pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0285111**
Facility Type	**Storm Water**	APS ID	**1090165**
Major / Minor	**Minor**	Authorization ID	**1442815**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**MarkWest Liberty Midstream & Resources LLC**	Facility Name	**Imperial & Cibus Ranch Compressor Stations**
Applicant Address	4600 J Barry Court Canonsburg, PA 15317-5854	Facility Address	2205 Quicksilver Road McDonald, PA 15057
Applicant Contact	Harold Rinehart	Facility Contact	***same as applicant***
Applicant Phone	(724) 873-2899	Facility Phone	***same as applicant***
Client ID	271958	Site ID	787277
SIC Code	1311	Municipality	Robinson Township
SIC Description	Mining - Crude Petroleum and Natural Gas	County	Washington
Date Application Received	June 1, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: NPDES permit for discharges of storm water from natural gas compressor stations after a spill.

Summary of Review

MarkWest Liberty Midstream & Resources LLC (MarkWest), in cooperation with their consultant, Tetra Tech, submitted a new application for their existing intermittent storm water discharge from their complex of compressor stations, truck service and well pads, located in the McDonald area of Washington County. MarkWest, a subsidiary of Denver based MarkWest Energy Partners, L.P., is a mid-stream oil and gas company that installs, owns and operates natural gas gathering pipelines, compressor, gas processing and commercial gas distribution facilities. MarkWest, in conjunction with its parent company MPLX LP and the Marathon Petroleum Corporation, owns and operates the Imperial Compressor Facility which consists of a 21.6-acre compressor pad area, connected by a 782 linear foot access road to Quicksilver Road in Robinson Township. Also, in the same complex, is the larger Cibus Ranch Compressor Station (CS) and multiple existing well pads, truck loading areas and other buildings. In their application, MarkWest noted the facility's Standard Industrial Classification (SIC) code as 1311 which is under the mining division, oil and gas extraction group and industry group 131 for "Crude Petroleum and Natural Gas."

At approximately 5:44 a.m. on December 26, 2022, possibly due to extremely cold weather conditions, a weld on a piping section failed at the Imperial CS causing a release of an estimated 10,000 gallons of natural gas condensate and brine onto the northern section of the Imperial CS pad. This process condensate, containing volatile organic compounds (VOCs), and process water infiltrated into pervious areas of the pad, immediate nearby downgradient areas and into the site's stormwater conveyance system.

An annotated satellite image of this MarkWest site is shown as Figure 1 below:

Approve	Deny	Signatures	Date
X		John L Duryea, Jr., P.E. / Environmental Engineer	April 2, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	April 3, 2024

Summary of Review

Figure 1: Annotated Satellite Image of MarkWest's Imperial and Cibus Ranch Compressor Stations

The December 2022 incident described above occurred on the northern portion of the Imperial CS pad shown in the lower left (southwest) of the overall site shown above. An expanded version of a satellite image, annotated to detail the spill area is shown in Figure 2, below:

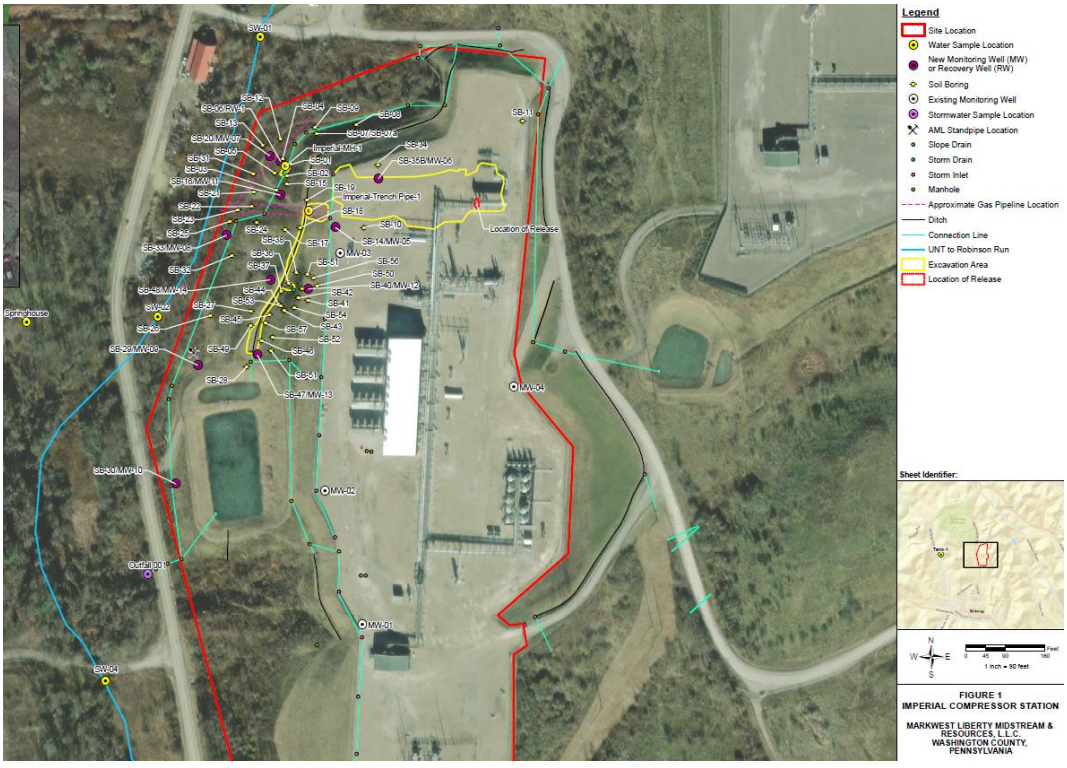

Figure 2: Annotated Satellite Image of MarkWest's Imperial Compressor Station

Summary of Review

Figure 2 above details the areas of the Imperial CS site impacted by the spill and some post spill clean-up efforts. Clearly visible in this image is the initial location of the release (outlined in tight red dots), the estimated extent of the spill's immediately affected areas (outlined in yellow) and the locations of the underground, interconnected site stormwater collection system (shown in light green). This piping system interconnects a series of site stormwater collection ponds for runoff from the site pads. As can be seen in Figure 2, the Cibus Ranch ponds are conveyed past the runoff from the Imperial pad in parallel buried pipelines. These pipelines interconnect down gradient in a manhole near Quicksilver Road toward the southwest of the Imperial pond and forebay. From this point the commingled stormwater is conveyed under Quicksilver Road to the site's lone discharge point – Outfall 001 which is shown in the lower left corner of Figure 2.

Also shown in Figure 2 are surface drainage ditches (black lines), approximate locations of buried gas lines near the spill affected areas (dashed pink lines) and numerous boring, sampling and various well locations either previously existing or newly installed and associated with the 2023 clean-up activities. In addition, the receiving surface water, an unnamed tributary (UNT) 63319 of Robinson Run is also shown in light blue running roughly in parallel to the buried stormwater piping and just outside the site location boundary line shown in solid red.

The majority of the clean-up efforts are being managed by the Department's Southwest Region Office Environmental Cleanup & Brownfield Redevelopment area under their "Act 2" Program. These efforts will not be covered in detail in this review; however, some noteworthy impacts will be mentioned. This will be facilitated using an expanded excerpt from Figure 2 above, as Figure 3, below:

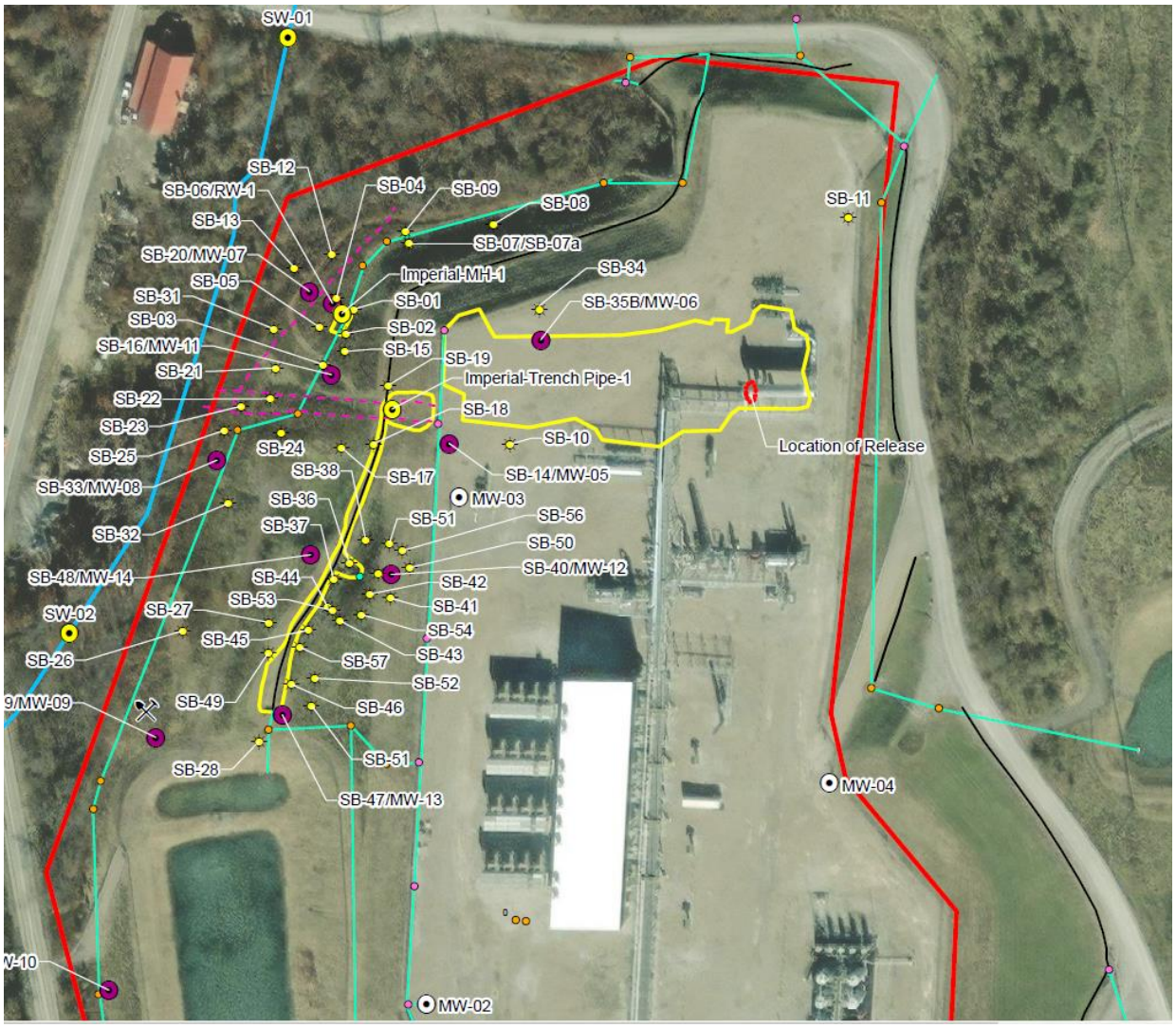

Figure 3: Annotated, Expanded Excerpt of a Satellite Image of MarkWest's Imperial Compressor Station

Summary of Review

During the site's clean-up efforts which spanned 2023, VOC containing contaminants entered drainage ditches, associated piping and the forebay of the pond for the Imperial pad; as well as, the pipeline conveyance for the stormwater from the Cibus Ranch pads. Surface infiltration of VOC containing fluids extended well beyond the yellow areas delineating the initial spill response. Part of the Cibus Ranch stormwater conveyance system was isolated and a 30-foot section of parallel 30-inch high density polyethylene (HDPE) pipeline was installed in order to bypass the affected section. A camera scoping of the bypassed stormwater conveyance piping found that a portion of this underground piping had been crushed, which appears to be the site of the spilled condensate's entry into this section of stormwater system piping through the surrounding saturated soil. The isolated pipe segment is periodically inspected and, when required, the contents pumped out to a "frac tank" and held for removal and processing.

Note that the clean-up activities involved the collection of VOC contaminated water from the isolated section of stormwater sewer piping, and (as described above) a pneumatic pump was used to convey this water to an onsite "frac tank" for future offsite processing. MarkWest provided this description of their remediation, "Regenesis Petrofix which is a granular activated carbon (GAC) material was placed in and around the area of concern during excavation activities and repair of the now abandoned section of the storm sewer line. There is no active recovery of any material as this (is) considered passive or in situ remediation and remediates the soil and ground water in and around the area of placement."

MarkWest confirmed that there are no injection or recovery wells in use. Application of GAC was used for passive treatment and was not applied as a treatment for surface and recovery water, rather this material and excavated soils were removed for offsite processing. However, MarkWest is employing a number of monitoring wells to determine the extent of any potential contamination plume.

Pursuant to 25 Pa. Code § 92a.48(a)(3) incorporating by reference 40 CFR § 125.3 regarding the authority to establish case-by-case effluent limits using best professional judgement, the applicability of the Department's NPDES PAG-05, General Permit for Discharges from Petroleum Product Contaminated Groundwater Remediation Systems was discussed with MarkWest. MarkWest's representative indicated that use of the PAG-05 associated effluent limitations, specifically for BTEX, and monitoring may be appropriately applied for this permit.

Although this is a new permit, several Clean Water Program inspections have occurred at this site over the last year and a quarter. Inspections occurred on December 29, 2022, January 5, 2023, August 25, 2023 and January 24, 2024. A Notice of Violation (NOV) was issued after each of these inspections to document that a visible sheen was observed at Outfall 001, among others, which constitutes an unauthorized, unpermitted discharge of contaminated stormwater to waters of the Commonwealth. Following the most recent inspection in January, MarkWest documented some compensatory actions including contracting with local companies, EAP and Robinson pipe to clean portions of the site's stormwater system piping.

Booms with absorbent material have been deployed to arrest the sheen which appeared to be effective at the piped outfall (Outfall 001) just west of Quicksilver Road and southwest of the Imperial E&S pond. From there stormwater flows to the unnamed tributary (63319) to Robinson Run which flows just west of this outfall. This receiving water is designated in 25 Pa. Code § 93 as a warm water fishery (WWF), but is impaired from attaining this use by Abandoned Mine Drainage (AMD).

The applicant has complied with Act 14.

It is recommended to publish a draft of this proposed permit to allow public comment.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0
Latitude	40º 22' 45.60"	Longitude	-80º 17' 13.37"
Quad Name	Clinton	Quad Code	1503
Wastewater Description:	Stormwater associated with industrial activity		
Receiving Waters	Unnamed Tributary to Robinson Run (WWF)	Stream Code	63319
NHD Com ID	99689948	RMI	1.0000
Drainage Area	0.58 Square Miles	Yield (cfs/mi^2)	0.01022
Q_{7-10} Flow (cfs)	0.00593	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1101	Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, NUTRIENTS		
Source(s) of Impairment	ACID MINE DRAINAGE, ON-SITE TREATMENT SYSTEMS (SEPTIC SYSTEMS AND SIMILAR DECENTRALIZED SYSTEMS)		
TMDL Status	Final, Final	Name	Chartiers Creek, Chartiers Creek Watershed
Nearest Downstream Public Water Supply Intake	West View Water Authority		
PWS Waters	Ohio River	Flow at Intake (cfs)	4730
PWS RMI	976.1	Distance from Outfall (mi)	27.4

Changes Since Last Permit Issuance: New permit

Other Comments:

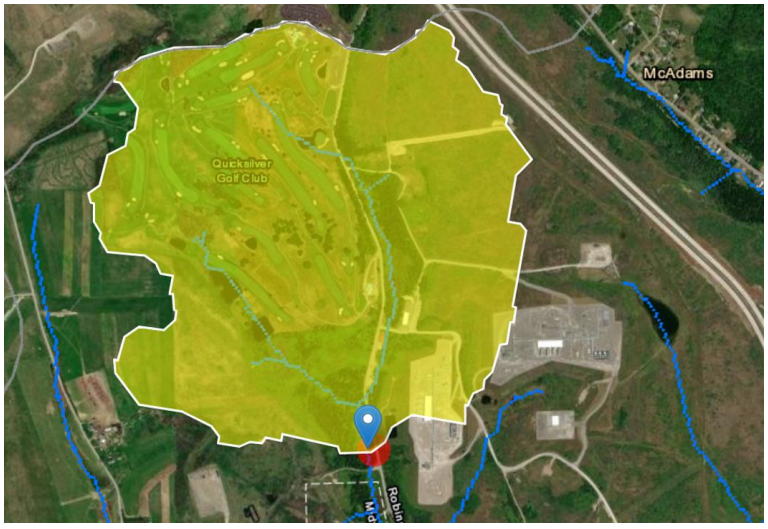

Figure 2: Drainage Area of UNT 63319 to Robinson Run at Outfall 001

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0
Latitude 40º 22' 45.80" **Longitude** -80º 17' 12.50"
Wastewater Description: Stormwater associated with industrial activity

Statutes and Regulations Relating to the Cibus Ranch and Imperial Compressor Stations

Pursuant to Section 402(l)(2) of the Clean Water Act (33 U.S.C. § 1342(l)(2)) and 40 CFR § 122.26(a)(2) (incorporated by reference into DEP's regulations at 25 Pa. Code § 92a.32(a)), storm water discharges associated with oil and gas field activities generally are not required to obtain an NPDES permit. Section 402(l)(2) of the Clean Water Act states:

(l) Limitation on Permit Requirement

(2) Stormwater runoff from oil, gas, and mining operations

The Administrator shall not require a permit under this section, nor shall the Administrator directly or indirectly require any State to require a permit, for discharges of stormwater runoff from mining operations or oil and gas exploration, production, processing, or treatment operations or transmission facilities, composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.

Section 502(24) of the Clean Water Act (33 U.S.C. § 1362(24)) defines "***oil and gas exploration, production, processing, or treatment operations or transmission facilities***" to mean "all field activities or operations associated with exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities."

The Section 502(24) definition of "oil and gas exploration, production, processing, or treatment operations or transmission facilities" was added to the Clean Water Act by Section 323 of the 2005 Energy Policy Act. On June 12, 2006, EPA published a final rule (71 FR 33628-33640) that revised 40 CFR § 122.26(a)(2) to codify the CWA § 402(l)(2) statutory exemption considering the CWA § 502(24) definition. Section 122.26(a)(2) states:

(2) The Director may not require a permit for discharges of storm water runoff from the following: […]

(ii) Mining operations composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with or that have not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations, except in accordance with paragraph (c)(1)(iv) of this section.

(iii) All field activities or operations associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities, except in accordance with paragraph (c)(1)(iii) of this section. Discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities are not subject to the provisions of paragraph (c)(1)(iii)(C) of this section.

Note to paragraph (a)(2)(ii): EPA encourages operators of oil and gas field activities or operations to implement and maintain Best Management Practices (BMPs) to minimize discharges of pollutants, including sediment, in storm water both during and after construction activities to help ensure protection of surface water quality during storm events. Appropriate controls would be those suitable to the site conditions and consistent with generally accepted engineering design criteria and manufacturer specifications. Selection of BMPs could also be affected by seasonal or climate conditions.

In the final rule, EPA states that it "interprets the specific phrase "all field activities or operations"…to include the construction of drilling sites, drilling waste management pits, access roads, in-field treatment plants and the transportation infrastructure

(*e.g.*, crude oil and natural gas pipelines, natural gas treatment plants and both natural gas pipeline compressor and crude oil pump stations) necessary for the operation of most production oil and gas fields". (71 FR 33635)

EPA also states that it "interprets the term "transmission facilities" to include all necessary infrastructure to deliver natural gas or crude oil from the producing fields to the final distribution center (in the case of natural gas) or the refinery (for crude oil)" including "all pipelines, compressor stations (for natural gas) and pump stations (for crude oil)." (71 FR 33636)

Based on EPA's interpretation of the CWA § 502(24) definition in concert with the CWA § 402(l)(2) exemption, the Cibus Ranch and Imperial Compressor Stations do not presumptively require an NPDES permit. However, DEP may issue NPDES permits to natural gas compressor stations under the authority of 40 CFR 122.26(c)(1)(iii) (referenced as an exception in 40 CFR § 122.26(a)(2) and incorporated by reference into DEP's regulations at 25 Pa. Code § 92a.32(a)), which states:

(c) ***Application requirements for storm water discharges associated with industrial activity and storm water discharges associated with small construction activity*** —

(iii) The operator of an existing or new discharge composed entirely of storm water from an oil or gas exploration, production, processing, or treatment operation, or transmission facility is not required to submit a permit application in accordance with paragraph (c)(1)(i) of this section, unless the facility:

(A) Has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at anytime since November 16, 1987; or

(B) Has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since November 16, 1987; or

(C) Contributes to a violation of a water quality standard.

DEP asserts that the incidents of December 26, 2022 and related, subsequent discharges do rise to the level described above, and may cause or contribute to a violation of a water quality standard and that those discharges following the incident of December 26, 2022 and subsequently did exceed reportable quantities under some or all of the statutes noted above.

Storm Water Outfalls

The Department's policy for stormwater discharges is to either (1) require that the stormwater is uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

Stormwater effluent data reported in the application are compared to stream criteria, EPA's Multi-Sector General Permit (MSGP) "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. Otherwise, the storm water outfalls are simply listed as discharge points. In either case, a special condition is added to the permit to include some of the key components of the Department's General Permit (PAG-03) for Discharges of Stormwater Associated with Industrial Activities.

To the extent that monitoring is necessary to ensure that storm water BMPs are adequately implemented, DEP's Permit Writers' Manual recommends that monitoring of stormwater runoff be established if there is evidence of that the stormwater may be contaminated with pollutants of interest to observe the impact of the facility's BMPs on storm water effluent quality.

In this case, in the June 2023 application submittal, MarkWest provided stormwater data with results shown in Table 1 below. Note that results are only shown if the parameter was detected and a MSGP "benchmark" was available for comparison.

Table 1: Applicant 2023 Stormwater Sample Results for Outfall 001 and Benchmarks

Parameter	Sample Concentration (mg/L)	No Exposure Thresholds (mg/L)	2021 MSGP Threshold Values (mg/L)
Oil and Grease	9.2	≤ 5.0	N/A
Biochemical Oxygen Demand (5-day)	< 2.0	≤ 10.0	≤ 30
Chemical Oxygen Demand	< 1.8	≤ 30.0	≤ 120
Total Suspended Solids	1.8	≤ 30.0	≤ 100
Nitrogen (Nitrate plus Nitrite)	0.048	≤ 2.0 (Tot. N)	≤ 0.68
Total Phosphorus	0.12	≤ 1.0	≤ 2.0
Total Cadmium (µg/L)	0.49	N/A	1.8 µg/L
Total Manganese	3.4	N/A	N/A
Total Nickel (µg/L)	28	N/A	470 µg/L
Total Selenium (µg/L)	**8.4**	N/A	3.1 µg/L
pH (s.u.)	7.3	6.0 – 9.0	6.0 – 9.0

Footnote: Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

Note that in Table 1 above, values are shown in **bold** if these exceed the associated MSGP threshold value. In addition to the stormwater samples shown in Table 1 above, results were reported as undetectable for a significant number of pollutants and pollutant groups. However, a number of these results were reported with a laboratory MDL that did not meet the Department's target Quantitation Limits (QLs). Also, in the June submittal, the client suggested that they planned at least another stormwater sample collection. Therefore, to support any conclusions on whether the discharge at Outfall 001 may challenge Water Quality Criterion in the receiving surface water, the client and their consultant (Tetra Tech) were asked on July 14, 2023 to have their future sample(s) analyzed to meet the Department's target QLs.

In response, the applicant collected stormwater samples in December 2023 after a number of clean-up activities were completed in the vicinity of the spill area. The laboratory results were received as an amendment to selected application pages on February 29, 2024. The updated aggregate results are shown in Table 2 below:

Table 2: Applicant Aggregate Stormwater Sample Results for Outfall 001 and Benchmarks

Parameter	Sample Concentration (mg/L)	No Exposure Thresholds (mg/L)	2021 MSGP Threshold Values (mg/L)
Oil and Grease	9.2	≤ 5.0	N/A
Biochemical Oxygen Demand (5-day)	1.19	≤ 10.0	≤ 30
Chemical Oxygen Demand	27	≤ 30.0	≤ 120
Total Suspended Solids	19.5	≤ 30.0	≤ 100
Nitrogen (Nitrate plus Nitrite)	0.3288	≤ 2.0 (Tot. N)	≤ 0.68
Total Phosphorus	0.12	≤ 1.0	≤ 2.0
Total Aluminum	0.391	N/A	≤ 1.1
Total Arsenic (µg/L)	6.6	N/A	≤ 150 µg/L
Total Cadmium (µg/L)	0.49	N/A	≤ 1.8 µg/L
Total Lead (µg/L)	0.41	N/A	≤ 82 µg/L
Total Manganese	3.4	N/A	N/A
Total Nickel (µg/L)	28	N/A	≤ 470 µg/L
Total Selenium (µg/L)	**8.4**	N/A	≤ 3.1 µg/L
Total Zinc (µg/L)	3.84	N/A	≤ 120 µg/L
pH (s.u.)	7.57 – 7.84	6.0 – 9.0	6.0 – 9.0

Footnote: Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

As in Table 1, values in Table 2 are shown in **bold** if these exceed the associated MSGP threshold value. In addition, for the stormwater samples results submitted on February 29, 2024, no pollutants were detected in Pollutant Groups 3 – 6.

Although not universally true, these results were reported with associated laboratory MDLs that broadly met the Department's target QLs. Therefore, the results support the conclusion that there is no reasonable potential for the stormwater being discharged at Outfall 001 to challenge Water Quality Criterion in the receiving surface water for these pollutant groups. In contrast, the results would not qualify as meeting the Department's No Exposure thresholds as these are high for Oil and Grease. The results largely meet the Federal MSGP thresholds, except for Selenium. The former is less than 4 times the threshold generally considered consistent with fluctuations in stormwater discharges.

As noted above, the applicability of the Department's PAG-05 General Permit parameters has been discussed with the permittee's technical personnel and is considered appropriate. The associated monitoring requirements are included in Table 3 below:

Table 3: Monitoring Requirements under General Permit PAG-05

Parameter	Mass (pounds)		Concentration (mg/L)			Monitoring Requirements
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Instant. Maximum	
Flow	Report	—	—	—	—	Measurement; 1/month
Benzene	—	—	—	0.001	0.0025	Grab sample; 1/month
Total BTEX *	—	—	—	0.1	0.25	Grab sample; 1/month
MTBE *	—	—	—	Report	Report	Grab sample; 1/month
Total Suspended Solids	—	—	—	30.0	75.0	Grab sample; 1/month
Oil and Grease	—	—	—	15.0	30.0	Grab sample; 1/month
Dissolved Iron	—	—	—	—	7.0	Grab sample; 1/month
pH	—	—	6.0	—	9.0	Grab sample; 1/month

* BTEX includes Benzene, Toluene, Ethylbenzene and Xylenes; MTBE is an abbreviation for Methyl tert Butyl Ether

Note that the requirements shown in Table 2 above are a combination of the monitoring for clean-up of gasoline and petroleum discharge events under the General Permit. Since MarkWest treatment may be applied intermittently, some adjustments to these parameters may be considered.

No mathematical modeling was performed for toxic pollutants at Outfall 001 since storm water is only discharged intermittently and generally not at times when the receiving stream is flowing at the $Q_{7\text{-}10}$ design flow conditions required for modeling. Since no specific Water Quality Based Effluent Limitations will be developed, the stormwater discharged at this outfall are required to be uncontaminated. Typically, the facility's SIC code is used to indicate which parameters of concern will be monitored based on the guidance for the NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity (PAG-03). MarkWest's SIC code is 1311 and, although this is not listed as corresponding with any Appendix of the General Permit, a fallback of Appendix J is allowed, and a specific version has more recently been prepared specifically for Oil and Gas Distribution facilities. The associated monitoring requirements and benchmarks for this Appendix are shown below in Table 4:

Table 4: Monitoring Requirements under General Permit (PAG-03) Appendix J

Pollutant	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
Total Nitrogen (mg/L) (*)	1 / 6 months	Calculation	XXX
Total Phosphorus (mg/L)	1 / 6 months	Grab	XXX
Total Suspended Solids (TSS) (mg/L)	1 / 6 months	Grab	100
Oil and Grease (mg/L)	1 / 6 months	Grab	30
pH (S.U.)	1 / 6 months	Grab	9.0
Chemical Oxygen Demand (COD)	1 / 6 months	Grab	120

* Footnote: Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2 +NO_3-N are measured in the same sample.

Total Maximum Daily Load (TMDL)

Stormwater discharges from the facility are located within the Chartiers Creek Watershed for which the Department has developed a TMDL. Originally listed on the 1996 Pennsylvania Section 303(d) as impaired waters, Chartiers Creek was included in a Department TMDL, finalized on April 9, 2003. This TMDL establishes load allocations for the discharge of aluminum, iron and manganese. The focus on these pollutants is because the source of the stream's impairment is AMD primarily from coal mines which were located throughout the watershed including in proximity to this MarkWest site. Because the source of this stream's impairment is from closed and abandoned mines, the sources are classified as non-point sources and allocations were assigned in the TMDL to impaired stream segments rather than to individual point sources as are typically assigned to NPDES permits. The stream segment receiving the discharge from the MarkWest site's Outfall 001 immediately downstream is listed in the TMDL as impaired. Since this permit is new, no waste load allocations (WLAs) have been assigned to MarkWest's site. Therefore, if reasonable potential to add to this stream's impairment from MarkWest's discharge at Outfall 001 is established, monitoring for these AMD metals and/or effluent limitations may be required to limit further damage to the receiving stream's designated use. More detailed specifics for each of the AMD metals include:

Aluminum: The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum monitoring or limits may be proposed for Outfall 001.

Iron: The specific water quality criterion for iron is expressed as a 30-day average of 1.5 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that an MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers. Accordingly, TMDL iron limits may be proposed for Outfall 001.

Manganese: The specific water quality criterion for manganese is expressed as an acute or maximum daily of 1.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of human health and is associated with chronic exposure associated with a potable water supply (PWS). Since no duration is given in Chapter 93 for the manganese criterion, a duration of 30 days is used based on the water quality criteria duration for Threshold Human Health (THH) criteria given in Section III.C.3.a., Table 3 on Page 9 of DEP's Water Quality Toxics Management Strategy. The 30-day duration for THH criteria coincides with the 30-day duration of an AML, which is why the manganese criterion is set equal to the AML for a "permitting at criteria" scenario. Because the manganese criterion is interpreted as having chronic exposure, the manganese MDL and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively). Accordingly, TMDL manganese limits may be proposed for Outfall 001.

All new or revised NPDES permits discharging into the Chartiers Creek Watershed have to be consistent with the TMDL Waste Load Allocation (WLA) and/or Load Allocations based on 40 CFR 122.44(d)(1)(vii)(B). The Department reviewed the TMDL and this facility has no explicit WLA: however, stream segment 63319 covering the UNT of Robinson Run was included in 2000 in the 303(d) listing as and is listed under this stream segment number. Therefore, monitoring or effluent limitations may be required in order to meet the endpoint requirements of the TMDL. These requirements were based on Water Quality Criteria (WQC) with a margin of safety. However, for this new permit, endpoints and have been set to the WQC, neglecting the margin of safety. Refer to Table 5 below, for a summary of the TMDL/WQC effluent concentrations.

Table 5: Summary of the TMDL/WQC effluent concentrations

Parameter	Monthly Average ($^{mg}/_{L}$)	Daily Maximum ($^{mg}/_{L}$)
Aluminum	0.75	0.75
Iron	1.5	3.0
Manganese	1.0	2.0

In their June application submittal, MarkWest stormwater data for Aluminum, Iron and Manganese were included. A review of this data reveals that aluminum was detected at 0.391 mg/L, iron was detected at 0.49 mg/L and manganese was detected at 3.4 mg/L. This last datum exceeds the TMDL concentration limit. Besides Manganese, the data for both Aluminum and Iron are both greater than 10% of the TMDL concentration limit with Aluminum being greater than 50% of the TMDL concentration limit, indicating a reasonable potential to approach these TMDL concentration limits. Consequently, these TMDL water quality limits will be imposed for Aluminum, Iron and Manganese, to ensure compliance with the TMDL.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard or water quality standard.

However, since no previous limits have been promulgated to this facility, this section does not apply.

Monitoring Requirements for Outfall 001

Since no sampling had previously been established at this outfall, to monitor the effectiveness of the site's implemented BMPs, a level of monitoring will be initiated. For monitoring at a twice per quarter frequency, an effluent limitation for Manganese will be promulgated in accordance with the Chartiers Creek TMDL since this pollutant is considered to have a reasonable potential of being discharged from this facility. Iron will be monitored at this same frequency. In addition, Benchmarks will be included in Part C of the permit that match the two applicable General Permits' values included in Tables 2 and 3 above. This monitoring will be set at monthly for these pollutants analogous to that of the General Permit PAG-05. The resulting monitoring requirements are shown in Table 5 below:

Table 5: Permit Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Monitoring Requirements
	Average Monthly	Daily Maximum	Instant Minimum	Average Monthly	Instant Maximum	
Total Suspended Solids	—	—	—	—	75.0	Grab sample; 1/month
Oil and Grease	—	—	—	—	30.0	Grab sample; 1/month
Total Nitrogen	—	—	—	—	Report	Calculation; 1/month
Total Phosphorus	—	—	—	—	Report	Grab sample; 1/month
Chemical Oxygen Demand	—	—	—	—	Report	Grab sample; 1/month
Total Aluminum	—	—	—	—	0.750	Grab sample; 1/month
Total Iron	—	—	—	—	3.0	Grab sample; 1/month
Total Manganese	—	—	—	—	2.0	Grab sample; 1/month
Flow	Report	—	—	—	—	Estimate, 1/month
Benzene	—	—	—	—	0.0025	Grab sample; 1/month
Total BTEX	—	—	—	—	0.25	Grab sample; 1/month
MTBE	—	—	—	—	Report	Grab sample; 1/month
pH	—	—	6.0	—	9.0	Grab sample; 1/month

Footnote: Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2 +NO_3-N are measured in the same sample.

In Table 5 above, since once per month monitoring has been imposed, averaging over a month will only typically occur when extra samples are taken. Therefore, no effluent limitations or reported values for monthly averages will be required, except an estimate (rather than a measurement) for flow. Monitoring and effluent limitations will be assessed as instantaneous values. The limitation on dissolved iron will be, instead, assessed on the TMDL endpoint for total iron, as more protective of the receiving stream.

This monitoring should provide MarkWest the data needed to assess the efficacy of their ongoing clean-up efforts and the need for continuing treatment of stormwater and collected groundwater before being discharged.

PFAS Monitoring

Per- and poly-fluoroalkyl substances (PFAS) have attracted widespread attention recently because of their characteristic bioaccumulation, toxicity, and wide dispersion in the environment. PFAS are a group of compounds used in a variety of industrial and consumer products such as surfactants for soil/stain resistance, textiles, paper and metals, firefighting foam, and pesticides. Humans are exposed to PFAS through contaminated drinking water, food, outdoor air, indoor dust, and soil.

On February 5, 2024, the Department updated their standard procedures to include a requirement for monitoring of selected PFAS related compounds. These include:

PFOA – perfluorooctanoic acid
PFOS – perfluorooctanesulfonic acid
PBFS – perfluorobutane sulfonate
HFPO-DA – hexafluoropropylene oxide – dimer acid

For permittees like MarkWest at their Imperial and Cibus Ranch Compressor Station where no history of use of these chemicals has been indicated, once per annum monitoring will be added to the required monitoring. No effluent limitations have been promulgated at this time. Further, if 4 consecutive samples result in no detections of these substances, further monitoring may be discontinued.

Effluent Limitation Compliance Schedule

Whenever the Department proposes the imposition of WQBELs on existing sources, the NPDES permit may include a schedule of compliance to achieve the WQBELs. Any compliance schedule contained in an NPDES permit must be an "enforceable sequence of actions or operations leading to compliance with the water quality-based effluent limitations ("WQBELs"). In accordance with 40 CFR 122.47(a)(3) and PA Code, Chapter 92a.51, compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record and described in the fact sheet, that a compliance schedule is "appropriate" and that compliance with the final WQBEL is required "as soon as possible".

In this case, The site sedimentation ponds and VOC booms and other treatments have been constructed and/or are readily available to deploy to treat stormwater with a reasonable expectation of achieving the discharge effluent limitations for some of the pollutants expected in the discharge. However, the elevated Manganese in the discharge, and promulgating AMD metals limits, in compliance with the applicable Chartiers Creek TMDL, raise some uncertainty about the efficacy of the site's treatment to reduce these pollutants that will have new effluent limitations.

Never-the-less, given the active nature of MarkWest's response to the late 2002 spill and clean-up, the Department is not proposing a compliance schedule be established. Therefore, monitoring and the promulgated effluent limitations will become effective immediately after the permit's effective date.

Tools and References Used to Develop Permit	
☐	WQM for Windows Model
☐	Toxics Management Spreadsheet
☐	TRC Model Spreadsheet
☐	Temperature Model Spreadsheet
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: SOP for Clean Water Program, New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, SOP No. BPNPSM-PMT-001, Rev. 2/5/2024, Version 1.7.
☐	Other: