



February 13, 2019

Mr. John E. Kieling, Chief
New Mexico Environmental Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505

**Re: Response to Approval with Modifications
Revised Facility Wide Groundwater Monitoring Work Plan 2018 -
Updates for 2018
Marathon Petroleum Company LP
EPA ID # NMD000333211
HWD-WRG-18-002**

Dear Mr. Kieling:

Marathon Petroleum Company LP (Marathon) is in receipt of your Approval with Modifications letter dated December 28, 2019 regarding the Work Plan referenced above. The following responses address each of your comments.

NMED Comment 1

The Permittee's response to NMED's *Approval with Modifications* Comment 9 states, "Table 1 has been modified to reflect the addition of OAPIS-1 (Attachment E)." Table 1 lists OAPIS-1 twice. Remove one of the listings from the table. In addition, Comment 9 requires the Permittee to add analysis for 1,2-dibromoethane (EDB) using the EPA Method 8011. The required change for OAPIS-1 is not included in Table 1. Include the required change in the table. Revise the table accordingly.

MPC Response 1

Table 1 has been revised to remove the extra entry for OAPIS-1. Table 1 has also been revised to add the analysis of 1,2-dibromoethane (Method 8011) for groundwater samples collected from OAPIS-1.

NMED Comment 2

The analytical method for volatile organic compounds (VOC) is indicated as the EPA Method 8060 for MKTF-1 in Table 1. The analytical method was incorrectly referenced. The analytical method must be corrected to reference the EPA Method 8260. Correct the error in the table.

MPC Response 2

Table 1 has been revised to correct the analytical method for VOCs in MKTF-1 to EPA Method 8260.

NMED Comment 3

As stated by Comment 26 in the January 31, 2018 *Disapproval for the 2015 Annual Groundwater Monitoring Report*, the Permittee is required to conduct EDB analysis using the EPA Method 8011 for all wells where 1,2-dichloroethane (EDC) is detected.

Although well GMW-1 has not been sampled recently due to the detection of separate phase hydrocarbons (SPH), EDC was detected in the well in the past. Therefore, the Permittee must collect groundwater samples EDB, analysis from well GMW-1. Tables 1 and 2 did not include EDB analysis for GMW-1. Revise Tables 1 and 2 to address the change.

MPC Response 3

Tables 1 and 2 have been revised to add the analysis of 1,2-dibromoethane (Method 8011) for groundwater samples collected from GWM-1.

Included with this correspondence are the following attachments:

- Attachment A - Electronic versions of the updated Work Plan, replacement Tables 1 and 2, and redline-strikeout versions of Tables 1 and 2;
- Attachment B - Hard copy of replacement Table 1 and redline-strikeout version of Table 1; and
- Attachment C - Hard copy of replacement Table 2 and redline-strikeout version of Table 2.

If you have any questions or comments about this response letter, please contact Brian Moore by phone at (505) 726-9745 or email at BMoore1@marathonpetroleum.com.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



Robert S. Hanks
Refinery General Manager
Marathon Petroleum Company – Gallup Refinery

Enclosure

Attachment A
CD Containing Response to Comments

Attachment B
Table 1

Table 1: Gallup Refinery - Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
NAPI Secondary Containment (3 units)	Q	NA	NA	BTEX+MTBE, GRO/DRO extended, WQCC Metals or check for fluids
NAPI Inlet	Q	NA	NA	BTEX+MTBE, GRO/DRO extended, WQCC Metals
RW-1	Q	X	NA	Measure DTW, DTP (Hydrocarbon recovery). Sample for BTEX, MTBE, GRO/DRO if no SPH is detected
RW-2	Q	X	NA	Same as RW-1
RW-5	Q	X	NA	Same as RW-1
RW-6	Q	X	NA	Same as RW-1
OW-1	Q	X	pH , EC, DO, ORP, Temp, TDS	Visual check for artesian flow conditions: Sample for major cations/anions, WQCC Metals, VOCs (method 8260 & 8011 for 1,2-dibromomethane), GRO/DRO extended
OW-10	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-1
OW-13	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCs (methods 8260 & 8011 for 1,2-dibromoethane) , WQCC Metals, GRO/DRO extended
OW-14	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCs (methods 8260 & 8011 for 1,2-dibromoethane), WQCC Metals, GRO/DRO extended
OW-29	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-30	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-53	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-54	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-55	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-56	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-57	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-58	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14
OW-59	Q	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, SVOCS, GRO/DRO extended, WQCC Metals
OW-60	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-59
GWM-1	Q	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOC, GRO/DRO extended, WQCC Metals
GWM-2	Q	X	NA	Check for Water - if water is detected report to OCD & NMED within 24 hours. Sample for GRO/DRO extended, major cations/anions, VOCs
GWM-3	Q	X	NA	Check for Water - if water is detected report to OCD & NMED within 24 hours. Sample for VOCs (methods 8260 & 8011 for 1,2-dibromoethane), GRO/DRO extended, major cations/anions,
NAPIS-1 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, BTEX+MTBE, SVOC, GRO/DRO EXTENDED. WQCC Metals
NAPIS-2 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as Napis-1
NAPIS-3 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as Napis-1, addition of 8011 for 1,2-dibromoethane
KA- 3 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as Napis-1
OAPIS-1	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCs (methods 8260 & 8011 for 1,2-dibromoethane), SVOC, GRO/DRO EXTENDED, WQCC Metals, Major cations/anions, Cyanide
STP1-NW	Q	X	NA	Major cations/anions, VOCs, SVOCS, GRO/DRO extended, WQCC Metals

STP1-SW	Q	X	NA	Major cations/anions, VOCS, SVOCs, GRO/DRO extended, WQCC Metals
STP-1 TO EP-2 (EP-2 Inlet)	Q	NA	NA	VOC, GRO/DRO extended, BOD, COD, TDS, WQCC Metals
Boiler Water (Reverse Osmosis) inlet to EP-2	SA	NA	pH , EC, DO, ORP, Temp, TDS	Major Cations/Anions
Pond 1 ²				NO LONGER IN SERVICE
Evaporation Pond 2 ²	SA		pH , EC, DO, ORP, Temp, TDS	General Chemistry, VOC, SVOC, BOD, COD, E-Coli Bacteria, WQCC Metals
Evaporation Pond 3 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2 with addition of pesticides by method 8081A
Evaporation Pond 4 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
Evaporation Pond 5 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
Evaporation Pond 6 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
Evaporation Pond 7 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
Evaporation Pond 8 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
Evaporation Pond 9 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
Evaporation Pond 11 ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
Evaporation Pond 12A ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-3
Evaporation Pond 12B ²	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-3
Any temporary Pond containing fluid	SA		pH , EC, DO, ORP, Temp, TDS	Same as EP-2
BW-1A	Annual (A)	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOC,WQCC METALS, GRO/DRO extended
BW-1B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-1C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-2A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-2B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-2C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-3A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-3B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-3C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-4A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-4B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-5A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-5B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
BW-5C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A
MW-1	Annual and every 10 years beginning in 2009 per RCRA Post Closure Permit	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCs, GRO/DRO extended, WQCC Metals, Cyanide, SVOCs
MW-2	Annual and every 10 years beginning in 2009 per RCRA Post Closure Permit	X	pH , EC, DO, ORP, Temp, TDS	Same as MW-1
MW-4	Annual and every 10 years beginning in 2009 per RCRA Post Closure Permit	X	pH , EC, DO, ORP, Temp, TDS	Same as MW-1
MW-5	Annual and every 10 years beginning in 2009 per RCRA Post Closure Permit	X	pH , EC, DO, ORP, Temp, TDS	Same as MW-1
OW-11	A	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, WQCC Metals, GRO/DRO extended
OW-12	A	X	pH , EC, DO, ORP, Temp, TDS	VOCS, WQCC METALS, GRO/DRO extended
OW-50	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS(methods 8260 & 8011 for 1,2-dibromoethane) , GRO/DRO EXTENDED, WQCC METALS, GEN CHEM

OW-52	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS(methods 8260 & 8011 for 1,2-dibromoethane) , GRO/DRO EXTENDED, WQCC METALS, GEN CHEM
SMW-2	A	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, GRO/DRO extended, WQCC Metals, Cyanide, SVOCs
SMW-4	Annual and every 10 years beginning in 2009 per RCRA Post Closure Permit	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, SVOCs, GRO/DRO extended, WQCC Metals, Cyanide
PW-3	Q	X	pH , EC, DO, ORP, Temp, TDS	VOC, SVOC, WQCC Metals, Cyanide, Nitrate, Nitrite
PW-2	Every 3 years. Starting in 2008	X	pH , EC, DO, ORP, Temp, TDS	VOC, SVOC, WQCC Metals, Cyanide, Nitrate, Nitrite
PW-4	Q	X	pH , EC, DO, ORP, Temp, TDS	VOC, SVOC, WQCC Metals, Cyanide, Nitrate, Nitrite
MKTF-01	Q	X	pH , EC, DO, ORP, Temp, TDS	VOC (methods 8260 & 8011 for 1,2-dibromoethane), SVOC, WQCC Metals, GRO/DRO extended, Major cations/anions.
MKTF-02	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-03	Q	X	pH , EC, DO, ORP, Temp, TDS	VOC, SVOC, WQCC Metals, GRO/DRO extended, Major cations/anions.
MKTF-04	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-05	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-06	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-07	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-08	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-09	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-10	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-11	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-12	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-13	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-14	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-15	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-16	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-17	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-18	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-19	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-20	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-21	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-22	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-23	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-24	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-25	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-26	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-27	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-28	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-29	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-30	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-31	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-32	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-33	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01

MKTF-34	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-35	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-36	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-37	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-38	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-39	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-40	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-41	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-42	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01
MKTF-43	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-44	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03
MKTF-45	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03

DEFINITIONS:

DO- Dissolved Oxygen	DTW - Depth to Water	MW - Monitor Well	DRO - Diesel Range Organics	BTEX - Benzene, Toluene, Ethylbenzene, Xylene, plus Methyl Tert-Butyl Ether (MTBE) - EPA Method 8021+MTBE
ORP - Oxygen Reduction Potential	DTP - Depth to Product	OW - Observation Well	MRO - Motor oil range organics	General Chemistry - pH, specific conductance, cations, Anions
Temp - Temperature	DTB - Depth to Bottom	RW - Recovery Well	GRO - Gasoline Range Organics	WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved
EC - Electrical or Specific Conductivity	EP - Evaporation Pond	NA - Not Applicable	MKTF - Marketing Tank Farm Well	VOC - Volatile Organic Compounds-EPA Method 8260, must include MTBE
TDS - Total Dissolved Solids	BW - Boundary Well		PW - Raw Water Production Well	SVOC - Semi-Volatile Organic Compounds - EPA Method 8270, must include phenol

NOTES:

1. NAPIS 1, NAPIS 2, NAPIS 3, and KA-3: Detection of product during quarterly monitoring must comply with Section II.F.2 (24-hour reporting) of NMED Post-Closure Care Permit
2. Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use methods 9221-E, until EPA approves 40 CFR 136 Methods (Colilert, Colilert-18, m-Coliblu24, membrane filter method)). Parameters are subject to change. Evaporation pond samples must be collected at the inlet where waste water flows into the evaporation ponds.

Attachment C
Table 2

Table 2: Requested/Approved Changes to the Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency (Q - Quarterly A - Annual SA - Semi-Annual)	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite	2018 Requested Changes	Rationale for Requested Changes
NAPI Secondary Containment (3 units)	Q	NA	NA	BTEX+MTBE, GRO/DRO extended, WQCC Metals or check for fluids	None	
NAPI Inlet	Q	NA	NA	Same as above (SAA)	Add sampling point	Per NMED comments (HWB-WRG-17-007)
RW-1	Q	X	NA	Measure DTW, DTP (Hydrocarbon recovery) Sample for BTEX + MTBE, GRO/DRO extended. Sample only if no SPH is detected.	None	
RW-2	Q	X	NA	Same as RW-1	None	
RW-5	Q	X	NA	Same as RW-1	None	
RW-6	Q	X	NA	Same as RW-1	None	
OW-1	Q	X	pH , EC, DO, ORP, Temp, TDS	Visual check for artesian flow conditions: Sample for major cations/anions, WQCC Metals, VOCS (methods 8260 & 8011), GRO/DRO extended	None	
OW-10	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-1	None	
OW-13	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS (method 8260 & 8011), WQCC Metals, GRO/DRO extended	add method 8011	NMED Comment 26 in 6-5-18 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
OW-14	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS (method 8260 & 8011), WQCC Metals, GRO/DRO extended	None	
OW-29	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	None	
OW-30	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	None	
OW-53	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	None ⁶	See note #6.
OW-54	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	None ⁶	See note #6.
OW-55	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	None ⁶	See note #6.
OW-56	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	added quarterly ⁶	See note #6.
OW-57	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	None ⁶	See note #6.
OW-58	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-14	None ⁶	See note #6.
OW-59	Q	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, SVOCS, GRO/DRO extended, WQCC Metals	Add to Monitoring Schedule	New well per NMED approval/Mods Work Plan SMW-2 Area Inv & Boundary Well Install. (3/17/17)
OW-60	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-59	Add to Monitoring Schedule	New well per NMED approval/Mods Work Plan

Table 2: Requested/Approved Changes to the Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency (Q - Quarterly A - Annual SA - Semi-Annual)	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite	2018 Requested Changes	Rationale for Requested Changes
						SMW-2 Area Inv & Boundary Well Install. (3/17/17)
GWM-1	Q	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS (methods 8260 and 8011 for 1,2-dibromoethane), GRO/DRO extended, WQCC Metals	None	
GWM-2	Q	X	NA	Check for Water - if water is detected report to OCD & NMED within 24 hours. Sample for GRO/DRO extended, major cations/anions, VOCS	None	
GWM-3	Q	X	NA	Same as GWM-2	None	
NAPIS-1 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, BTEX+MTBE, SVOCS, GRO/DRO EXTENDED. WQCC Metals	None	
NAPIS-2 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as Napis-1	None	
NAPIS-3 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as Napis-1 with addition of method 8011 for 1,2-dibromoethane	add method 8011	NMED Comment 26 in 6-5-18 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
KA-3 ¹	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as Napis-1	None	
OAPIS-1	Q	X	pH , EC, DO, ORP, Temp, TDS	Major Cations/anions, VOCS (methods 8260 and 8011), SVOCS, GRO/DRO EXTENDED, WQCC Metals, Cyanide	add method 8011	NMED Comment 26 in 6-5-18 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
STP1-NW	Q	X	NA	Major cations/anions, VOCS, SVOCS, GRO/DRO extended, WQCC Metals	None	
STP1-SW	Q	X	NA	Same as STP1-NW	None	
Boiler Water (Reverse Osmosis)inlet to EP-2	SA	NA	pH , EC, DO, ORP, Temp, TDS	Major Cations/Anions	None	NMED Comment 22 in 6-5-18 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
Pond 1 ²		NA		NO LONGER IN SERVICE	None	
Evaporation Ponds 2 - 9 ²	SA	NA	pH , EC, DO, ORP, Temp, TDS	General Chemistry, VOCS, SVOCS, BOD, COD, E-Coli Bacteria, WQCC Metals (add pesticides by method 8081A for EP-3)	add pesticides at EP-3	Per NMED comment 28 in 6-5-2018 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
Evaporation Pond 11 ²	SA	NA	pH , EC, DO, ORP, Temp, TDS	Same as EP-2	None	

Table 2: Requested/Approved Changes to the Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency (Q - Quarterly A - Annual SA - Semi-Annual)	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite	2018 Requested Changes	Rationale for Requested Changes
Evaporation Pond 12a ₂	SA	NA	pH , EC, DO, ORP, Temp, TDS	Same as EP-2, with addition of pesticides by method 8081A	add pesticides	Per NMED comment 28 in 6-5-2018 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
Evaporation Pond 12b ₂	SA	NA	pH , EC, DO, ORP, Temp, TDS	Same as EP-2, with addition of pesticides by method 8081A	add pesticides	Per NMED comment 28 in 6-5-2018 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
Any temporary Pond containing fluid	SA	NA	pH , EC, DO, ORP, Temp, TDS	Same as EP-2	None	
STP-1 TO EP-2 (EP-2 Inlet)	Q	NA	NA	VOCS, GRO/DRO extended, BOD, COD, TDS, WQCC Metals	add metals analyses	Per NMED comment 27 in 6-5-2018 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018
BW-1A	A	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, WQCC METALS, GRO/DRO-extended	None ⁴	
BW-1B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-1C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-2A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-2B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-2C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-3A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-3B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-3C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	None ⁴	
BW-4A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	Add to schedule	New well
BW-4B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	Add to schedule	New well
BW-5A	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	Add to schedule	New well

Table 2: Requested/Approved Changes to the Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency (Q - Quarterly A - Annual SA - Semi-Annual)	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite	2018 Requested Changes	Rationale for Requested Changes
BW-5B	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	Add to schedule	New well
BW-5C	A	X	pH , EC, DO, ORP, Temp, TDS	Same as BW-1A	Add to schedule	New well
MW-1	A	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, SVOCS, GRO/DRO extended, WQCC Metals, Cyanide	None	
MW-2	A	X	pH , EC, DO, ORP, Temp, TDS	Same as MW-1	None	
MW-4	A	X	pH , EC, DO, ORP, Temp, TDS	Same as MW-1	None	
MW-5	A	X	pH , EC, DO, ORP, Temp, TDS	Same as MW-1	None	
OW-11	A	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, WQCC Metals, GRO/DRO-extended	None ⁴	
OW-12	A	X	pH , EC, DO, ORP, Temp, TDS	VOCS, WQCC METALS, GRO/DRO extended	None	
OW-50	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS(methods 8260 & 8011 for 1,2-dibromoethane) , GRO/DRO EXTENDED, WQCC METALS, GEN CHEM.	add method 8011 & change frequency ⁴	NMED directive 6-5-2018 ⁵
OW-52	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as OW-50	add method 8011 & change frequency ⁴	NMED directive 6-5-2018 ⁵
SMW-2	A	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, SVOCS, GRO/DRO extended, WQCC Metals, Cyanide	None	
SMW-4	A	X	pH , EC, DO, ORP, Temp, TDS	Major cations/anions, VOCS, SVOCS, GRO/DRO extended, WQCC Metals, Cyanide	None	
PW-3	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS, SVOCS, WQCC Metals, Cyanide, Nitrate, Nitrite	change frequency & add nitrite	NMED directive 6-5-2018 ⁵
PW-2	Every 3 years. Starting in 2008	X	pH , EC, DO, ORP, Temp, TDS	VOCS, SVOCS, WQCC Metals, Cyanide, Nitrate, Nitrite	add nitrite	NMED directive 6-5-2018 ⁵
PW-4	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS, SVOCS, WQCC Metals, Cyanide, Nitrate, Nitrite	change frequency & add nitrite	NMED directive 6-5-2018 ⁵
MKTF-01	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS (method 8260 & 8011 for 1,2-dibromoethane ³), SVOCS, WQCC Metals, GRO/DRO extended, Major Cations/anions. Ground water samples will not be collected if SPH is present in any of the wells.	add water quality parameters & method 8011	NMED (8/22/16) approval/mods 2014 updates to Facility-Wide Ground Water Monitoring Plan for water quality parameters and NMED Comment 26 in 6-5-18 Disapproval of Facility-Wide Groundwater Monitoring Plans, updates for 2016, 2017 and 2018 for addition of method 8011

Table 2: Requested/Approved Changes to the Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency (Q - Quarterly A - Annual SA - Semi-Annual)	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite	2018 Requested Changes	Rationale for Requested Changes
MKTF-02	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	add water quality parameters	NMED (8/22/16) approval/mods 2014 updates to Facility-Wide Ground Water Monitoring Plan
MKTF-03	Q	X	pH , EC, DO, ORP, Temp, TDS	VOCS, SVOCs, WQCC Metals, GRO/DRO extended, Major Cations/anions	SAA	SAA
MKTF-04	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	Same as MKTF-01	Same as MKTF-01
MKTF-05	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-06	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-07	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-08	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-09	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-10	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-11	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-12	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-13	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-14	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-15	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-16	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-17	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-18	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01
MKTF-19	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01
MKTF-20	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-21	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-22	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-23	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01

Table 2: Requested/Approved Changes to the Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency (Q - Quarterly A - Annual SA - Semi-Annual)	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite	2018 Requested Changes	Rationale for Requested Changes
MKTF-24	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-25	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-26	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-27	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01
MKTF-28	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-29	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-30	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-31	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-32	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-33	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01
MKTF-34	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01
MKTF-35	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-36	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-37	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-38	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-39	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-40	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01
MKTF-41	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-02	same as MKTF-02
MKTF-42	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-01	same as MKTF-01	same as MKTF-01
MKTF-43	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-44	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03
MKTF-45	Q	X	pH , EC, DO, ORP, Temp, TDS	Same as MKTF-03	Same as MKTF-03	Same as MKTF-03

Table 2: Requested/Approved Changes to the Ground Water Monitoring Schedule

Sampling Location ID	Sampling Frequency (Q - Quarterly A - Annual SA - Semi-Annual)	Collect GW Elevation, DTW, DTP	Water Quality Parameters	Analytical Suite	2018 Requested Changes	Rationale for Requested Changes

DEFINITIONS:

STP-1 TO EP-2 - Sample collected at the inlet to Evaporation Pond 2 from STP-1
 NAPIS 1 = (KA-1R); NAPIS-2 = (KA-2R), NAPIS-3 = KA-3R) - monitor wells positioned around NAPIS to detect leakage
 DO- Dissolved Oxygen; ORP - Oxygen Reduction Potential; Temp - Temperature; EC - Electrical or Specific Conductivity
 TDS - Total Dissolved Solids; VOC - Volatile Organic Compounds-EPA Method 8260, must include MTBE
 SVOC - Semi-Volatile Organic Compounds - EPA Method 8270, must include phenol
 DRO - Diesel Range Organics - EPA Method 8015B (or as modified); GRO - Gasoline Range Organics - EPA Method 8015B (or as modified)
 BTEX - Benzene, Toluene, Ethylbenzene, Xylene, plus Methyl Tert-Butyl Ether (MTBE) - EPA Method 8021+MTBE
 General Chemistry - pH, specific conductance, cations, Anions
 DTW - Depth to Water; DTP - Depth to Product; EP - Evaporation Pond; BW - Boundary Wells
 GWM wells - located around the aeration lagoons to detect leakage
 MW - Monitor Well; OW - Observation Well; RW - Recovery Well; PW - Raw Water Production Well
 WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved
 NA - Not Applicable

NOTES:

- 1) NAPIS 1, NAPIS 2, NAPIS 3, KA-3: Detection of product during quarterly monitoring must comply with Section II.F.2 (twenty-four hour reporting) of NMED Post-Closure Care Permit
- 2) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use methods 9221-E and 9221-F, until EPA approves 40 CFR 136 methods. (Colilert, Colilert - 18, m-Colibblue24, membrane filter method)). Parameters are subject to change. Evaporation Pond samples must be collected at the inlet where waste water flows into the evaporation ponds.
3. EPA Method 8011 for 1,2-dibromethane(EDB) capable of detecting at concentrations less than 0.004 micrograms per liter.
4. Pursuant to NMED’s July 24, 2015 Approval with Modifications, SVOC analyses were previously discontinued with the addition of GRO and DRO-extended.
5. See discussion in Section 6.1 regarding NMED’s June 5, 2018 Disapproval Facility-Wide Groundwater Monitoring Work Plans – Updates for 2016, 2017, and 2018 regarding increased frequency and analysis for nitrite.
6. The changes were previously requested in the 2017 Work Plan Updates and there are no additional changes requested in the 2018 Work Plan Updates. Per NMED’s comment 14 in the June 5, 2018 Disapproval Facility-Wide Groundwater Monitoring Work Plans – Updates for 2016, 2017, and 2018, it appears these wells are approved for inclusion in the Monitoring Plan .