples. While OCD WQCC Regs. required "filtered" groundwater samples to assess the presence of dissolved contaminants for remedial characterization, OCD is concerned with "unfiltered" or total concentration for purposes of injection into an injection well. There is a difference and the permittee shall do both unfiltered and filtered effluent sampling for the Post-RDU weekly sampling to compare with Attachment 2 injection well results which appear to be filtered. Also, the Permittee should have the laboratory filter in lab as opposed to in-field filtering.

   Page 12. Attachment 3:
   CTB Sample Collection Procedure

5. The permittee shall follow EPA QA/QC and DQOs for the sampling and environmental analytical laboratory requirements where the prescribed sampling deviates from EPA Standard Methods.

Thank you.

Carl J. Chavez ● UIC Group
Engineering Bureau
EMNRD - Oil Conservation Division
5200 Oakland Avenue, N.E. Suite 100 | Albuquerque, NM 87113
505.660.7923
www.emnrd.nm.gov

§ 261.24 Toxicity characteristic.

(a) A solid waste (except manufactured gas plant waste) exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in § 260.11 of this chapter, the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract for the purpose of this section.

(b) A solid waste that exhibits the characteristic of toxicity has the EPA Hazardous Waste Number specified in Table 1 which corresponds to the toxic contaminant causing it to be hazardous.

Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

EPA HW No.[1]	Contaminant	CAS No.[2]	Regulatory Level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	[4] 200.0
D024	m-Cresol	108-39-4	[4] 200.0
D025	p-Cresol	106-44-5	[4] 200.0
D026	Cresol		[4] 200.0
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	[3] 0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	[3] 0.13

EPA HW No.[1]	Contaminant	CAS No.[2]	Regulatory Level (mg/L)
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	[3] 5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

[1] Hazardous waste number.

[2] Chemical abstracts service number.

[3] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

[4] If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

[55 FR 11862, Mar. 29, 1990, as amended at 55 FR 22684, June 1, 1990; 55 FR 26987, June 29, 1990; 58 FR 46049, Aug. 31, 1993; 67 FR 11254, Mar. 13, 2002; 71 FR 40259, July 14, 2006]

From: Holder, Mike
To: Goetze, Phillip, EMNRD; Chavez, Carl J, EMNRD
Cc: Holder, Mike; Dade, Randy
Subject: [EXTERNAL] FW: OCD Upload for RDU Injection
Date: Thursday, February 10, 2022 8:33:57 PM
Attachments: 2022 RDU Injection Pilot Plan.pdf
Attachment 3 Figure.pdf

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Phil/Carl – hope y'all are doing well! Just checking in to see if you have any questions on the UIC/RDU sampling plan. I did notice one issue w/the upload – it seems to strip the figure associated with attachment 3 (now attached) – this shows the CTB sampling location. Please don't hesitate to contact me with any questions. Thanks, Mike

---

From: Holder, Mike <Michael.Holder@hollyfrontier.com>
Sent: Tuesday, February 1, 2022 9:01 AM
To: Phillip Goetze (Phillip.Goetze@state.nm.us) <Phillip.Goetze@state.nm.us>
Cc: Holder, Mike <Michael.Holder@hollyfrontier.com>
Subject: FW: OCD Upload for RDU Injection

Phil – fyi. Took longer than I hoped but did get this in. Please let us know if you have any questions. We are currently looking at a late April commissioning. Thanks, Mike

---

From: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Sent: Tuesday, February 1, 2022 8:29 AM
To: CARL J. CHAVEZ (CarlJ.Chavez@state.nm.us) <CarlJ.Chavez@state.nm.us>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Tupou, Kawika <Kawika.Tupou@HollyFrontier.com>
Cc: Dade, Randy <Lewis.Dade@HollyFrontier.com>
Subject: OCD Upload for RDU Injection

Carl,
I have uploaded into [UF-DP] NOI Discharge Permit, each of the Injection Well Folders a copy of the signed RDU Injection Sampling Plan. Each upload is attached to the Facility ID#s that you gave us. Please let me know if there is anything else needed on this.
Thanks for the help, Randy

I have uploaded the signed doc. And these are the Action ID # for each.
WDW 1 : Action ID # 77114
WDW-2 : Action ID # 77116

WDW-3 : Action ID # 77119
WDW-4 : Action ID # 77122

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
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ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

Purpose

This procedure is for sampling events for wastewater discharged from the Artesia facility to the City of Artesia POTW, which includes discharges from the onsite wastewater treatment plant (WWTP) and cooling tower blowdown (CTB) streams from Y-1, Y-2, Y-11, Y-12, and Y-26 (post-RDU).

Scope and Application

This guideline applies to all HollyFrontier Navajo Refining LLC (Navajo or HFNR) employees, contractors and visitors.

The sampling is located at the sample station near the Artesia WWTP Effluent Outfall to the POTW, downstream of the confluence of the cooling tower blowdown (CTB from Y-1, Y-2, Y-11, Y-12, and Y-26) and Walnut Shell Filter (WWTP) effluent (see map below). For CTB sampling, the WWTP effluent will be blocked (i.e., diverted) to the injection wells so that the resulting discharge to the POTW only consists of CTB.

Reference Document

This procedure has been prepared in accordance with the US EPA guidance document on wastewater sampling: https://www.epa.gov/sites/production/files/2017-07/documents/wastewater_sampling306_af.r4.pdf

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

January 28, 2022

Via Electronic Mail

Phillip Goetze
Supervisor – UIC Permitting
New Mexico Oil Conservation Division (Albuquerque Office)
Energy Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: HollyFrontier Navajo Refining LLC / Artesia Refinery / Renewable Diesel Unit / Verification of Non-Hazardous Injection Fluids from RDU Process – Pilot Sampling Plan

Dear Mr. Goetze:

Per our December 8, 2021 conference call, enclosed herein is the requested "Verification of Non-hazardous Injection Fluids from RDU Process - Pilot Sampling Plan" (presented as Appendix A). This Pilot Sampling Plan ("PSP") is intended to characterize the HollyFrontier Navajo Refining LLC ("Navajo") effluent discharge from the on-site wastewater treatment plant ("WWTP") and the blowdown from certain cooling towers at Navajo's Artesia Refinery once operations from the new Renewable Diesel Unit ("RDU") have commenced. The WWTP effluent is currently discharged to both the City of Artesia POTW as well as four underground injection control ("UIC") wells regulated collectively under the December 2017 Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 as follows:

- Well WDW-1
  - API #30-015-27592 under Permit UICI-8-1 (Facility ID = fCJC2117350329)
- Well WDW-2
  - API #30-015-20894 under Permit UICI-8-2 (Facility ID = fCJC2117351808)
- Well WDW-3
  - API #30-015-26575 under Permit UICI-8-3 (Facility ID = fCJC2117354810)
- Well WDW-4
  - API #30-015-44677 under Permit UICI-8-4 (Facility ID = fCJC2117357871)

The New Mexico Oil Conservation Division, Engineering Bureau ("OCD") has requested the PSP and subsequent sampling program to confirm that RDU operations will not result in the WWTP effluent to the UIC wells becoming characteristically hazardous under RCRA. The results of the sampling will be compared to the characteristic levels contained in 40 Code of Federal Regulations (CFR) Section 261.21 through 261.24 for ignitability, corrosivity, reactivity, and toxicity. Specific parameters of concern given in the PSP are those listed in Section 2.A of the December 2017 UICI-8 Discharge Permit; these parameters are currently monitored (and will continue to be once the RDU is in operation) on a quarterly basis. To determine if the new RDU operations have any

additional potential effect on the quality (concentration) of the discharge to the UIC wells, the results from the PSP program will also be compared to historical monitoring data (pre-RDU).

Appendix B is the November 6, 2021 letter from Navajo to OCD. As explained in this letter, and pending confirmation by the PSP program:

- Current Refinery WWTP capacity will be sufficient to treat the additional RDU wastewater stream, and any corresponding increase in constituent concentrations will be reduced via treatment such that Navajo will be able to maintain compliance with current limitations set forth in Discharge Permit UICI-8.

- The RDU wastewater stream will not change the current flow and concentration characteristics of the Refinery WWTP discharge to the UIC well network; therefore, the RDU project will not affect the current terms of the UICI-8 Discharge Permit. In other words, effluent discharge quantity (flow), quality (concentrations), and injection pressure will meet current permitted limits/levels.

Navajo has reviewed all provisions of the December 2017 Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 and cannot identify any amendments/changes that need to be made to accommodate the RDU discharge. The addition of RDU activities will not alter the operation, maintenance, or monitoring of the four underground injection wells. Specifically, under Section 1.G (Modification and Termination), and subject to confirmation by the PSP program, Navajo believes that permit modification for the existing UICI Discharge Permit should not be necessary. Based on results from the PSP program, OCD and Navajo can together make a determination as to whether further sampling may be warranted and/or if any other changes/revisions to the current Discharge Permit UICI-8 are necessary during permit renewal in 2022.

If you have any questions, please contact me by e-mail at kawika.tupou@hollyfrontier.com or by phone at 575-748-3311.

Sincerely,

Kawika Tupou
Environmental Manager

Cc: Becca Crumpler, HollyFrontier Renewables
Mike Holder, HollyFrontier Corporation

APPENDIX A - HollyFrontier Navajo Refining LLC		
Section:		Page: 1 of 3
Title: Verification of Non-hazardous Injection Fluids from RDU Process- Pilot Sampling Plan		
Status: Active	Revision Number: 0	Revision Date: 28 Jan 2022

Purpose

This Pilot Sampling Plan ("PSP") is intended to characterize the HollyFrontier Navajo Refining LLC ("Navajo") effluent discharge from the on-site wastewater treatment plant ("WWTP") at Navajo's Artesia Refinery once operations from the new Renewable Diesel Unit ("RDU") have commenced. The WWTP effluent is currently discharged to both the City of Artesia POTW as well as four underground injection control ("UIC") wells regulated collectively under Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 as follows:

1. Well WDW-1 (API #30-015-27592) under Permit UICI-8-1
2. Well WDW-2 (API #30-015-20894) under Permit UICI-8-2
3. Well WDW-3 (API #30-015-26575) under Permit UICI-8-3
4. Well WDW-4 (API #30-015-44677 under Permit UICI-8-4

In addition to the WWTP effluent, this PSP also covers sampling of the cooling tower blowdown ("CTB") from units Y-1, Y-2, Y-11, and Y-12 (which currently exist for refinery operations) as well as Y-26 (new cooling tower for RDU operations). The CTB sampling is included due to the potential discharge of these sources to the UIC wells as shown in Attachment 1. During normal conditions, all CTB discharges directly to the City POTW; however, CTB can be rerouted to the Refinery's onsite WWTP during emergency conditions for ultimate discharge to the City POTW and/or to the Refinery's UIC well network.

Sample Location

Under Discharge Permit UICI-8, Section 2.A, Navajo collects quarterly samples of injected waste fluids (i.e., WWTP effluent) at the injection well pumps. This routine quarterly sampling is performed by AquaMicrobics according to the Procedure document provided in Attachment 2, which includes a map of the sampling location. This same sampling location will be utilized for the PSP to allow comparison of the historical quarterly data with data representative of RDU operations. The injection well pumps sampling site is representative of the WWTP effluent and is shown schematically on Attachment 1.

The PSP sample location for the CTB will be the current sample location for the combined CTB (from Y-1, Y-2, Y-11, and Y-12) and WWTP effluent that discharges to the POTW (schematically shown on Attachment 1. However, prior to the PSP sampling events, all WWTP effluent will be physically blocked (i.e., using the control valve as well as a manual block valve) and diverted to the injection wells so that the resulting discharge to the POTW only consists of CTB and can be sampled without the contribution of the WWTP effluent. A separate sampling point for just CTB does not currently exist; hence the procedure above. The CTB sampling Procedure document is provided in Attachment 3.

APPENDIX A - HollyFrontier Navajo Refining LLC		
Section:		Page: 2 of 3
Title: Verification of Non-hazardous Injection Fluids from RDU Process- Pilot Sampling Plan		
Status: Active	Revision Number: 0	Revision Date: 28 Jan 2022

Sample Type and Parameters

In accordance with Attachments 2 and 3, all samples (WWTP effluent and CTB) will be collected as grab samples representative of normal discharge flow conditions. The list of parameters for both the WWTP effluent and the CTB discharge will be identical to those required under Discharge Permit UICI-8, Section 2.A (quarterly monitoring); a summary of these parameters along with corresponding analytical methods and laboratory reporting levels (RLs) is given in Attachment 4. These parameters and methods have been identified in conjunction with regulatory authorities as the most appropriate for the UIC well program at Navajo over the life of the program and serve to characterize the Refinery effluent. Hall Environmental Laboratory (NELAP Certified) will perform all analyses under the chain-of-custody shown in Attachment 2, along with Level I standard QA/QC procedures.

Sample Frequency and Duration

Once the RDU is online and corresponding operations are normal and representative, samples for the WWTP effluent and CTB will each be collected once per week for a month; for a total of four sampling events. Individual sample events may be collected during different days of the week and scheduling will be subject to facility operations and any weather conditions that might effect sample personnel safety. If sample events are delayed, the program will extend past one month until four events occur.

Data Compilation and Comparison

Analytical results from the four sampling events will be compiled into Excel spreadsheets to allow statistical processing (i.e., averages, maximums, variability, etc.). Results will be reported along with the corresponding laboratory reporting levels.

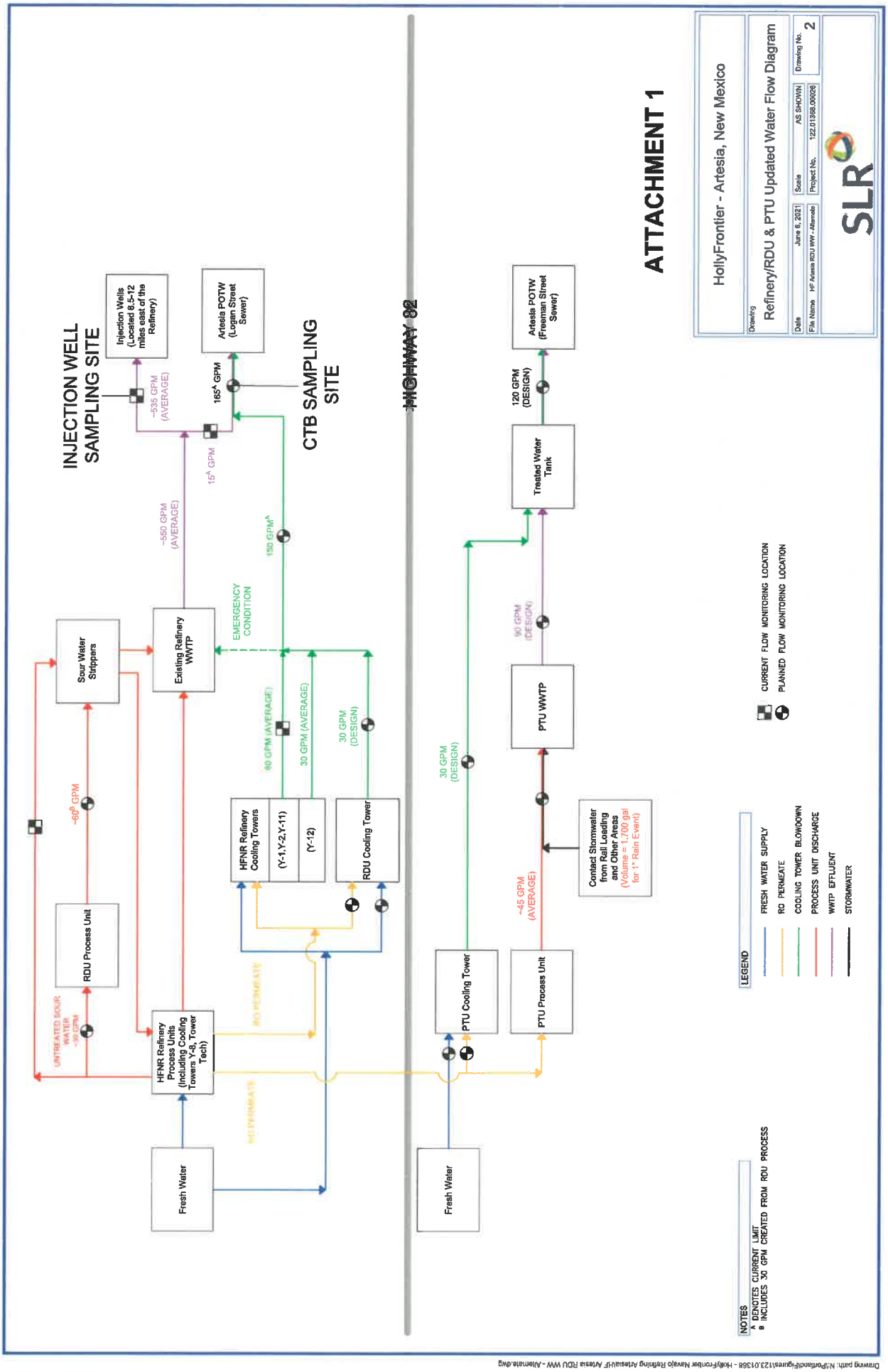
The primary purpose of this sampling program is to confirm that RDU operations will not result in the WWTP effluent to the UIC wells becoming characteristically hazardous under RCRA. The results of the sampling will be compared to the characteristic levels contained in 40 Code of Federal Regulations (CFR) Section 261.21-261.24 for ignitability, corrosivity, reactivity, and toxicity. To determine if the new RDU operations have any additional potential effect on the quality (concentration) of the discharge to the UIC wells, the results from the four sampling events (post-RDU) will also be compared to historical quarterly monitoring data (pre-RDU) as well as three CTB samples collected once per week prior to RDU start-up (i.e., without Y-26). Differences in average and maximum concentrations will be noted. Comparisons will be made for both the WWTP effluent and the CTB.

PSP Reporting

A summary report of the results of the PSP program will be submitted to the Oil Conservation

APPENDIX A - HollyFrontier Navajo Refining LLC		
Section:		Page: 3 of 3
Title: Verification of Non-hazardous Injection Fluids from RDU Process- Pilot Sampling Plan		
Status: Active	Revision Number: 0	Revision Date: 28 Jan 2022

Division (OCD) within four weeks of receipt of the lab report for the final (fourth) sampling event. Based on this report, it is anticipated that OCD and Navajo will together make a determination as to whether further sampling may be warranted and/or if any other changes/revisions to the current Discharge Permit UICI-8 are necessary during permit renewal in 2022. If during the PSP program no impacts from RDU operations are observed on the discharge to the UIC wells , quarterly monitoring will resume in accordance with the current UICI-8 Discharge Permit.


ATTACHMENT 1
HollyFrontier - Artesia, New Mexico
Refinery/RDU & PTU Updated Water Flow Diagram
SLR
INJECTION WELL SAMPLING SITE
CTB SAMPLING SITE
HIGHWAY 82
Injection Wells (Located 8.5-12 miles east of the Refinery)
Artesia POTW (Logan Street Sewer)
Artesia POTW (Freeman Street Sewer)
~535 GPM (AVERAGE)
165A GPM
15A GPM
120 GPM (DESIGN)
Treated Water Tank
~550 GPM (AVERAGE)
150 GPMA
EMERGENCY CONDITION
Sour Water Strippers
Existing Refinery WWTP
~60B GPM
RDU Process Unit
UNTREATED RAW WATER ~30 GPM
80 GPM (AVERAGE)
30 GPM (AVERAGE)
30 GPM (DESIGN)
90 GPM (DESIGN)
HFNR Refinery Cooling Towers
(Y-1,Y-2,Y-11)
(Y-12)
RDU Cooling Tower
PTU WWTP
30 GPM (DESIGN)
~45 GPM (AVERAGE)
Contact Stormwater from Rail Loading and Other Areas (Volume = 1,700 gal for 1" Rain Event)
HFNR Refinery Process Units (Including Cooling Towers Y-8, Tower Tech)
PTU Cooling Tower
PTU Process Unit
RO PERMEATE
Fresh Water
Fresh Water
CURRENT FLOW MONITORING LOCATION
PLANNED FLOW MONITORING LOCATION
LEGEND
FRESH WATER SUPPLY
RO PERMEATE
COOLING TOWER BLOWDOWN
PROCESS UNIT DISCHARGE
WWTP EFFLUENT
STORMWATER
NOTES
A DENOTES CURRENT LIMIT
B INCLUDES 30 GPM CREATED FROM RDU PROCESS
Drawing path: N:\Portland\Figures\123.01358 - HollyFrontier Navajo Refining Artesia\F Artesia RDU WW - Alternate.dwg

ATTACHMENT 2 - Quarterly WDW 1, 2, 3, & 4 Injection Well Sample Collection Procedure

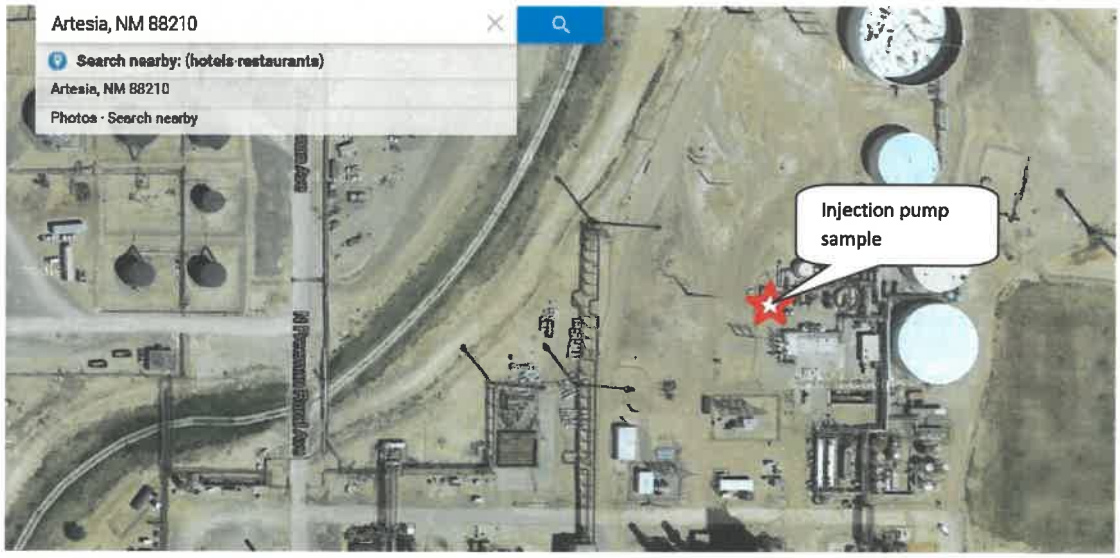
Quarterly WDW 1, 2, 3, & 4 Injection Well

Materials

- Pre-packaged ice chest that contains all sample bottles
- Quarterly WDW 1, 2, 3, & 4 Injection Well chain of custody
- Detailed Attachment of WDW 1, 2, 3, & 4 Injection Well
- Job Safety Analysis
- Portable pH meter
- Portable thermometer
- Clock
- Latex gloves
- Safety glasses
- Ice
- Ziploc bags
- Black tape
- Clear tape
- Keynote slip
- Sharpie or Good Quality Pen

Procedures

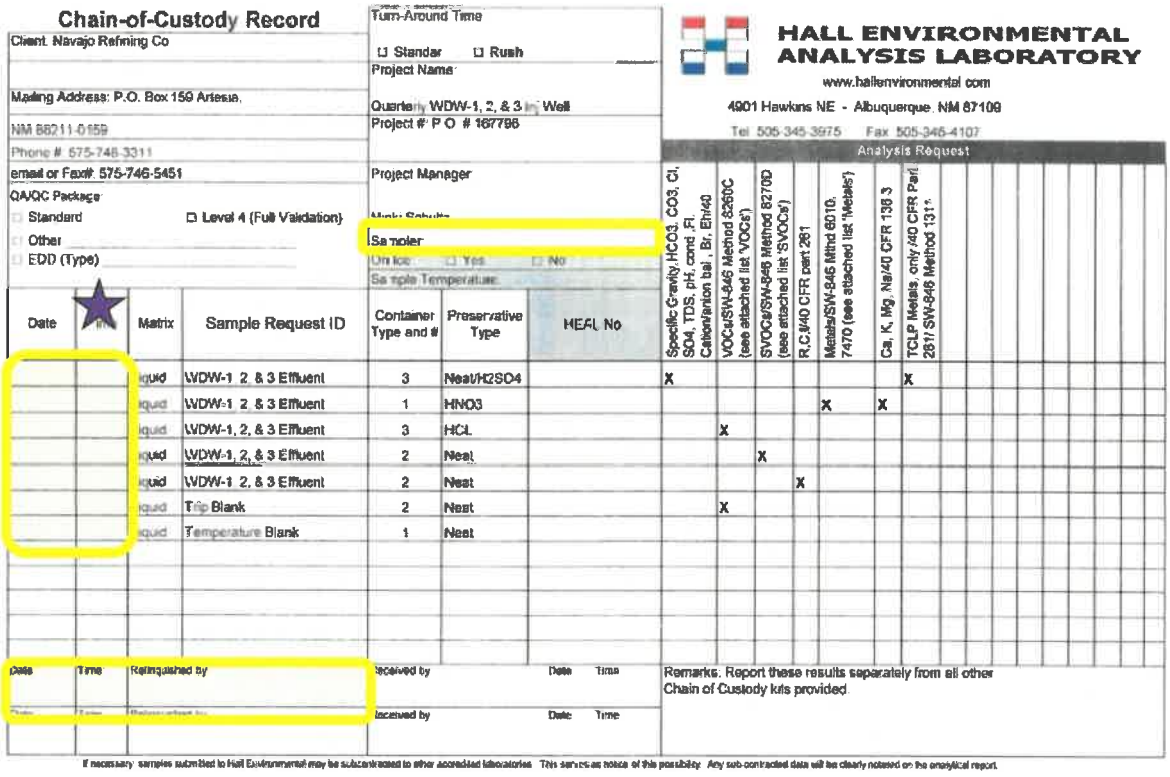
- Acquire the pre-prepared WDW 1, 2, 3, & 4 ice chest from the environmental storage unit (the white shed between Carbon filters and Pipeline sample point)
- Confirm all bottles are labeled (you will need to add the time, date, and person who collected sample)
- Go to injection well pumps (red star on map below)
-



- Take note of the time you begin sampling
- Using the portable pH probe obtain the pH of the water and write it down (make sure pH probe is calibrated)

ATTACHMENT 2 - Quarterly WDW 1, 2, 3, & 4 Injection Well Sample Collection Procedure

- Using a portable thermometer obtain the temperature of the water sample and write it down
- Fill all the empty containers with water from the sample point.
- One sample is labeled to be filtered (use the filter provided in the ice chest)
- Take note of the time you cease sampling
- Wrap black tape tightly around the lids of the bottles taking care that all the lid is covered so that none of the sample can leak
- Place the sample bottles in Ziploc bags (you will need multiple bags in order to hold all sample bottles)
- Fill out the chains of custody [only fill out the yellow boxed portions] (make sure the time on the sheet is the same time listed on the bottles see purple star)
  Example:



Chain-of-Custody Record

Client: Navajo Refining Co
Mailing Address: P.O. Box 159 Artesia,
NM 88211-0159
Phone #: 575-748-3311
email or Fax#: 575-746-5451
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time: ☐ Standar ☐ Rush
Project Name: Quarterly WDW-1, 2, & 3 Well
Project #: P O # 167786
Project Manager:
Sampler:
On Ice: ☐ Yes ☐ No
Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel: 505-345-3975 Fax: 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond ,Fl, Cation/anion bal , Br, Em/40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.W40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136 3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 131*.
		liquid	WDW-1 2 & 3 Effluent	3	Neat/H2SO4		X						X
		liquid	WDW-1 2 & 3 Effluent	1	HNO3						X	X	
		liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
		liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
		liquid	WDW-1 2, & 3 Effluent	2	Neat					X			
		liquid	Trip Blank	2	Neat			X					
		liquid	Temperature Blank	1	Neat								

Date Time Relinquished by: Received by: Date Time
Date Time Received by: Date Time

Remarks: Report these results separately from all other Chain of Custody kits provided

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

- Place chain of custody in a Ziploc bag and place inside ice chest
- Confirm all bottles are sealed in Ziploc bags
- Collect ice in ice chest making sure to cover all sides of sample
- Tape the outside of the ice chest with the clear tape
- When currier arrives, go to main gate and relinquish the samples

If you need to ship the samples

- Take ice chest and extra Ziploc bags to Navajo lab
- Before entering Navajo Labs put on clear safety glasses

ATTACHMENT 2 - Quarterly WDW 1, 2, 3, & 4 Injection Well Sample Collection Procedure

- Place ice inside of a Ziploc bag and seal completely so no water leaks
- Do this with multiple Ziploc bags until the entire sample is covered in ice
- Take ice chest to the welcome desk which is located in Navajo Main office
- Weigh ice chest on the scale provided to the right of computer
- Fill out a shipping label using the computer; type in the shipping location, the weight, of your package, mark that it is your shipping material, charge to sender, and charge environmental department (if you have any questions ask the person working at the front desk)
- At 3:00 pm go to Navajo lab and replace the ice that is in the Ziploc bags (making sure that nothing leaks)
- Add the shipping label to the outside of ice chest
- Hold on to copy of tracking number
- Make sure to completely seal the ice chest by wrapping all corners with clear tape
- Place the sealed ice chest in the FedEx shed located at the warehouse by 3:30 p.m.

Chain of Custody Sample Information

Please be sure to include accurate **Field Temperature** and **pH** of any sample collected. Upon being collected, samples are to be immediately taken to the AquaMicrobics lab so that a pH test can be performed. It is also acceptable to use the Temperature reading from the pH probe for the field temperature reading of the sample.

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

Purpose

This procedure is for sampling events for wastewater discharged from the Artesia facility to the City of Artesia POTW, which includes discharges from the onsite wastewater treatment plant (WWTP) and cooling tower blowdown (CTB) streams from Y-1, Y-2, Y-11, Y-12, and Y-26 (post-RDU).

Scope and Application

This guideline applies to all HollyFrontier Navajo Refining LLC (Navajo or HFNR) employees, contractors and visitors.

The sampling is located at the sample station near the Artesia WWTP Effluent Outfall to the POTW, downstream of the confluence of the cooling tower blowdown (CTB from Y-1, Y-2, Y-11, Y-12, and Y-26) and Walnut Shell Filter (WWTP) effluent (see map below). For CTB sampling, the WWTP effluent will be blocked (i.e., diverted) to the injection wells so that the resulting discharge to the POTW only consists of CTB.

Reference Document

This procedure has been prepared in accordance with the US EPA guidance document on wastewater sampling: https://www.epa.gov/sites/production/files/2017-07/documents/wastewater_sampling306_af.r4.pdf

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

Needed Materials

- Job Safety Analysis
- Appropriate Personal Protective Equipment (PPE) as dictated by HFNR requirements. These include, but are not limited to: FRC clothing, safety glasses, hardhat, steel-toe boots, nitrile gloves, and hearing protection;
- Sample Chain of Custody (COC) form (provided by contract laboratory – see Attachment 2);
- Labeled Sample Bottles: Date, time, sample location, preservation method, and analyses (provided by contract laboratory);
- Five-gallon bucket;
- Glass beaker for sample pouring (if needed) and pH measurement;
- Calibrated pH probe / meter (refer to pH Meter Calibration SOP);
- Ice chest filled with ice;
- Appropriate material to wipe sample bottles clean; and
- Electrical tape.

Please Note- All safety and PPE precautions should be taken in accordance with Navajo SDS and safety procedures applicable for the material being sampled. Navajo personnel will comply with all safety, handling and disposal information and precautions set forth in those documents.

Special Sampling Considerations

- A clean pair of new, non-powdered disposable nitrile gloves will be worn each time a location is sampled, and the gloves should be donned immediately prior to sampling;
- Wastewater samples will typically be collected either by directly filling the sample container or by using an interim container that fills the sample container;
- During sample collection, if transferring the sample from a collection device or container, make sure the device or interim container does not come in contact with the sample containers;
- Place the samples into the appropriate, labeled containers as provided by the contract laboratory;
- All samples requiring preservation must be preserved as soon as practically possible, ideally immediately at the time of sample collection. Note: The contract laboratory will add the appropriate preservatives to the corresponding sample bottles; and
- Do not overfill sample bottles containing preservative to prevent any loss.

Manual Sampling

Manual sampling is normally used for collecting grab samples and/or for immediate in-situ field analyses. The best method to manually collect a sample is to use the actual sample container which will be used to transport the sample to the laboratory. This eliminates the possibility of contaminating the sample with intermediate collection containers.

If the wastewater stream cannot be physically reached by the sampling personnel or it is not safe to reach for the sample, an intermediate collection container may be used, from which the sample can be redistributed to other containers.

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

For locations where samples can be collected from a sample port, valve, or spigot, place a five-gallon bucket under the sample location and allow the sample to run for at least one minute before collection to clear the lines.

Quality Control and Documentation

Equipment blanks should be collected if equipment is field cleaned and re-used on-site or if necessary, to document that low-level contaminants were not introduced by the sampling equipment.

Chain of Custody forms must stay with the samples at all times and must be filled out each time sample control is transferred to another individual or entity.

Sample Bottles and Collection

Trace metals and organics detection limits are typically in the parts per billion (ppb or µg/L), so extreme care must be exercised to ensure sample integrity. When possible, the sample should be collected directly into the appropriate sample container. If the material to be sampled cannot be physically reached, an intermediate collection device may be used.

The sample container to be analyzed may contain a preservative. Care should be taken not to flush any preservative out of the container during fill.

Sampling Procedure

1. Don PPE.

2. Inspect all sample bottles to ensure that they are clean and in good condition.

3. Verify all sample bottles are labeled with the appropriate preservative. Labels shall include:
    a. Sample location;
    b. Date;
    c. Time;
    d. Sampler's initials;
    e. Requested analyses; and
    f. Preservative type.

4. Proceed to the sample station near the Artesia WWTP Effluent Outfall to the POTW. This location is downstream of the confluence of the cooling tower blowdown (CTB) and WWTP Effluent (see map above).

5. Collect samples:
    a. Don new, clean gloves;
    b. Place a five-gallon bucket under the sample point to collect the flush water and any spillage;
    c. Open the sample tap and allow the sample to run for at least one minute to flush the lines;
    d. **NEVER** leave an open sample point unattended for any reason;

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

e. Place each bottle under the open, running sample port. A clean, glass beaker may be used as an interim container for ease of pouring, if needed. Fill each bottle to near the top, ensuring not to overfill to retain all the sample preservative (if present);
f. Close the sample tap;
g. Tape down all sample bottle lids with electrical tape;
h. Place sample bottles in cooler filled with ice;
i. Fill glass beaker with sample for pH and temperature measurement;
j. Using a calibrated pH meter and probe, measure the pH and temperature of the wastewater sample and record results on the Chain of Custody form;
k. Fully complete the sample Chain of Custody, ensuring the COC contains:
    i. Date;
    ii. Time;
    iii. Sampler's name, initials, and signature;
    iv. Line item for each sample bottle; and
    v. Requested analyses;
l. Place completed COC into plastic bag and place on top of sample inside the cooler;
m. Close and secure cooler lid; and
n. Relinquish sample to contract laboratory courier.

6. If any quantity of material has spilled onto the ground, it must be cleaned up immediately as per HFNR's spill response procedures.

7. Dispose of any material from the five-gallon bucket and excess sample in the glass beaker used in temperature and pH measurement by emptying into an approved drain. This is either the sewer box near the Talon tanks or the laboratory sink.

8. Decontaminate and triple rinse all interim sample containers and PPE used, except for nitrile gloves, which should be disposed of in an appropriate trash receptacle.

9. **If any conditions arise which would alter or prevent sampling as described in this document or if there are any questions or concerns regarding the sampling of a particular source or location, contact the HFNR Supervisor immediately for further guidance prior to performing sampling.**

END OF PROCEDURE

ATTACHMENT 4 - LIST OF PSP PARAMETERS (FROM DISCHARGE PERMIT UICI-8, SECTION 2.A)

EPA Haz Waste #	Permit Section 2.A Parameter	Laboratory Method (a)	Laboratory Reporting Level (mg/L) (b)
D004	Arsenic	6010B	5
D005	Barium	6010B	100
D018	Benzene	8260B	0.5
D006	Cadmium	6010B	1
D019	Carbon tetrachloride	8260B	0.5
D020	Chlordane	8081A	0.03
D021	Chlorobenzene	8260B	100
D022	Chloroform	8260B	6
D007	Chromium	6010B	5
D023	o-Cresol	8270C	200
D024	m-Cresol	8270C	200
D025	p-Cresol	8270C	200
D026	Cresol	8270C	200
D027	1,4-Dichlorobenzene	8260B	7.5
D028	1,2-Dichloroethane	8260B	0.5
D029	1,1-Dichloroethylene	8260B	0.7
D030	2,4-Dinitrotoluene	8270C	0.13
D032	Hexachlorobenzene	8270C	0.13
D033	Hexachlorobutadiene	8270C	0.5
D034	Hexachloroethane	8270C	3
D008	Lead	6010B	5
D009	Mercury	7470B	0.2
D035	Methyl ethyl ketone	8260B	200
D036	Nitrobenzene	8270C	2
D037	Pentachlorophenol	8270C	100
D038	Pyridine	8270C	5
D010	Selenium	6010B	1
D011	Silver	6010B	5
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8260B	0.5
D041	2,4,5-Trichlorophenol	8270C	400
D042	2,4,6-Trichlorophenol	8270C	2
D043	Vinyl chloride	8260B	0.2
--	pH	9040C	--
--	Eh (ORP)	2580	--
--	Specific Conductance	2510B	10 umho/cm
--	Specific Gravity	not given	1
--	Temperature	provided with pH	--
--	Fluoride	300.0	0.1
--	Calcium	200.7	1
--	Potassium	200.7	1
--	Magnesium	200.7	1
--	Sodium Bicarbonate	2320B	20
--	Carbonate	2320B	2
--	Chloride	300.0	0.5
--	Sulfate	300.0	0.5
--	Bromide	300.0	0.1
--	Total Dissolved Solids	2540C	40
--	Total Suspended Solids	2540D	4
--	Cation/anion balance	Calculation	--
--	Ignitability	Flashpoint (D93/1010A)	--
--	Corrosivity	Corrosivity by pH	--
--	Reactivity	Reactive Cyanide, Sulfide	--

For metals and organics with a EPA Hazardous Waste Number given in UICI-8 Section 2.A:
(a) = Laboratory method performed on total sample per July 1992 EPA SW-846 Test Method 1311 Section 1.2 (TCLP)
(b) = Laboratory Reporting Level equivalent to TCLP Regulatory Level given in 40 CFR 261.24(b)

APPENDIX B

HOLLYFRONTIER.

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

November 6, 2021

Via Electronic Mail

Phillip Goetze
Supervisor – UIC Permitting
New Mexico Oil Conservation Division (Albuquerque Office)
Energy Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: HollyFrontier Navajo Refining LLC / Artesia Refinery / Renewable Diesel & Pretreatment Unit Projects /Response to OCD Request for Proposal on Potential Amendment of Discharge Permits for Four Class I Non-Hazardous Waste Injection Wells

Dear Mr. Goetze:

In response to Ms. Leigh Barr's September 24, 2021 letter regarding the Oil Conservation Division's ("OCD"'s) jurisdictional authority pertaining to the Renewable Diesel Unit ("RDU") and Pretreatment Unit ("PTU") projects at the HollyFrontier Navajo Refining LLC ("Navajo") facility, Navajo acknowledges OCD's conclusion that the RDU and PTU fall under OCD's jurisdiction. As requested in the last paragraph of the September 24, 2021 OCD transmittal, this letter serves as a formal response to OCD's request for proposal regarding the potential amendment of Navajo's current Class I Non-Hazardous Waste Injection Well Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4. Navajo intends to discharge treated RDU wastewater to the four underground injection control ("UIC") wells (WDW-1, WDW-2, WDW-3, and WDW-4) currently regulated by these permits following treatment at Navajo's on-site wastewater treatment plant ("WWTP") in the same manner as effluent already discharged from the refinery (*i.e.*, treated effluent from the WWTP can go to any or all wells depending on refinery/RDU needs). There will be no discharge of treated PTU wastewater to any of these wells as all PTU effluent will be discharged to the City of Artesia's Publicly Owned Treatment Works (POTW) via a new discharge permit with the City.

Background

As presented in detail in the June 11, 2021 Navajo letter to OCD, in addition to current petroleum refining operations, the HollyFrontier organization is in the process of constructing and will operate a 9,000 barrel per day ("bpd") Renewable Diesel Unit, *i.e.*, a renewable diesel production facility, and a 13,000 bpd Pretreatment Unit to treat certain feedstocks for the RDU. Drawing 2, Water Flow Diagram, is reproduced from this letter herein to show wastewater

streams currently anticipated to be generated in connection with operations of the RDU and PTU.

- RDU process wastewater will be routed for treatment through the Refinery WWTP and will be discharged consistent with the current discharge configuration at the Refinery, including to the City of Artesia's POTW and to the Refinery's four permitted UIC wells. Since current Refinery WWTP capacity will be sufficient to treat the additional RDU wastewater stream (*i.e.*, approximately 30 gpm discharged to the City POTW), any corresponding increase in constituent concentrations will be reduced via treatment such that Navajo will be able to maintain compliance with current federal, state and local concentration effluent limitations as well as current limitations set forth in Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4.

- A new Cooling Tower ("CT") will be installed to provide cooling for the RDU. RDU CT blowdown (approximately 30 gpm) will normally be routed to combine with the Refinery CT blowdown stream that is directly discharged to the POTW (and not the UIC wells). As shown on Drawing 2, in the event of an emergency condition, the RDU CT blowdown can be rerouted to the Refinery's onsite WWTP, for ultimate discharge to the City POTW and/or to the Refinery's UIC well network (consistent with current discharge permit levels).

- All process wastewater from the PTU (approximately 90 gpm) will be collected and routed to a new PTU wastewater treatment plant (the "PTU WWTP") for treatment prior to discharge to the City POTW via a newly permitted outfall. There is no planned discharge of PTU WWTP wastewater to the Refinery WWTP, and, therefore, no planned discharge to the UIC well network.

- A new CT will be installed to provide cooling for the PTU and the PTU WWTP. There is no planned discharge of PTU CT blowdown (approximately 30 gpm) to the UIC well network.

- PTU and rail loading/unloading areas have been designed to minimize stormwater exposure; however, a small volume of contact stormwater from these areas is expected. This contact stormwater will be collected and routed to the PTU WWTP for treatment and subsequent discharge to the POTW sewer and will not be discharged to the UIC well network.

UICI Regulation and Permitting

The RDU wastewater stream will constitute a small component of the combined RDU/Refinery process wastewater stream prior to treatment and discharge to the UIC well network. Due to the small RDU wastewater contribution and preliminary estimates of the RDU wastewater stream quality (*i.e.*, prior to treatment), it is anticipated that the current Refinery WWTP capacity will be sufficient to treat the additional RDU wastewater stream. Therefore, Navajo is expected to

maintain compliance with current limitations and requirements set forth in Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4.

For the PTU wastewater stream, including the PTU CT blowdown, there will be no anticipated discharge of PTU wastewaters to the UIC well network, and as a result, there will be no effect from the PTU on Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4.

Given that the RDU wastewater stream will not change the current flow and concentration characteristics of the Refinery WWTP discharge to the UIC well network (as well as the fact of no wastewater contribution from the PTU discharge to the UIC well network), the RDU/PTU projects will not affect the current terms of the four UICI Discharge Permits. In other words, effluent discharge quantity (flow), quality (concentrations), or injection pressure are not expected to increase from current permitted limits/levels. These discharge characteristics, currently reported by Navajo on a quarterly basis, will remain the same once the RDU/PTU is online; summaries for wells WDW-1, WDW-2, WDW-3, and WDW-4 from January 1, 2021 to September 30, 2021 are given in Tables 1 and 2 as a reference.

Navajo has reviewed all provisions of the four December 2017 Class I Non-Hazardous Waste Injection Well Discharge Permits and cannot identify any amendments/changes that need to be made to accommodate the RDU/PTU discharge. The addition of RDU/PTU activities will not alter the operation, maintenance, or monitoring of the four underground injection wells. Therefore, Navajo believes that permit modifications for the existing UICI Discharge Permits are not necessary at this time. As a result, and subject to OCD concurrence, Navajo proposes that the current UICI Discharge Permits be maintained in their entirety until their December 2022 expiration, given that the RDU/PTU projects come online prior to this date.

Please let us know if you would like to discuss the above response and/or would like additional information. We look forward to your feedback and thank you in advance for your consideration.

Sincerely,

Kawika Tupou
Environmental Manager

Attachment

c:

Ms. Becca Crumpler, HollyFrontier Renewables Environmental Manager
Mr. Michael W. Holder, HollyFrontier Corporate Environmental Specialist

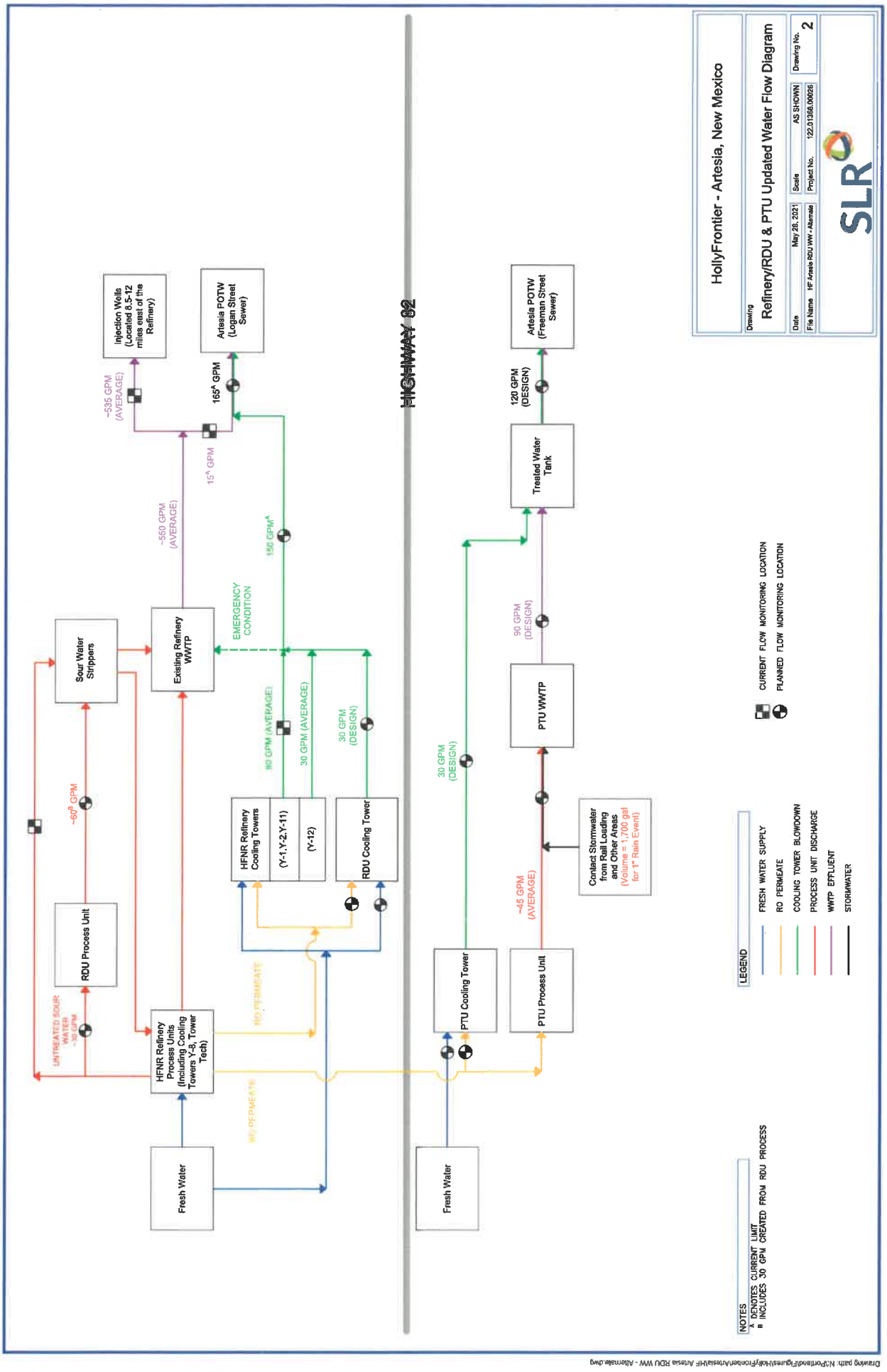

HollyFrontier - Artesia, New Mexico
Drawing
Refinery/RDU & PTU Updated Water Flow Diagram
Date May 28, 2021
Scale AS SHOWN
Drawing No. 2
File Name NF Artesia RDU WW - Alternate
Project No. 122.01368.00026
SLR
HIGHWAY 82
Injection Wells (Located 8.5-12 miles east of the Refinery)
Artesia POTW (Logan Street Sewer)
Artesia POTW (Freeman Street Sewer)
~535 GPM (AVERAGE)
165[A] GPM
120 GPM (DESIGN)
Treated Water Tank
15[A] GPM
~550 GPM (AVERAGE)
150 GPM[A]
90 GPM (DESIGN)
PTU WWTP
Sour Water Strippers
Existing Refinery WWTP
EMERGENCY CONDITION
~60[B] GPM
RDU Process Unit
HFNR Refinery Cooling Towers
(Y-1,Y-2,Y-11)
(Y-12)
RDU Cooling Tower
90 GPM (AVERAGE)
30 GPM (AVERAGE)
30 GPM (DESIGN)
30 GPM (DESIGN)
PTU Cooling Tower
~45 GPM (AVERAGE)
PTU Process Unit
Contact Stormwater from Rail Loading and Other Areas (Volume = 1,700 gal for 1" Rain Event)
UNTREATED SOUR WATER ~30 GPM
HFNR Refinery Process Units (Including Cooling Towers Y-8, Tower Tech)
RO PERMEATE
RO PERMEATE
Fresh Water
Fresh Water
CURRENT FLOW MONITORING LOCATION
PLANNED FLOW MONITORING LOCATION
LEGEND
FRESH WATER SUPPLY
RO PERMEATE
COOLING TOWER BLOWDOWN
PROCESS UNIT DISCHARGE
WWTP EFFLUENT
STORMWATER
NOTES
A DENOTES CURRENT LIMIT
B INCLUDES 30 GPM CREATED FROM RDU PROCESS
Drawing path: N:\Portland\Figures\HollyFrontier\Artesia\NF Artesia RDU WW - Alternate.dwg

TABLE 1. CONCENTRATIONS OF WASTEWATER INJECTED INTO WELLS WDW-1, WDW-2, WDW-3, AND WDW-4

Parameter	Units	1/22/2021	3/21/2021	5/24/2021	9/29/2021
Alkalinity, bicarbonate	mg/L	421.3	333.1	498.3	404.3
Alkalinity, carbonate	mg/L	< 2.000	< 2.000	< 2.000	< 2.000
Alkalinity, total	mg/L	421.3	333.1	498.3	404.3
Conductivity	uS/cm	6500	6400	5700	7100
Cyanide	mg/L	0.0358	0.0384	0.0319	0.0293
Ignitability	deg F	>170	>170	>170	--
Oxidation Reduction Potential	mV	155	83.3	122	158
pH	su	7.27	7.40	7.53	--
Specific Gravity	su	1.003	1.000	1.002	1.005
Sulfide	mg/L	< 0.050	0.065	< 0.050	0.121
Total Dissolved Solids	mg/L	4940	5070	4600	4910
Bromide	mg/L	1.30	0.65	0.59	0.81
Chloride	mg/L	520	520	390	510
Fluoride	mg/L	23	57	22	67
Nitrate	mg/L	--	0.72	--	0.90
Nitrate/Nitrite	mg/L	0.94 (J)	--	0.31 (J)	--
Nitrite	mg/L	--	0.44 (J)	--	0.2 (J)
Phosphorus, total	mg/L	< 1.2	< 1.2	< 1.2	< 1.2
Sulfate	mg/L	2400	2300	2300	2300
Calcium	mg/L	440	400	380	340
Magnesium	mg/L	150	140	120	110
Potassium	mg/L	160	270	110	320
Sodium	mg/L	810	780	800	780
Arsenic	mg/L	< 0.022	< 0.022	< 0.11	< 0.022
Barium	mg/L	0.051 (J)	0.036 (J)	0.043	0.026 (J)
Cadmium	mg/L	< 0.00090	< 0.00090	< 0.0045	< 0.0012
Chromium	mg/L	< 0.0014	< 0.0014	< 0.007	< 0.0017
Lead	mg/L	< 0.013	< 0.013	< 0.064	< 0.013
Mercury	mg/L	< 0.00012	< 0.00012	< 0.00012	< 0.00012
Selenium	mg/L	0.082 (J)	< 0.021	< 0.11	0.075 (J)
Silver	mg/L	0.016 (J)	0.0086 (J)	0.0067 (J)	0.0066 (J)
Chlordane	mg/L	< 0.00050	< 0.00050	< 0.00050	--
1,1-Dichloroethene	mg/L	< 0.00013	< 0.00013	< 0.00013	< 0.00020
1,2-Dichloroethane	mg/L	< 0.00022	< 0.00022	< 0.00022	< 0.00025
1,4-Dichlorobenzene (8260)	mg/L	< 0.00021	< 0.00021	< 0.00021	< 0.00021
2,4,5-Trichlorophenol	mg/L	< 0.00062	< 0.00062	< 0.00062	--
2,4,6-Trichlorophenol	mg/L	< 0.00043	< 0.00043	< 0.00043	--
2,4-Dinitrotoluene	mg/L	< 0.00062	< 0.00062	< 0.00062	--
2-Butanone	mg/L	< 0.0011	< 0.0011	< 0.0011	< 0.0020
2-Methylphenol	mg/L	< 0.00051	< 0.00051	< 0.00051	--
Benzene	mg/L	< 0.00023	< 0.00023	< 0.00023	< 0.00023
Carbon tetrachloride	mg/L	< 0.00018	< 0.00018	< 0.00018	< 0.00018
Chlorobenzene	mg/L	< 0.00014	< 0.00014	< 0.00014	< 0.00016
Chloroform	mg/L	< 0.00013	< 0.00013	< 0.00013	< 0.00013
Cresols	mg/L	0.0013 (J)	< 0.00051	< 0.00051	--
Hexachlorobenzene	mg/L	< 0.00066	< 0.00066	< 0.00066	--
Hexachlorobutadiene (8270)	mg/L	< 0.00082	< 0.00082	< 0.00082	--
Hexachloroethane	mg/L	< 0.00045	< 0.00045	< 0.00045	--
Nitrobenzene (8270)	mg/L	< 0.00051	< 0.00051	< 0.00051	--
Pentachlorophenol	mg/L	< 0.00059	< 0.00059	< 0.00059	--
Pyridine	mg/L	< 0.00093	< 0.00093	< 0.00093	--
Tetrachloroethene	mg/L	< 0.00036	< 0.00036	< 0.00036	< 0.00036
Trichloroethene	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Vinyl chloride	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00032

"<" = sample results less than Method Detection Limit (MDL)
"J" = sample result between Method Detection Limit (MDL) and Reporting Limit (RL)

TABLE 2. MONTHLY WELL INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Volume (barrels)
WELL WDW-1			
Jan-21	1,045	238	252,960
Feb-21	1,049	227	217,920
Mar-21	1,065	182	193,440
Apr-21	936	266	273,600
May-21	956	304	323,108
Jun-21	1,031	284	292,114
Jul-21	1,120	262	278,469
Aug-21	1,129	275	292,286
Sep-21	980	273	280,800
WELL WDW-2			
Jan-21	1,052	70	74,400
Feb-21	1,093	72	69,120
Mar-21	1,022	79	83,966
Apr-21	1,077	96	98,743
May-21	1,017	89	94,594
Jun-21	1,034	90	92,571
Jul-21	974	84	89,280
Aug-21	1,010	85	90,343
Sep-21	1,037	87	89,486
WELL WDW-3			
Jan-21	928	62	65,897
Feb-21	934	96	92,160
Mar-21	916	89	94,594
Apr-21	929	126	121,371
May-21	954	129	137,109
Jun-21	924	131	134,742
Jul-21	942	139	147,737
Aug-21	960	140	148,800
Sep-21	948	132	135,771
WELL WDW-4			
Jan-21	114	162	172,183
Feb-21	263	145	139,200
Mar-21	129	203	215,760
Apr-21	135	207	212,914
May-21	143	203	215,760
Jun-21	185	203	208,800
Jul-21	142	176	187,063
Aug-21	152	191	203,006
Sep-21	167	224	280,400

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

January 28, 2022

Via Electronic Mail

Phillip Goetze
Supervisor – UIC Permitting
New Mexico Oil Conservation Division (Albuquerque Office)
Energy Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: HollyFrontier Navajo Refining LLC / Artesia Refinery / Renewable Diesel Unit / Verification of Non-Hazardous Injection Fluids from RDU Process – Pilot Sampling Plan

Dear Mr. Goetze:

Per our December 8, 2021 conference call, enclosed herein is the requested "Verification of Non-hazardous Injection Fluids from RDU Process - Pilot Sampling Plan" (presented as Appendix A). This Pilot Sampling Plan ("PSP") is intended to characterize the HollyFrontier Navajo Refining LLC ("Navajo") effluent discharge from the on-site wastewater treatment plant ("WWTP") and the blowdown from certain cooling towers at Navajo's Artesia Refinery once operations from the new Renewable Diesel Unit ("RDU") have commenced. The WWTP effluent is currently discharged to both the City of Artesia POTW as well as four underground injection control ("UIC") wells regulated collectively under the December 2017 Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 as follows:

- Well WDW-1
  - API #30-015-27592 under Permit UICI-8-1 (Facility ID = fCJC2117350329)
- Well WDW-2
  - API #30-015-20894 under Permit UICI-8-2 (Facility ID = fCJC2117351808)
- Well WDW-3
  - API #30-015-26575 under Permit UICI-8-3 (Facility ID = fCJC2117354810)
- Well WDW-4
  - API #30-015-44677 under Permit UICI-8-4 (Facility ID = fCJC2117357871)

The New Mexico Oil Conservation Division, Engineering Bureau ("OCD") has requested the PSP and subsequent sampling program to confirm that RDU operations will not result in the WWTP effluent to the UIC wells becoming characteristically hazardous under RCRA. The results of the sampling will be compared to the characteristic levels contained in 40 Code of Federal Regulations (CFR) Section 261.21 through 261.24 for ignitability, corrosivity, reactivity, and toxicity. Specific parameters of concern given in the PSP are those listed in Section 2.A of the December 2017 UICI-8 Discharge Permit; these parameters are currently monitored (and will continue to be once the RDU is in operation) on a quarterly basis. To determine if the new RDU operations have any

HollyFrontier Navajo Refining LLC
hollyfrontier.com

additional potential effect on the quality (concentration) of the discharge to the UIC wells, the results from the PSP program will also be compared to historical monitoring data (pre-RDU).

Appendix B is the November 6, 2021 letter from Navajo to OCD. As explained in this letter, and pending confirmation by the PSP program:

- Current Refinery WWTP capacity will be sufficient to treat the additional RDU wastewater stream, and any corresponding increase in constituent concentrations will be reduced via treatment such that Navajo will be able to maintain compliance with current limitations set forth in Discharge Permit UICI-8.

- The RDU wastewater stream will not change the current flow and concentration characteristics of the Refinery WWTP discharge to the UIC well network; therefore, the RDU project will not affect the current terms of the UICI-8 Discharge Permit. In other words, effluent discharge quantity (flow), quality (concentrations), and injection pressure will meet current permitted limits/levels.

Navajo has reviewed all provisions of the December 2017 Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 and cannot identify any amendments/changes that need to be made to accommodate the RDU discharge. The addition of RDU activities will not alter the operation, maintenance, or monitoring of the four underground injection wells. Specifically, under Section 1.G (Modification and Termination), and subject to confirmation by the PSP program, Navajo believes that permit modification for the existing UICI Discharge Permit should not be necessary. Based on results from the PSP program, OCD and Navajo can together make a determination as to whether further sampling may be warranted and/or if any other changes/revisions to the current Discharge Permit UICI-8 are necessary during permit renewal in 2022.

If you have any questions, please contact me by e-mail at kawika.tupou@hollyfrontier.com or by phone at 575-748-3311.

Sincerely,

Kawika Tupou
Environmental Manager

Cc: Becca Crumpler, HollyFrontier Renewables
Mike Holder, HollyFrontier Corporation

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

January 28, 2022

Via Electronic Mail

Phillip Goetze
Supervisor – UIC Permitting
New Mexico Oil Conservation Division (Albuquerque Office)
Energy Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: HollyFrontier Navajo Refining LLC / Artesia Refinery / Renewable Diesel Unit / Verification of Non-Hazardous Injection Fluids from RDU Process – Pilot Sampling Plan

Dear Mr. Goetze:

Per our December 8, 2021 conference call, enclosed herein is the requested "Verification of Non-hazardous Injection Fluids from RDU Process - Pilot Sampling Plan" (presented as Appendix A). This Pilot Sampling Plan ("PSP") is intended to characterize the HollyFrontier Navajo Refining LLC ("Navajo") effluent discharge from the on-site wastewater treatment plant ("WWTP") and the blowdown from certain cooling towers at Navajo's Artesia Refinery once operations from the new Renewable Diesel Unit ("RDU") have commenced. The WWTP effluent is currently discharged to both the City of Artesia POTW as well as four underground injection control ("UIC") wells regulated collectively under the December 2017 Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 as follows:

- Well WDW-1
  - API #30-015-27592 under Permit UICI-8-1 (Facility ID = fCJC2117350329)
- Well WDW-2
  - API #30-015-20894 under Permit UICI-8-2 (Facility ID = fCJC2117351808)
- Well WDW-3
  - API #30-015-26575 under Permit UICI-8-3 (Facility ID = fCJC2117354810)
- Well WDW-4
  - API #30-015-44677 under Permit UICI-8-4 (Facility ID = fCJC2117357871)

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Dear Mr. Goetze:

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  - API #30-015-26575 under Permit UICI-8-3 (Facility ID = fCJC2117354810)
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  - API #30-015-44677 under Permit UICI-8-4 (Facility ID = fCJC2117357871)

The New Mexico Oil Conservation Division, Engineering Bureau ("OCD") has requested the PSP and subsequent sampling program to confirm that RDU operations will not result in the WWTP effluent to the UIC wells becoming characteristically hazardous under RCRA. The results of the sampling will be compared to the characteristic levels contained in 40 Code of Federal Regulations (CFR) Section 261.21 through 261.24 for ignitability, corrosivity, reactivity, and toxicity. Specific parameters of concern given in the PSP are those listed in Section 2.A of the December 2017 UICI-8 Discharge Permit; these parameters are currently monitored (and will continue to be once the RDU is in operation) on a quarterly basis. To determine if the new RDU operations have any

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Environmental Manager

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APPENDIX A - HollyFrontier Navajo Refining LLC		
Section:		Page: 1 of 3
Title: Verification of Non-hazardous Injection Fluids from RDU Process- Pilot Sampling Plan		
Status: Active	Revision Number: 0	Revision Date: 28 Jan 2022

Purpose

This Pilot Sampling Plan ("PSP") is intended to characterize the HollyFrontier Navajo Refining LLC ("Navajo") effluent discharge from the on-site wastewater treatment plant ("WWTP") at Navajo's Artesia Refinery once operations from the new Renewable Diesel Unit ("RDU") have commenced. The WWTP effluent is currently discharged to both the City of Artesia POTW as well as four underground injection control ("UIC") wells regulated collectively under Class I Non-Hazardous Waste Injection Well Discharge Permit UICI-8 as follows:

1. Well WDW-1 (API #30-015-27592) under Permit UICI-8-1
2. Well WDW-2 (API #30-015-20894) under Permit UICI-8-2
3. Well WDW-3 (API #30-015-26575) under Permit UICI-8-3
4. Well WDW-4 (API #30-015-44677 under Permit UICI-8-4

In addition to the WWTP effluent, this PSP also covers sampling of the cooling tower blowdown ("CTB") from units Y-1, Y-2, Y-11, and Y-12 (which currently exist for refinery operations) as well as Y-26 (new cooling tower for RDU operations). The CTB sampling is included due to the potential discharge of these sources to the UIC wells as shown in Attachment 1. During normal conditions, all CTB discharges directly to the City POTW; however, CTB can be rerouted to the Refinery's onsite WWTP during emergency conditions for ultimate discharge to the City POTW and/or to the Refinery's UIC well network.

Sample Location

Under Discharge Permit UICI-8, Section 2.A, Navajo collects quarterly samples of injected waste fluids (i.e., WWTP effluent) at the injection well pumps. This routine quarterly sampling is performed by AquaMicrobics according to the Procedure document provided in Attachment 2, which includes a map of the sampling location. This same sampling location will be utilized for the PSP to allow comparison of the historical quarterly data with data representative of RDU operations. The injection well pumps sampling site is representative of the WWTP effluent and is shown schematically on Attachment 1.

The PSP sample location for the CTB will be the current sample location for the combined CTB (from Y-1, Y-2, Y-11, and Y-12) and WWTP effluent that discharges to the POTW (schematically shown on Attachment 1. However, prior to the PSP sampling events, all WWTP effluent will be physically blocked (i.e., using the control valve as well as a manual block valve) and diverted to the injection wells so that the resulting discharge to the POTW only consists of CTB and can be sampled without the contribution of the WWTP effluent. A separate sampling point for just CTB does not currently exist; hence the procedure above. The CTB sampling Procedure document is provided in Attachment 3.

APPENDIX A - HollyFrontier Navajo Refining LLC		
Section:		Page: 2 of 3
Title: Verification of Non-hazardous Injection Fluids from RDU Process- Pilot Sampling Plan		
Status: Active	Revision Number: 0	Revision Date: 28 Jan 2022

Sample Type and Parameters

In accordance with Attachments 2 and 3, all samples (WWTP effluent and CTB) will be collected as grab samples representative of normal discharge flow conditions. The list of parameters for both the WWTP effluent and the CTB discharge will be identical to those required under Discharge Permit UICI-8, Section 2.A (quarterly monitoring); a summary of these parameters along with corresponding analytical methods and laboratory reporting levels (RLs) is given in Attachment 4. These parameters and methods have been identified in conjunction with regulatory authorities as the most appropriate for the UIC well program at Navajo over the life of the program and serve to characterize the Refinery effluent. Hall Environmental Laboratory (NELAP Certified) will perform all analyses under the chain-of-custody shown in Attachment 2, along with Level I standard QA/QC procedures.

Sample Frequency and Duration

Once the RDU is online and corresponding operations are normal and representative, samples for the WWTP effluent and CTB will each be collected once per week for a month; for a total of four sampling events. Individual sample events may be collected during different days of the week and scheduling will be subject to facility operations and any weather conditions that might effect sample personnel safety. If sample events are delayed, the program will extend past one month until four events occur.

Data Compilation and Comparison

Analytical results from the four sampling events will be compiled into Excel spreadsheets to allow statistical processing (i.e., averages, maximums, variability, etc.). Results will be reported along with the corresponding laboratory reporting levels.

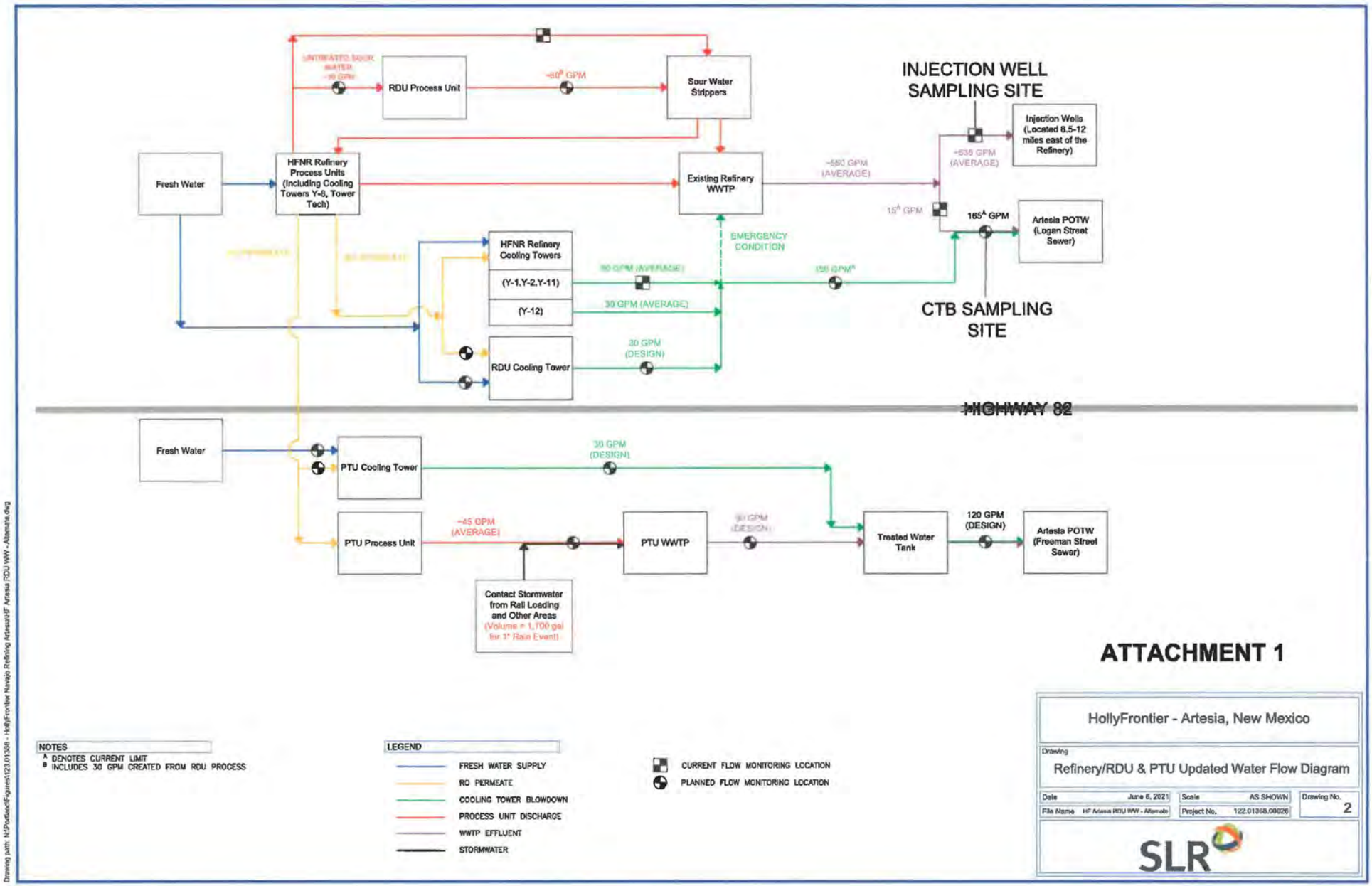
The primary purpose of this sampling program is to confirm that RDU operations will not result in the WWTP effluent to the UIC wells becoming characteristically hazardous under RCRA. The results of the sampling will be compared to the characteristic levels contained in 40 Code of Federal Regulations (CFR) Section 261.21-261.24 for ignitability, corrosivity, reactivity, and toxicity. To determine if the new RDU operations have any additional potential effect on the quality (concentration) of the discharge to the UIC wells, the results from the four sampling events (post-RDU) will also be compared to historical quarterly monitoring data (pre-RDU) as well as three CTB samples collected once per week prior to RDU start-up (i.e., without Y-26). Differences in average and maximum concentrations will be noted. Comparisons will be made for both the WWTP effluent and the CTB.

PSP Reporting

A summary report of the results of the PSP program will be submitted to the Oil Conservation

APPENDIX A - HollyFrontier Navajo Refining LLC		
Section:		Page: 3 of 3
Title: Verification of Non-hazardous Injection Fluids from RDU Process- Pilot Sampling Plan		
Status: Active	Revision Number: 0	Revision Date: 28 Jan 2022

Division (OCD) within four weeks of receipt of the lab report for the final (fourth) sampling event. Based on this report, it is anticipated that OCD and Navajo will together make a determination as to whether further sampling may be warranted and/or if any other changes/revisions to the current Discharge Permit UICI-8 are necessary during permit renewal in 2022. If during the PSP program no impacts from RDU operations are observed on the discharge to the UIC wells , quarterly monitoring will resume in accordance with the current UICI-8 Discharge Permit.


INJECTION WELL SAMPLING SITE
Injection Wells (Located 8.5-12 miles east of the Refinery)
~535 GPM (AVERAGE)
RDU Process Unit
~60[B] GPM
Sour Water Strippers
Fresh Water
HFNR Refinery Process Units (Including Cooling Towers Y-8, Tower Tech)
Existing Refinery WWTP
~550 GPM (AVERAGE)
15[A] GPM
165[A] GPM
Artesia POTW (Logan Street Sewer)
EMERGENCY CONDITION
HFNR Refinery Cooling Towers
(Y-1,Y-2,Y-11)
(Y-12)
30 GPM (AVERAGE)
150 GPM[A]
30 GPM (DESIGN)
RDU Cooling Tower
CTB SAMPLING SITE
HIGHWAY 82
Fresh Water
PTU Cooling Tower
30 GPM (DESIGN)
PTU Process Unit
~45 GPM (AVERAGE)
PTU WWTP
Treated Water Tank
120 GPM (DESIGN)
Artesia POTW (Freeman Street Sewer)
Contact Stormwater from Rail Loading and Other Areas
(Volume = 1,700 gal for 1" Rain Event)
ATTACHMENT 1
NOTES
A DENOTES CURRENT LIMIT
B INCLUDES 30 GPM CREATED FROM RDU PROCESS
LEGEND
FRESH WATER SUPPLY
RO PERMEATE
COOLING TOWER BLOWDOWN
PROCESS UNIT DISCHARGE
WWTP EFFLUENT
STORMWATER
CURRENT FLOW MONITORING LOCATION
PLANNED FLOW MONITORING LOCATION
HollyFrontier - Artesia, New Mexico
Drawing
Refinery/RDU & PTU Updated Water Flow Diagram
Date June 6, 2021
Scale AS SHOWN
Drawing No. 2
File Name HF Artesia RDU WW - Alternate
Project No. 122.01368.00026
SLR
Drawing path: N:\Portland\Figures\123.01368 - HollyFrontier Navajo Refining Artesia\HF Artesia RDU WW - Alternate.dwg

ATTACHMENT 2 - Quarterly WDW 1, 2, 3, & 4 Injection Well Sample Collection Procedure

Quarterly WDW 1, 2, 3, & 4 Injection Well

Materials

- Pre-packaged ice chest that contains all sample bottles
- Quarterly WDW 1, 2, 3, & 4 Injection Well chain of custody
- Detailed Attachment of WDW 1, 2, 3, & 4 Injection Well
- Job Safety Analysis
- Portable pH meter
- Portable thermometer
- Clock
- Latex gloves
- Safety glasses
- Ice
- Ziploc bags
- Black tape
- Clear tape
- Keynote slip
- Sharpie or Good Quality Pen

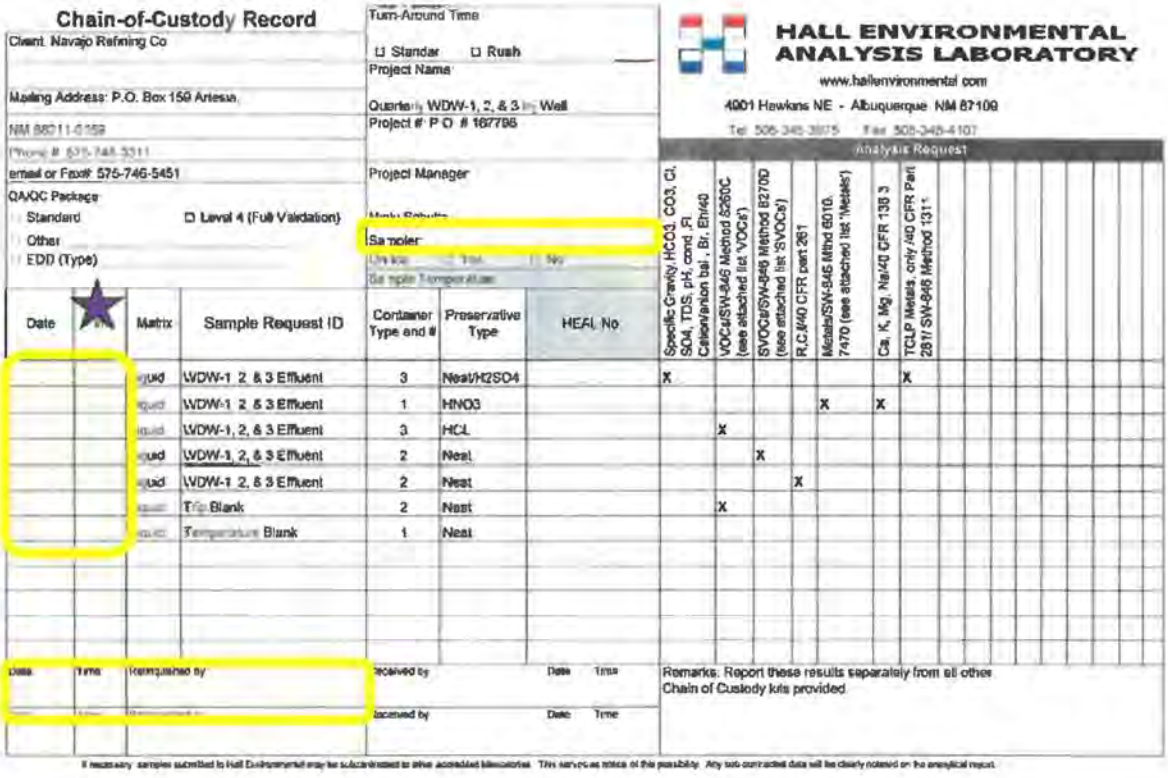
Procedures

- Acquire the pre-prepared WDW 1, 2, 3, & 4 ice chest from the environmental storage unit (the white shed between Carbon filters and Pipeline sample point)
- Confirm all bottles are labeled (you will need to add the time, date, and person who collected sample)
- Go to injection well pumps (red star on map below)
-

- Take note of the time you begin sampling
- Using the portable pH probe obtain the pH of the water and write it down (make sure pH probe is calibrated)

ATTACHMENT 2 - Quarterly WDW 1, 2, 3, & 4 Injection Well Sample Collection Procedure

- Using a portable thermometer obtain the temperature of the water sample and write it down
- Fill all the empty containers with water from the sample point.
- One sample is labeled to be filtered (use the filter provided in the ice chest)
- Take note of the time you cease sampling
- Wrap black tape tightly around the lids of the bottles taking care that all the lid is covered so that none of the sample can leak
- Place the sample bottles in Ziploc bags (you will need multiple bags in order to hold all sample bottles)
- Fill out the chains of custody [only fill out the yellow boxed portions] (make sure the time on the sheet is the same time listed on the bottles see purple star)
  Example:



Chain-of-Custody Record

Client: Navajo Refining Co

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
Standard ☐ Level 4 (Full Validation)
Other
EDD (Type)

Turn-Around Time: ☐ Standar ☐ Rush

Project Name: Quarterly WDW-1, 2, & 3 Injection Well

Project #: P.O. # 167786

Project Manager:

Sampler:

On Ice: Yes No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel: 505-345-3975 Fax: 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond, Ca, Cation/anion bal., Br, Ehr40	VOCs/SW-846 Method 8260C (see attached list 'VOCs')	SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')	R.C.R/40 CFR part 261	Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	Ca, K, Mg, Na/40 CFR 136.3	TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
		liquid	WDW-1 2 & 3 Effluent	3	Neat/H2SO4		X						X
		liquid	WDW-1 2 & 3 Effluent	1	HNO3						X	X	
		liquid	WDW-1, 2, & 3 Effluent	3	HCL			X					
		liquid	WDW-1, 2, & 3 Effluent	2	Neat				X				
		liquid	WDW-1 2, & 3 Effluent	2	Neat					X			
		liquid	Trip Blank	2	Neat			X					
		liquid	Temperature Blank	1	Neat								

Date: Time: Relinquished by: Received by: Date: Time:

Date: Time: Received by: Date: Time:

Remarks: Report these results separately from all other Chain of Custody kits provided

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any subcontracted data will be clearly notated on the analytical report.

- Place chain of custody in a Ziploc bag and place inside ice chest
- Confirm all bottles are sealed in Ziploc bags
- Collect ice in ice chest making sure to cover all sides of sample
- Tape the outside of the ice chest with the clear tape
- When currier arrives, go to main gate and relinquish the samples

If you need to ship the samples

- Take ice chest and extra Ziploc bags to Navajo lab
- Before entering Navajo Labs put on clear safety glasses

ATTACHMENT 2 - Quarterly WDW 1, 2, 3, & 4 Injection Well Sample Collection Procedure

- Place ice inside of a Ziploc bag and seal completely so no water leaks
- Do this with multiple Ziploc bags until the entire sample is covered in ice
- Take ice chest to the welcome desk which is located in Navajo Main office
- Weigh ice chest on the scale provided to the right of computer
- Fill out a shipping label using the computer; type in the shipping location, the weight, of your package, mark that it is your shipping material, charge to sender, and charge environmental department (if you have any questions ask the person working at the front desk)
- At 3:00 pm go to Navajo lab and replace the ice that is in the Ziploc bags (making sure that nothing leaks)
- Add the shipping label to the outside of ice chest
- Hold on to copy of tracking number
- Make sure to completely seal the ice chest by wrapping all corners with clear tape
- Place the sealed ice chest in the FedEx shed located at the warehouse by 3:30 p.m.

Chain of Custody Sample Information

Please be sure to include accurate **Field Temperature** and **pH** of any sample collected. Upon being collected, samples are to be immediately taken to the AquaMicrobics lab so that a pH test can be performed. It is also acceptable to use the Temperature reading from the pH probe for the field temperature reading of the sample.

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

Purpose

This procedure is for sampling events for wastewater discharged from the Artesia facility to the City of Artesia POTW, which includes discharges from the onsite wastewater treatment plant (WWTP) and cooling tower blowdown (CTB) streams from Y-1, Y-2, Y-11, Y-12, and Y-26 (post-RDU).

Scope and Application

This guideline applies to all HollyFrontier Navajo Refining LLC (Navajo or HFNR) employees, contractors and visitors.

The sampling is located at the sample station near the Artesia WWTP Effluent Outfall to the POTW, downstream of the confluence of the cooling tower blowdown (CTB from Y-1, Y-2, Y-11, Y-12, and Y-26) and Walnut Shell Filter (WWTP) effluent (see map below). For CTB sampling, the WWTP effluent will be blocked (i.e., diverted) to the injection wells so that the resulting discharge to the POTW only consists of CTB.

Reference Document

This procedure has been prepared in accordance with the US EPA guidance document on wastewater sampling: https://www.epa.gov/sites/production/files/2017-07/documents/wastewater_sampling306_af.r4.pdf

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

Needed Materials

- Job Safety Analysis
- Appropriate Personal Protective Equipment (PPE) as dictated by HFNR requirements. These include, but are not limited to: FRC clothing, safety glasses, hardhat, steel-toe boots, nitrile gloves, and hearing protection;
- Sample Chain of Custody (COC) form (provided by contract laboratory – see Attachment 2);
- Labeled Sample Bottles: Date, time, sample location, preservation method, and analyses (provided by contract laboratory);
- Five-gallon bucket;
- Glass beaker for sample pouring (if needed) and pH measurement;
- Calibrated pH probe / meter (refer to pH Meter Calibration SOP);
- Ice chest filled with ice;
- Appropriate material to wipe sample bottles clean; and
- Electrical tape.

Please Note- All safety and PPE precautions should be taken in accordance with Navajo SDS and safety procedures applicable for the material being sampled. Navajo personnel will comply with all safety, handling and disposal information and precautions set forth in those documents.

Special Sampling Considerations

- A clean pair of new, non-powdered disposable nitrile gloves will be worn each time a location is sampled, and the gloves should be donned immediately prior to sampling;
- Wastewater samples will typically be collected either by directly filling the sample container or by using an interim container that fills the sample container;
- During sample collection, if transferring the sample from a collection device or container, make sure the device or interim container does not come in contact with the sample containers;
- Place the samples into the appropriate, labeled containers as provided by the contract laboratory;
- All samples requiring preservation must be preserved as soon as practically possible, ideally immediately at the time of sample collection. Note: The contract laboratory will add the appropriate preservatives to the corresponding sample bottles; and
- Do not overfill sample bottles containing preservative to prevent any loss.

Manual Sampling

Manual sampling is normally used for collecting grab samples and/or for immediate in-situ field analyses. The best method to manually collect a sample is to use the actual sample container which will be used to transport the sample to the laboratory. This eliminates the possibility of contaminating the sample with intermediate collection containers.

If the wastewater stream cannot be physically reached by the sampling personnel or it is not safe to reach for the sample, an intermediate collection container may be used, from which the sample can be redistributed to other containers.

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

For locations where samples can be collected from a sample port, valve, or spigot, place a five-gallon bucket under the sample location and allow the sample to run for at least one minute before collection to clear the lines.

Quality Control and Documentation

Equipment blanks should be collected if equipment is field cleaned and re-used on-site or if necessary, to document that low-level contaminants were not introduced by the sampling equipment.

Chain of Custody forms must stay with the samples at all times and must be filled out each time sample control is transferred to another individual or entity.

Sample Bottles and Collection

Trace metals and organics detection limits are typically in the parts per billion (ppb or µg/L), so extreme care must be exercised to ensure sample integrity. When possible, the sample should be collected directly into the appropriate sample container. If the material to be sampled cannot be physically reached, an intermediate collection device may be used.

The sample container to be analyzed may contain a preservative. Care should be taken not to flush any preservative out of the container during fill.

Sampling Procedure

1. Don PPE.

2. Inspect all sample bottles to ensure that they are clean and in good condition.

3. Verify all sample bottles are labeled with the appropriate preservative. Labels shall include:
    a. Sample location;
    b. Date;
    c. Time;
    d. Sampler's initials;
    e. Requested analyses; and
    f. Preservative type.

4. Proceed to the sample station near the Artesia WWTP Effluent Outfall to the POTW. This location is downstream of the confluence of the cooling tower blowdown (CTB) and WWTP Effluent (see map above).

5. Collect samples:
    a. Don new, clean gloves;
    b. Place a five-gallon bucket under the sample point to collect the flush water and any spillage;
    c. Open the sample tap and allow the sample to run for at least one minute to flush the lines;
    d. **NEVER** leave an open sample point unattended for any reason;

ATTACHMENT 3 – Cooling Tower Blowdown (CTB) Sample Collection Procedure

e. Place each bottle under the open, running sample port. A clean, glass beaker may be used as an interim container for ease of pouring, if needed. Fill each bottle to near the top, ensuring not to overfill to retain all the sample preservative (if present);
f. Close the sample tap;
g. Tape down all sample bottle lids with electrical tape;
h. Place sample bottles in cooler filled with ice;
i. Fill glass beaker with sample for pH and temperature measurement;
j. Using a calibrated pH meter and probe, measure the pH and temperature of the wastewater sample and record results on the Chain of Custody form;
k. Fully complete the sample Chain of Custody, ensuring the COC contains:
    i. Date;
    ii. Time;
    iii. Sampler's name, initials, and signature;
    iv. Line item for each sample bottle; and
    v. Requested analyses;
l. Place completed COC into plastic bag and place on top of sample inside the cooler;
m. Close and secure cooler lid; and
n. Relinquish sample to contract laboratory courier.

6. If any quantity of material has spilled onto the ground, it must be cleaned up immediately as per HFNR's spill response procedures.

7. Dispose of any material from the five-gallon bucket and excess sample in the glass beaker used in temperature and pH measurement by emptying into an approved drain. This is either the sewer box near the Talon tanks or the laboratory sink.

8. Decontaminate and triple rinse all interim sample containers and PPE used, except for nitrile gloves, which should be disposed of in an appropriate trash receptacle.

9. **If any conditions arise which would alter or prevent sampling as described in this document or if there are any questions or concerns regarding the sampling of a particular source or location, contact the HFNR Supervisor immediately for further guidance prior to performing sampling.**

END OF PROCEDURE

ATTACHMENT 4 - LIST OF PSP PARAMETERS (FROM DISCHARGE PERMIT UICI-8, SECTION 2.A)

EPA Haz Waste #	Permit Section 2.A Parameter	Laboratory Method (a)	Laboratory Reporting Level (mg/L) (b)
D004	Arsenic	6010B	5
D005	Barium	6010B	100
D018	Benzene	8260B	0.5
D006	Cadmium	6010B	1
D019	Carbon tetrachloride	8260B	0.5
D020	Chlordane	8081A	0.03
D021	Chlorobenzene	8260B	100
D022	Chloroform	8260B	6
D007	Chromium	6010B	5
D023	o-Cresol	8270C	200
D024	m-Cresol	8270C	200
D025	p-Cresol	8270C	200
D026	Cresol	8270C	200
D027	1,4-Dichlorobenzene	8260B	7.5
D028	1,2-Dichloroethane	8260B	0.5
D029	1,1-Dichloroethylene	8260B	0.7
D030	2,4-Dinitrotoluene	8270C	0.13
D032	Hexachlorobenzene	8270C	0.13
D033	Hexachlorobutadiene	8270C	0.5
D034	Hexachloroethane	8270C	3
D008	Lead	6010B	5
D009	Mercury	7470B	0.2
D035	Methyl ethyl ketone	8260B	200
D036	Nitrobenzene	8270C	2
D037	Pentachlorophenol	8270C	100
D038	Pyridine	8270C	5
D010	Selenium	6010B	1
D011	Silver	6010B	5
D039	Tetrachloroethylene	8260B	0.7
D040	Trichloroethylene	8260B	0.5
D041	2,4,5-Trichlorophenol	8270C	400
D042	2,4,6-Trichlorophenol	8270C	2
D043	Vinyl chloride	8260B	0.2
--	pH	9040C	--
--	Eh (ORP)	2580	--
--	Specific Conductance	2510B	10 umho/cm
--	Specific Gravity	not given	1
--	Temperature	provided with pH	--
--	Fluoride	300.0	0.1
--	Calcium	200.7	1
--	Potassium	200.7	1
--	Magnesium	200.7	1
--	Sodium Bicarbonate	2320B	20
--	Carbonate	2320B	2
--	Chloride	300.0	0.5
--	Sulfate	300.0	0.5
--	Bromide	300.0	0.1
--	Total Dissolved Solids	2540C	40
--	Total Suspended Solids	2540D	4
--	Cation/anion balance	Calculation	--
--	Ignitability	Flashpoint (D93/1010A)	--
--	Corrosivity	Corrosivity by pH	--
--	Reactivity	Reactive Cyanide, Sulfide	--

For metals and organics with a EPA Hazardous Waste Number given in UICI-8 Section 2.A:
(a) = Laboratory method performed on total sample per July 1992 EPA SW-846 Test Method 1311 Section 1.2 (TCLP)
(b) = Laboratory Reporting Level equivalent to TCLP Regulatory Level given in 40 CFR 261.24(b)

APPENDIX B

HollyFrontier Navajo Refining LLC
501 East Main, Artesia, New Mexico 88210
Tel: 575-748-3311
hollyfrontier.com

November 6, 2021

Via Electronic Mail

Phillip Goetze
Supervisor – UIC Permitting
New Mexico Oil Conservation Division (Albuquerque Office)
Energy Minerals and Natural Resources Department
5200 Oakland Avenue, NE
Albuquerque, New Mexico 87113

RE: HollyFrontier Navajo Refining LLC / Artesia Refinery / Renewable Diesel & Pretreatment Unit Projects /Response to OCD Request for Proposal on Potential Amendment of Discharge Permits for Four Class I Non-Hazardous Waste Injection Wells

Dear Mr. Goetze:

In response to Ms. Leigh Barr's September 24, 2021 letter regarding the Oil Conservation Division's ("OCD"'s) jurisdictional authority pertaining to the Renewable Diesel Unit ("RDU") and Pretreatment Unit ("PTU") projects at the HollyFrontier Navajo Refining LLC ("Navajo") facility, Navajo acknowledges OCD's conclusion that the RDU and PTU fall under OCD's jurisdiction. As requested in the last paragraph of the September 24, 2021 OCD transmittal, this letter serves as a formal response to OCD's request for proposal regarding the potential amendment of Navajo's current Class I Non-Hazardous Waste Injection Well Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4. Navajo intends to discharge treated RDU wastewater to the four underground injection control ("UIC") wells (WDW-1, WDW-2, WDW-3, and WDW-4) currently regulated by these permits following treatment at Navajo's on-site wastewater treatment plant ("WWTP") in the same manner as effluent already discharged from the refinery (*i.e.*, treated effluent from the WWTP can go to any or all wells depending on refinery/RDU needs). There will be no discharge of treated PTU wastewater to any of these wells as all PTU effluent will be discharged to the City of Artesia's Publicly Owned Treatment Works (POTW) via a new discharge permit with the City.

Background

As presented in detail in the June 11, 2021 Navajo letter to OCD, in addition to current petroleum refining operations, the HollyFrontier organization is in the process of constructing and will operate a 9,000 barrel per day ("bpd") Renewable Diesel Unit, *i.e.*, a renewable diesel production facility, and a 13,000 bpd Pretreatment Unit to treat certain feedstocks for the RDU. Drawing 2, Water Flow Diagram, is reproduced from this letter herein to show wastewater

streams currently anticipated to be generated in connection with operations of the RDU and PTU.

- RDU process wastewater will be routed for treatment through the Refinery WWTP and will be discharged consistent with the current discharge configuration at the Refinery, including to the City of Artesia's POTW and to the Refinery's four permitted UIC wells. Since current Refinery WWTP capacity will be sufficient to treat the additional RDU wastewater stream (*i.e.*, approximately 30 gpm discharged to the City POTW), any corresponding increase in constituent concentrations will be reduced via treatment such that Navajo will be able to maintain compliance with current federal, state and local concentration effluent limitations as well as current limitations set forth in Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4.

- A new Cooling Tower ("CT") will be installed to provide cooling for the RDU. RDU CT blowdown (approximately 30 gpm) will normally be routed to combine with the Refinery CT blowdown stream that is directly discharged to the POTW (and not the UIC wells). As shown on Drawing 2, in the event of an emergency condition, the RDU CT blowdown can be rerouted to the Refinery's onsite WWTP, for ultimate discharge to the City POTW and/or to the Refinery's UIC well network (consistent with current discharge permit levels).

- All process wastewater from the PTU (approximately 90 gpm) will be collected and routed to a new PTU wastewater treatment plant (the "PTU WWTP") for treatment prior to discharge to the City POTW via a newly permitted outfall. There is no planned discharge of PTU WWTP wastewater to the Refinery WWTP, and, therefore, no planned discharge to the UIC well network.

- A new CT will be installed to provide cooling for the PTU and the PTU WWTP. There is no planned discharge of PTU CT blowdown (approximately 30 gpm) to the UIC well network.

- PTU and rail loading/unloading areas have been designed to minimize stormwater exposure; however, a small volume of contact stormwater from these areas is expected. This contact stormwater will be collected and routed to the PTU WWTP for treatment and subsequent discharge to the POTW sewer and will not be discharged to the UIC well network.

UICI Regulation and Permitting

The RDU wastewater stream will constitute a small component of the combined RDU/Refinery process wastewater stream prior to treatment and discharge to the UIC well network. Due to the small RDU wastewater contribution and preliminary estimates of the RDU wastewater stream quality (*i.e.*, prior to treatment), it is anticipated that the current Refinery WWTP capacity will be sufficient to treat the additional RDU wastewater stream. Therefore, Navajo is expected to

maintain compliance with current limitations and requirements set forth in Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4.

For the PTU wastewater stream, including the PTU CT blowdown, there will be no anticipated discharge of PTU wastewaters to the UIC well network, and as a result, there will be no effect from the PTU on Discharge Permits UICI-8-1, UICI-8-2, UICI-8-3, and UICI-8-4.

Given that the RDU wastewater stream will not change the current flow and concentration characteristics of the Refinery WWTP discharge to the UIC well network (as well as the fact of no wastewater contribution from the PTU discharge to the UIC well network), the RDU/PTU projects will not affect the current terms of the four UICI Discharge Permits. In other words, effluent discharge quantity (flow), quality (concentrations), or injection pressure are not expected to increase from current permitted limits/levels. These discharge characteristics, currently reported by Navajo on a quarterly basis, will remain the same once the RDU/PTU is online; summaries for wells WDW-1, WDW-2, WDW-3, and WDW-4 from January 1, 2021 to September 30, 2021 are given in Tables 1 and 2 as a reference.

Navajo has reviewed all provisions of the four December 2017 Class I Non-Hazardous Waste Injection Well Discharge Permits and cannot identify any amendments/changes that need to be made to accommodate the RDU/PTU discharge. The addition of RDU/PTU activities will not alter the operation, maintenance, or monitoring of the four underground injection wells. Therefore, Navajo believes that permit modifications for the existing UICI Discharge Permits are not necessary at this time. As a result, and subject to OCD concurrence, Navajo proposes that the current UICI Discharge Permits be maintained in their entirety until their December 2022 expiration, given that the RDU/PTU projects come online prior to this date.

Please let us know if you would like to discuss the above response and/or would like additional information. We look forward to your feedback and thank you in advance for your consideration.

Sincerely,

Kawika Tupou
Environmental Manager

Attachment

c:

Ms. Becca Crumpler, HollyFrontier Renewables Environmental Manager
Mr. Michael W. Holder, HollyFrontier Corporate Environmental Specialist

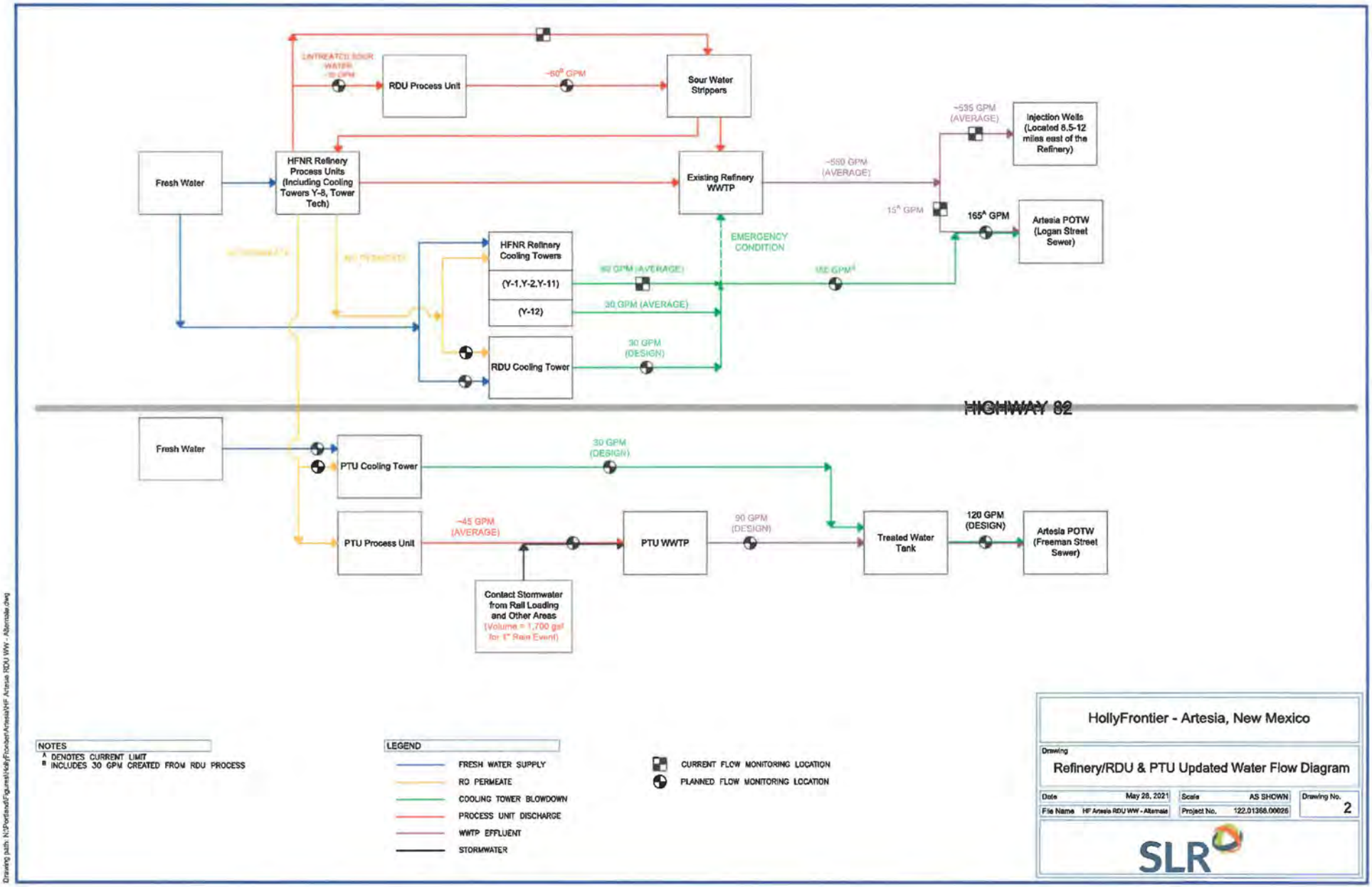

UNTREATED RAW WATER ~5 GPM
RDU Process Unit
~60[B] GPM
Sour Water Strippers
~535 GPM (AVERAGE)
Injection Wells (Located 8.5-12 miles east of the Refinery)
Fresh Water
HFNR Refinery Process Units (Including Cooling Towers Y-8, Tower Tech)
Existing Refinery WWTP
~550 GPM (AVERAGE)
15[A] GPM
165[A] GPM
Artesia POTW (Logan Street Sewer)
EMERGENCY CONDITION
HFNR Refinery Cooling Towers
(Y-1,Y-2,Y-11)
(Y-12)
80 GPM (AVERAGE)
30 GPM (AVERAGE)
RDU Cooling Tower
30 GPM (DESIGN)
HIGHWAY 82
Fresh Water
PTU Cooling Tower
30 GPM (DESIGN)
PTU Process Unit
~45 GPM (AVERAGE)
PTU WWTP
90 GPM (DESIGN)
Treated Water Tank
120 GPM (DESIGN)
Artesia POTW (Freeman Street Sewer)
Contact Stormwater from Rail Loading and Other Areas (Volume = 1,700 gal for 1" Rain Event)
NOTES
A DENOTES CURRENT LIMIT
B INCLUDES 30 GPM CREATED FROM RDU PROCESS
LEGEND
FRESH WATER SUPPLY
RO PERMEATE
COOLING TOWER BLOWDOWN
PROCESS UNIT DISCHARGE
WWTP EFFLUENT
STORMWATER
CURRENT FLOW MONITORING LOCATION
PLANNED FLOW MONITORING LOCATION
HollyFrontier - Artesia, New Mexico
Drawing
Refinery/RDU & PTU Updated Water Flow Diagram
Date May 28, 2021
Scale AS SHOWN
Drawing No. 2
File Name HF Artesia RDU WW - Alternate
Project No. 122.01368.00026
SLR
Drawing path: N:\Portland\Figures\HollyFrontier\Artesia\HF Artesia RDU WW - Alternate.dwg

TABLE 1. CONCENTRATIONS OF WASTEWATER INJECTED INTO WELLS WDW-1, WDW-2, WDW-3, AND WDW-4

Parameter	Units	1/22/2021	3/21/2021	5/24/2021	9/29/2021
Alkalinity, bicarbonate	mg/L	421.3	333.1	498.3	404.3
Alkalinity, carbonate	mg/L	< 2.000	< 2.000	< 2.000	< 2.000
Alkalinity, total	mg/L	421.3	333.1	498.3	404.3
Conductivity	uS/cm	6500	6400	5700	7100
Cyanide	mg/L	0.0358	0.0384	0.0319	0.0293
Ignitability	deg F	>170	>170	>170	--
Oxidation Reduction Potential	mV	155	83.3	122	158
pH	su	7.27	7.40	7.53	--
Specific Gravity	su	1.003	1.000	1.002	1.005
Sulfide	mg/L	< 0.050	0.065	< 0.050	0.121
Total Dissolved Solids	mg/L	4940	5070	4600	4910
Bromide	mg/L	1.30	0.65	0.59	0.81
Chloride	mg/L	520	520	390	510
Fluoride	mg/L	23	57	22	67
Nitrate	mg/L	--	0.72	--	0.90
Nitrate/Nitrite	mg/L	0.94 (J)	--	0.31 (J)	--
Nitrite	mg/L	--	0.44 (J)	--	0.2 (J)
Phosphorus, total	mg/L	< 1.2	< 1.2	< 1.2	< 1.2
Sulfate	mg/L	2400	2300	2300	2300
Calcium	mg/L	440	400	380	340
Magnesium	mg/L	150	140	120	110
Potassium	mg/L	160	270	110	320
Sodium	mg/L	810	780	800	780
Arsenic	mg/L	< 0.022	< 0.022	< 0.11	< 0.022
Barium	mg/L	0.051 (J)	0.036 (J)	0.043	0.026 (J)
Cadmium	mg/L	< 0.00090	< 0.00090	< 0.0045	< 0.0012
Chromium	mg/L	< 0.0014	< 0.0014	< 0.007	< 0.0017
Lead	mg/L	< 0.013	< 0.013	< 0.064	< 0.013
Mercury	mg/L	< 0.00012	< 0.00012	< 0.00012	< 0.00012
Selenium	mg/L	0.082 (J)	< 0.021	< 0.11	0.075 (J)
Silver	mg/L	0.016 (J)	0.0086 (J)	0.0067 (J)	0.0066 (J)
Chlordane	mg/L	< 0.00050	< 0.00050	< 0.00050	--
1,1-Dichloroethene	mg/L	< 0.00013	< 0.00013	< 0.00013	< 0.00020
1,2-Dichloroethane	mg/L	< 0.00022	< 0.00022	< 0.00022	< 0.00025
1,4-Dichlorobenzene (8260)	mg/L	< 0.00021	< 0.00021	< 0.00021	< 0.00021
2,4,5-Trichlorophenol	mg/L	< 0.00062	< 0.00062	< 0.00062	--
2,4,6-Trichlorophenol	mg/L	< 0.00043	< 0.00043	< 0.00043	--
2,4-Dinitrotoluene	mg/L	< 0.00062	< 0.00062	< 0.00062	--
2-Butanone	mg/L	< 0.0011	< 0.0011	< 0.0011	< 0.0020
2-Methylphenol	mg/L	< 0.00051	< 0.00051	< 0.00051	--
Benzene	mg/L	< 0.00023	< 0.00023	< 0.00023	< 0.00023
Carbon tetrachloride	mg/L	< 0.00018	< 0.00018	< 0.00018	< 0.00018
Chlorobenzene	mg/L	< 0.00014	< 0.00014	< 0.00014	< 0.00016
Chloroform	mg/L	< 0.00013	< 0.00013	< 0.00013	< 0.00013
Cresols	mg/L	0.0013 (J)	< 0.00051	< 0.00051	--
Hexachlorobenzene	mg/L	< 0.00066	< 0.00066	< 0.00066	--
Hexachlorobutadiene (8270)	mg/L	< 0.00082	< 0.00082	< 0.00082	--
Hexachloroethane	mg/L	< 0.00045	< 0.00045	< 0.00045	--
Nitrobenzene (8270)	mg/L	< 0.00051	< 0.00051	< 0.00051	--
Pentachlorophenol	mg/L	< 0.00059	< 0.00059	< 0.00059	--
Pyridine	mg/L	< 0.00093	< 0.00093	< 0.00093	--
Tetrachloroethene	mg/L	< 0.00036	< 0.00036	< 0.00036	< 0.00036
Trichloroethene	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Vinyl chloride	mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00032

"<" = sample results less than Method Detection Limit (MDL)
"J" = sample result between Method Detection Limit (MDL) and Reporting Limit (RL)

TABLE 2. MONTHLY WELL INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Average Flow (gpm)	Volume (barrels)
WELL WDW-1			
Jan-21	1,045	238	252,960
Feb-21	1,049	227	217,920
Mar-21	1,065	182	193,440
Apr-21	936	266	273,600
May-21	956	304	323,108
Jun-21	1,031	284	292,114
Jul-21	1,120	262	278,469
Aug-21	1,129	275	292,286
Sep-21	980	273	280,800
WELL WDW-2			
Jan-21	1,052	70	74,400
Feb-21	1,093	72	69,120
Mar-21	1,022	79	83,966
Apr-21	1,077	96	98,743
May-21	1,017	89	94,594
Jun-21	1,034	90	92,571
Jul-21	974	84	89,280
Aug-21	1,010	85	90,343
Sep-21	1,037	87	89,486
WELL WDW-3			
Jan-21	928	62	65,897
Feb-21	934	96	92,160
Mar-21	916	89	94,594
Apr-21	929	126	121,371
May-21	954	129	137,109
Jun-21	924	131	134,742
Jul-21	942	139	147,737
Aug-21	960	140	148,800
Sep-21	948	132	135,771
WELL WDW-4			
Jan-21	114	162	172,183
Feb-21	263	145	139,200
Mar-21	129	203	215,760
Apr-21	135	207	212,914
May-21	143	203	215,760
Jun-21	185	203	208,800
Jul-21	142	176	187,063
Aug-21	152	191	203,006
Sep-21	167	224	280,400

From: Holder, Mike
To: Goetze, Phillip, EMNRD; Chavez, Carl J, EMNRD
Cc: Holder, Mike
Subject: [EXTERNAL] Renewable Diesel Facilities
Date: Friday, December 10, 2021 10:07:43 AM
Attachments: Renewable Diesel Plant List Dec21.xlsx

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Phil/Carl – I wanted to share some research we had done previously on RDUs in the US. After our call I updated as it sounded like y'all were planning on doing some research. I haven't found any that use UICs – they all discharge to CWA-permitted systems. Feel free to call with any questions. Thanks, Mike

Mike Holder
Corporate Environmental Specialist – Water & Waste
The HollyFrontier Companies
2828 North Harwood, Suite 1300
Dallas, TX 75201
(575) 308-1115 (cell)

Known Renewable Diesel Facilities
Original list based on google research available; 4Aug20
updated 12/10/21

Facility	Location	Notes	Wastewater Discharge Location	Info Sources
REG Renewable Energy Group (REG Geismar)	Geismar, LA	has several facilities, but only 1 produces renewable diesel; proprietary BioSynfining production technology, has a PTU	LPDES Permit for direct discharge to Mississippi River	https://www.fool.com/investing/2019/09/06/heres-why-renewable-energy-group-should-go-all-in.aspx
AltAir Fuels (Owned by World Energy LLC aka Paramount Petroleum Refinery)	Paramount, CA	Will have PTU. Upgrading RFU, adding additonal RFU. Upgrade to WWTP. Previously was Paramount Petroleum, some info on EPA ECHO. Unclear if NPDES Permit still active, if facility has completed conversion from refinery to renewable diesel. To begin production early 2023. As per the EIS, Sec 4.5,	project not expected to discharge to Water of the US (no NPDES Permit). Discharge treated wastewater to City POTW.	https://www.ogj.com/refining-processing/refining/article/14203258/altair-paramount-advances-california-renewable-fuels-refinery-plan https://paramountenvironment.org/world-energy-converts-paramount-refinery-to-renewable-fuels/
Diamond Green Diesel ("DGD")(Valero and Darling Ingredients)	Norco, LA	Largest US producer, co-located within Valero Facility	discharges process-related wastewaters to Pretreatment WWTP then to Valero WWTP. Other utility waters, stormwater, non-process area waters direct discharge	
Valero Refinery	New Orleans, LA	receives Diamond Green process wastewater	Direct discharge via NPDES Permit	FS pg 6 mentions pretreatment of DGD process waters include gravity separation, pH adjustment, equalization, DAF, bio treatment
Sinclair Wyoming Refining	Sinclair, WY	Unit in operation, runs Soybean oil only. They don't have a PTU.	Zero discharge facility, previously routed wastewater into their refinery Sour Water system.	EPA ECHO database
Sunshine Biofuels	Lake Worth, FL	no info on EPA ECHO	no info	http://gosunshinebiofuel.com/renewable-diesel-biofuel/
Jaxon Energy	Jackson, MS	small facility, no PTU	no info	no website, may be under different name?
Neste	none in US	Largest global producer, no US facilities, provides imports to CA	no info	
Marathon Martinez Renewable Fuels Martinez, CA (Contra Cosa County)	Martinez, CA	PTU and RDU. converting idled refinery; construction expected Fall 2021 with expected online 2022.	Will have NPDES Permit and "Industrial waste Discharge Permit" from EPA. Current NPDES Permit expired in 2020; admin extended (Order # R2-2015-0033)	https://www.marathonmartinezrenewables.com/Newsroom-1/Marathon-Petroleum-Corp-Martinez-Renewable-Fuels-project-advances-in-permitting-process/
Ryze, Renewables	Las Vegas, NV	IN CONSTRUCTION	no info	http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide
Phillips66 Rodeo Renewable	Rodeo, CA (near Marathon CA facility)	PTU; convert existing refinery to renewable diesel to be completed in 2024.	Discharge via NPDES Permit to off-shore.	https://www.contracosta.ca.gov/DocumentCenter/View/69279/LP20-2040_NOP
CVR Energy Wynnewood	Wynnewood, OK	IN CONSTRUCTION: converting refinery to make renewable diesel and naphtha. 100 Mmgy facility, to be completed in April 2022. Will have PTU to use corn oil and soybean oil.	Discharges wastewater under NPDES Permit to receiving stream	http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide
CVR Coffeyville	Coffeyville, KS	150 Mmgy renewable diesel facility; covert current refinery. No timeline on project.	NPDES Permit for discharge to pond system then direct discharge to river	http://biomassmagazine.com/articles/18449/cvr-to-move-forward-with-wynnewood-conversion-in-early-2022
Bakersfield Renewable Fuels	Bakersfield, CA	IN CONSTRUCTION: will make renewable diesel, liquid propane and naphtha. Commissioned in early 2022 and produce 230 Mmgy.	no info	http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide
Crimson Renewable Biodiesel	Bakersfield, CA	Biodiesel facililty and not RDU.	no info	https://www.energy.ca.gov/showcase/driving-cleaner-transportation/crimson-renewable-biodiesel-project

Marathon Petroleum	Dickinson, ND	No PTU. Start-up in late 2020.	Facility discharges to City of Dickinson POTW.	https://deq.nd.gov/PublicComment/NDPDES-Marathon-20200411.pdf
To be constructed:				
REG/Phillips66	WA	as per REG website, this facility produces biodiesel, not renewable diesel	no info	https://www.biofuelsdigest.com/bdigest/2019/04/22/renewable-diesel-is-a-game-changer-for-sustainable-aviation-and-low-carbon-fuel-markets-in-the-u-s-canada-europe-and-southeast-asia/
NEXT Renewable Fuels	Port Westward, OR	Proposed facility	ODEQ website indicates plans to discharge wastewater to Port of Columbia County WTP	https://www.oregon.gov/deq/Programs/Documents/NEXTPublicInfoMpres.pdf
Phillips66/Ryze Renewables	Reno, Las Vegas, NV	2 facilities, currently under construction, no PTU	no info	https://ryzerenewables.com/facilities.html

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

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

COMMENTS

Action 77114

COMMENTS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 77114
	Action Type: [UF-DP] NOI Discharge Permit (DISCHARGE PERMIT NOI)

COMMENTS

Created By	Comment	Comment Date
cchavez	Navajo Refinery: Renewable Diesel Unit (RDU) Verification of Non-Hazardous Injection Fluids from RDU Process -Pilot Sampling Plan (PSP) OCD RDU-PSP and subsequent OCD-Permittee correspondences for final approval.	2/28/2022

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CONDITIONS

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CONDITIONS

Created By	Condition	Condition Date
cchavez	None	2/28/2022