pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0091685**
Facility Type	**Industrial**	APS ID	**582584**
Major / Minor	**Minor**	Authorization ID	**631473**

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

Applicant and Facility Information

Applicant Name	**US Steel Corp**	Facility Name	**South Taylor Environmental Park**
Applicant Address	600 Grant Street	Facility Address	555 Delwar Road
	Pittsburgh, PA 15219-2702		Pittsburgh, PA 15236-1329
Applicant Contact	Eric C. Williams	Facility Contact	Eric C. Williams
Applicant Phone	(412) 433-6365	Facility Phone	(412) 433-5900
Client ID	80062	Site ID	464890
SIC Code	4953	Municipality	West Mifflin Borough
SIC Description	Residual Waste Landfill	County	Allegheny
Date Application Received	May 3, 2006	EPA Waived?	No
Date Application Accepted	May 8, 2006	If No, Reason	WLA identified in Streets Run TMDL

Purpose of Application: Renewal of NPDES Permit for Discharge of IW and Stormwater

Summary of Review

The Department received a timely submittal for renewal of an NPDES application from United States Steel Corporation (USS) for its South Taylor Environmental Park (STEP) site on May 3, 2006. An updated application was received on September 5, 2018. Supplementary data was later received via email attachments, including discharge sample analyses for Outfall 002 on Aug. 6 and September 30, 2024, a statement on the onsite use of acrylamide on October 3, 2024, and influent samples for Outfall 103 on November 21, 2024. The STEP facility houses several captive landfills including:

1. A closed residual waste landfill for steel manufacturing wastes under Waste Management (WM) permit **301193**,
2. another, adjacent closed residual waste (for steelmaking wastes) disposal area for under WM permit **300652**
3. a closed hazardous (electric arc furnace) waste disposal area under RCRA permit **PAD000739672**, and
4. a former Blast Furnace Slag (BFS) disposal area (North Taylor).

These landfills were operated by USS as captive landfills for the disposal of steel manufacturing waste streams from roughly 1940 through 1998. The permit application documents a SIC Code of 4953 (Residual Waste Landfill) and a NAICS Code of 562212 (Solid Waste Landfill). The STEP site consists of 495 acres owned by USS. The previously permitted and now closed South Taylor disposal areas covered approximately 75 acres. USS notified the Department on January 1, 1983, of the cessation of disposal of BFS at the Taylor site, and that they intended to mine slag from the northern portion of this site in the future. Note that no landfill on the STEP site is still accepting any waste streams today.

This site has had coverage under Department permits and has been the subject of a number of Department actions over the years. Department permits associated with the STEP facility have included NPDES coverage under **PA0091685** which was first issued on December 17, 1991 (application received 2/7/1980) and Water Quality Management (WQM), Part II permits **0292201** (South Taylor) and **0200205** (North Taylor). The Department entered into a Consent Order and Agreement (COA) with USS regarding the STEP site on September 27, 1985 (with subsequent amendments), including on February 28, 1986 (1st), May 8, 1989 (2nd), June 23, 1993 (3rd) and then a replacement COA on September 12, 2001. The last of these

Approve	Deny	Signatures	Date
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	June 24, 2025

Summary of Review

established the creation of a treatment plan which combined acidic abandoned mine drainage (AMD) from the Pittsburgh Coal Seam with BFS pile leachate from the North Taylor area through a modified wetland treatment area.

An historic view of the southern portion of the STEP site is shown in Figure 1.

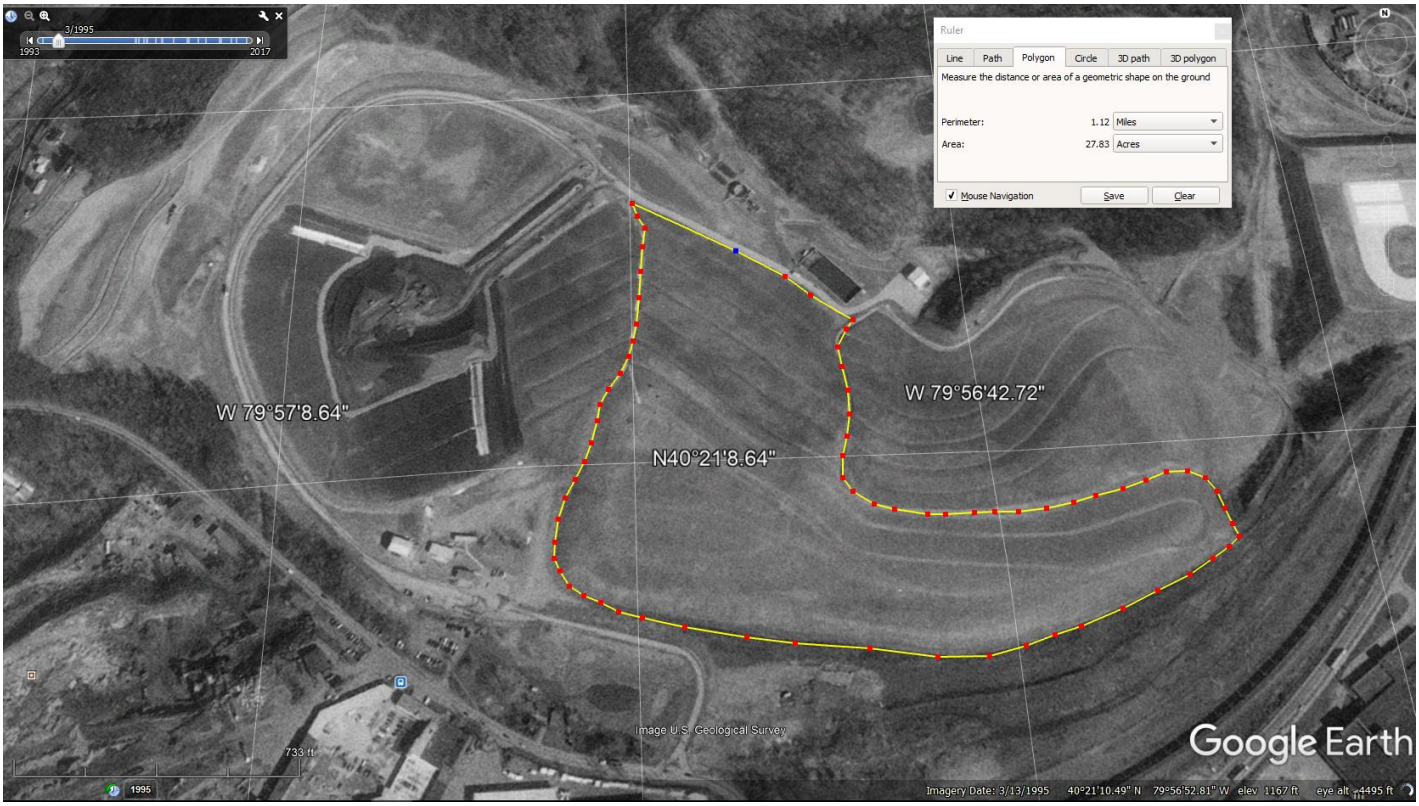


Figure 1: Mid-1990's USGS Aerial Photograph of South Taylor Landfill Showing the Closed Residual Landfill Area

In Figure 1, the three South Taylor landfill areas can be seen. On the left is the, then active, residual waste landfill which covers approximately 30 acres in a roughly circular pattern. In the middle is the closed residual waste landfill covering almost 28 acres in roughly a boot or "L" shaped pattern (outlined) and to the right and north of the boot is the closed hazardous landfill area covering approximately 16 acres. This area was used primarily for the disposal of electric arc furnace dust (EAFD). EAFD is classified as a hazardous waste due to its content of heavy metals and their oxides. Other points of interest shown in the photo are the Residual Waste Leachate (RWL) Holding Tank which is just north of the top of the boot, the Hazardous Waste Leachate (HWL) Tank (northwest of the RWL Holding Tank) and the Hazardous Treatment Facility (east of the RWL Holding Tank). (Note that more details can be seen in later figures.) Also, toward the right of the image is the end of runway 10 of the adjacent Allegheny County Airport; as well as Delwar Road toward the south and southwest.

The immediate prior USS STEP NPDES permit was effective on November 1, 2001, with a term running through October 31, 2006. This permit has been administratively extended through the present date until final issuance of this renewal.

Under this 2001 permit, the facility discharged industrial wastewater and/or stormwater from six (6) outfalls/internal monitoring points (IMPs) (Outfalls/IMPs 002, 004, 005, 006, 103 and 203). In their latest application, stormwater previously discharging from Outfall 006 has been redirected to the retention pond north of the idled residual landfill (circular) area with the overflow being discharged through Outfall 005. Consequently Outfall 006 has been closed and is being dropped from this permit. The remaining stormwater outfalls (002, 004, and 005) and the respective drainage areas are shown in Figure 2 below.

Summary of Review

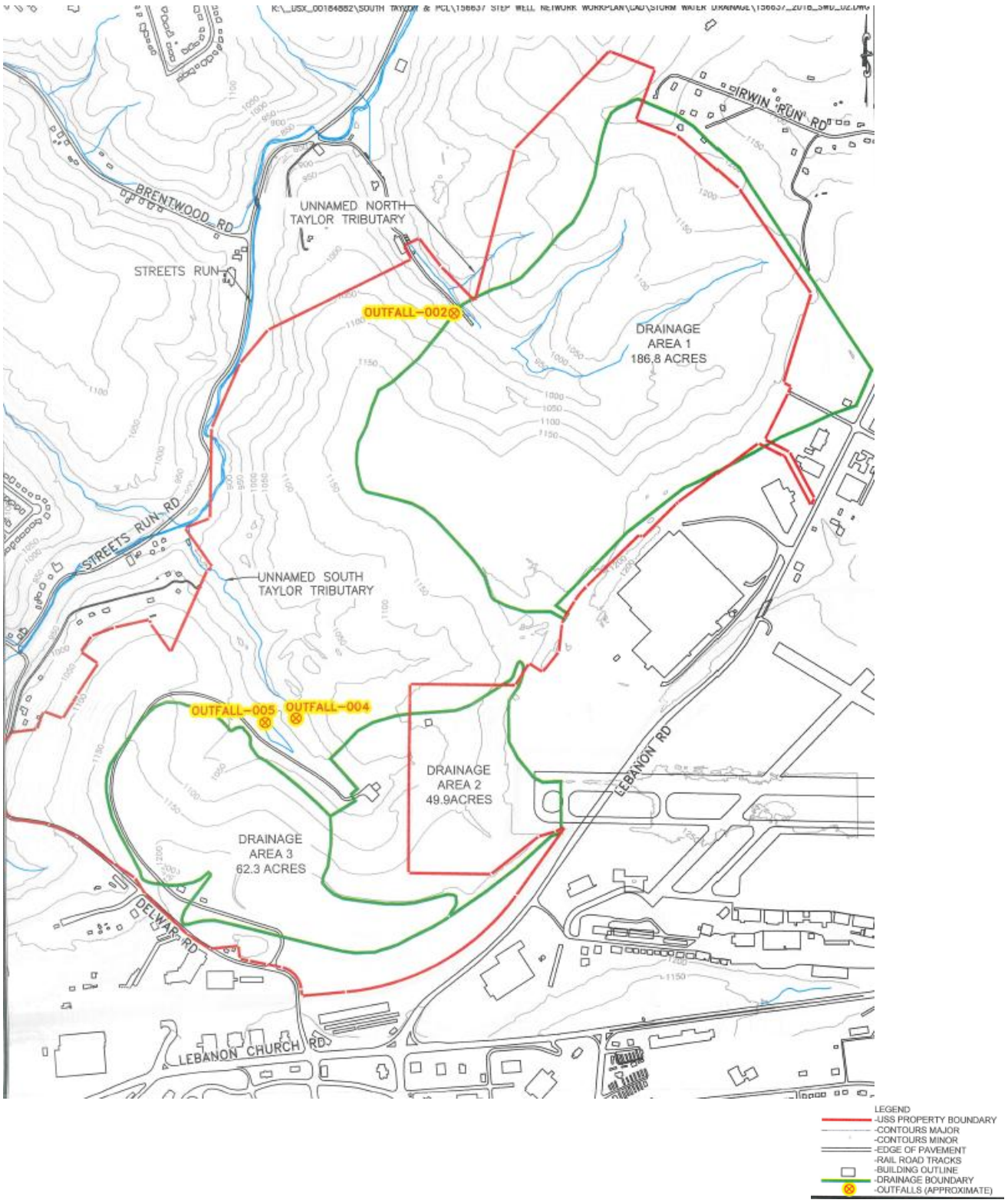


Figure 2: USS STEP Site with Stormwater Outfalls and Associated Drainage Areas

As can be seen from Figure 2, the North Taylor area drains to **Outfall 002** and the South Taylor areas, including the runoff from the cover areas on the landfills which drain to **Outfalls 004** and **005** with the retention pond overflow going to **Outfall 005** as well. The remaining areas on USS property is thought to drain via sheet flow to nearby Streets Run and its tributaries.

Summary of Review

In addition to stormwater, on September 13, 2001, WQM Part II permit **0200205** approved construction of a Passive Treatment System (PTS) upstream of **Outfall 002**. The application submittal characterized this outfall as discharging process effluent including AMD, BFS leachate and stormwater from the closed North Taylor slag disposal area through this wetland treatment area. Construction was completed and the PTS started operation on December 6, 2001. **Outfall 002** discharges to UNT (64937) to Streets Run, aka. **North Taylor Tributary (NTT)**, also known locally as Lutz Hollow.

Not shown in Figure 2 are the process IMPs **103** and **203**. **IMP 103** is associated with the discharge from the Hazardous Treatment Facility (aka. Wastewater Treatment Plant). **IMP 203** is associated with the discharge from the RWL Holding Tank (aka. Residual Waste Equalization Basin) plus some nearby AMD seeps. A detail of the layout of these process tanks, facilities and piping are shown in Figure 3. A process flow diagram for these processes is shown in Figure 4.

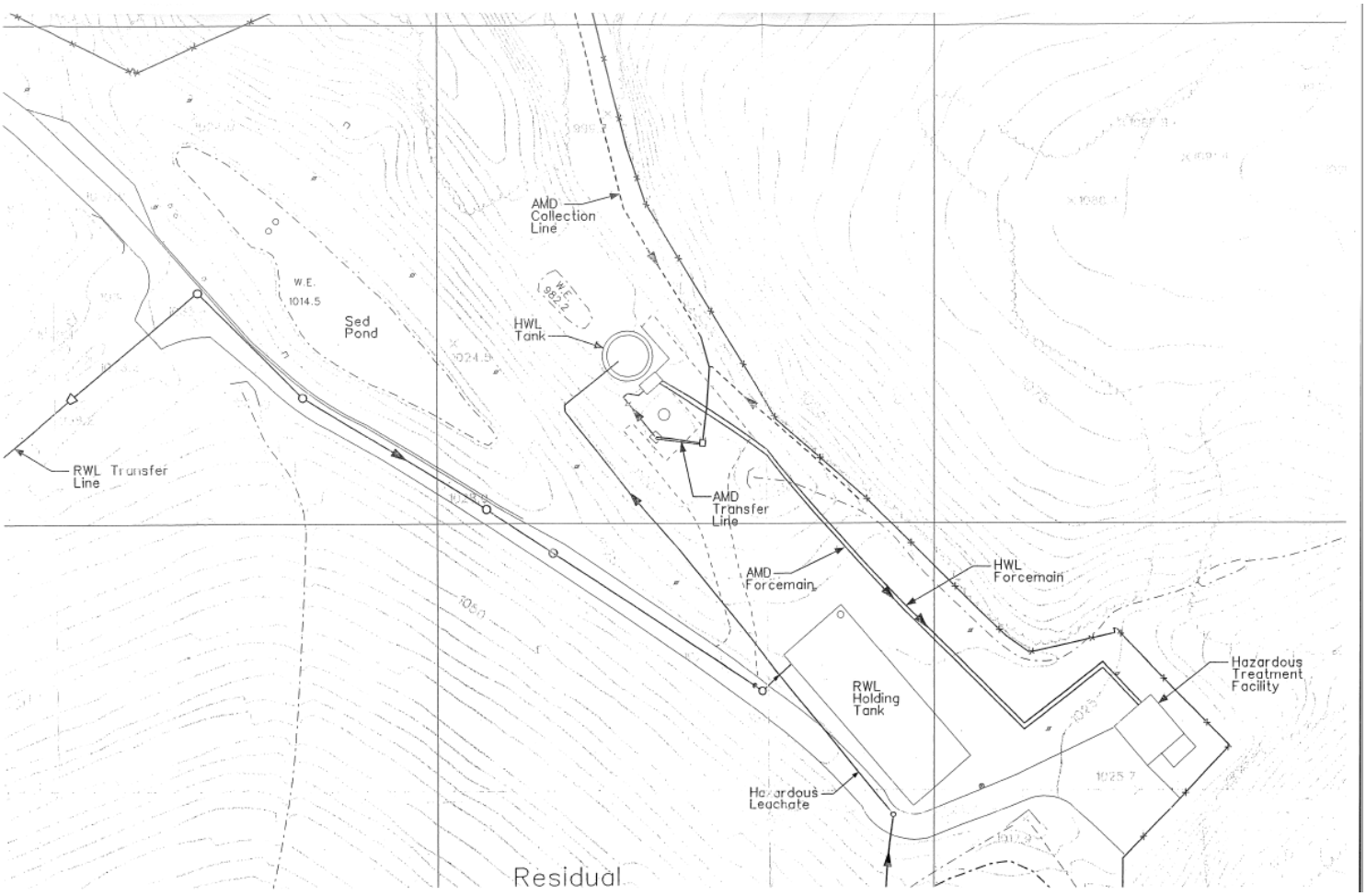


Figure 3: Detail of Layout of Residual and Hazardous Waste Leachate Processing and Underground Interconnecting Piping at USS STEP

Summary of Review

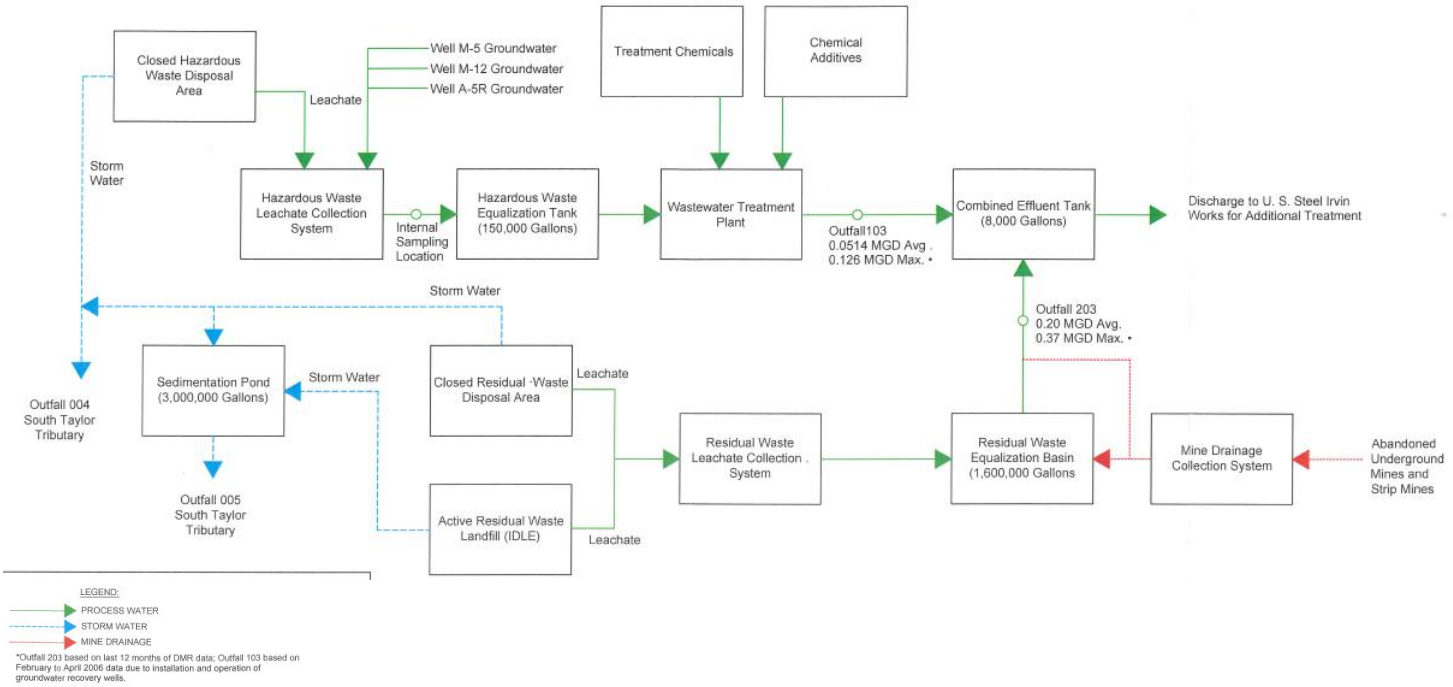


Figure 4: Process Block Diagram of USS STEP Southern Area Processing

As can be seen from Figure 4, both the treated HWL and the untreated RWL, along with, possibly, some AMD are all commingled in the Combined Effluent Tank before being discharged to the USS Irvin Works (South) Waste Water Treatment Plant (WWTP). There these wastewaters undergo further processing and ultimately are discharged under NPDES permit for USS' Irvin Works under **PA0004073**.

Therefore, only Outfalls 002, 004 and 005 discharge to surface waters of the Commonwealth under this permit. Pursuant to 25 PA Code Chapter 93, effluent limits for these USS STEP discharges are established to be protective of the receiving stream's designated use, which for the unnamed tributary in the northern portion of the STEP site is the UNT to Streets Run (64937) known locally as the NTT. In the southern portion of the site the receiving stream is the UNT to Streets Run (37196) known locally as the South Taylor Tributary (STT). Western portions of the STEP site drain to Streets Run itself, mostly via sheet flow. All of these surface waters are designated in Chapter 93 as warm water fisheries (WWF).

Total Maximum Daily Load (TMDL) for Streets Run

According to the Department's February 19, 2009, TMDL, stream assessments conducted for the downstream receiving watershed (Streets Run), including segments 37196 (designated STREETS08 in the TMDL aka. STT) and 64937 (designated STREETS06 aka. NTT) are all impaired by AMD. The approved, final TMDL limits discharge of metals including aluminum and iron, and in some cases, including these two segments, acidity. Manganese, typical of AMD based limits, was **not** included in this TMDL. Table 1 lists the specific TMDL Waste Load Allocation (WLA) for the USS STEP facility's **Outfall 002.**

Table 1. TMDL Waste Load Allocations for STEP Outfall 002

Pollutant	Monthly Average Allowable Conc. (mg/L)	Average Flow (MGD)	Allowable Load (lbs/day)
Aluminum, Total	0.5	0.2488	1.04
Iron, Total	0.5	0.2488	1.04
Manganese	N/A	N/A	N/A

Summary of Review

However, research into the source of these TMDL WLAs revealed that these are essentially a circular reference back to the prior limitations promulgated in earlier issuances of this same NPDES permit.

Table 2, below, summarizes the USS STEP facility's current permit outfalls and pollutants of concern from the previous permit term.

Table 2 - Outfall Description and Pollutants of Concern from the Prior Permit

Outfall / IMP	Design (Max.) Flow (MGD)	Description	Pollutants of Concern
002	0.288	Process effluent combining AMD and slag leachate with stormwater runoff	Flow, TSS, TDS, aluminum, antimony, arsenic, iron (total), iron (dissolved), manganese, cadmium, cobalt, chromium (Hex), fluoride, lead, copper, mercury, selenium, thallium, silver, sulfate, cyanide (free), Benzo(a)Pyrene, Osmotic Pressure and pH.
004	Variable SW	Uncontaminated stormwater runoff from areas including those over the closed Hazardous Waste landfill	Flow, TSS, TDS, aluminum, iron (total), iron (dissolved), manganese, zinc, sulfate, cyanide (total), cyanide (free) and pH.
005	Variable SW	Uncontaminated stormwater runoff from areas including the South Taylor Residual Waste Landfills and Sedimentation Pond overflow (includes areas previously covered under Outfall 006)	Flow, aluminum, iron, manganese, zinc, cyanide
103	0.126	Process effluent from the Wastewater Treatment Plant, processing HWL, to the Combined Effluent Tank before discharge to US Steel Irvin Works	Flow, TSS, oil and grease, aluminum, iron, manganese, cadmium, chromium (Hex), chromium (total), lead, copper, selenium, beryllium, silver, zinc, cyanide (total), cyanide (free), Phenols, Acrylonitrile, Benzo(a)Pyrene and pH.
203	0.37	Effluent composed of RWL and AMD collection monitored prior to transmission to the Combined Effluent Tank before discharge to US Steel Irvin Works	Flow, TSS, oil and grease, aluminum, iron, manganese, cadmium, chromium (Hex), lead, copper, selenium, beryllium, silver, zinc, cyanide (total), cyanide (free), Phenols, Acrylonitrile, Benzo(a)Pyrene and pH.

Outfall 002 – According to the September 2018 permit application resubmittal, following the implementation of the PTS, Outfall 002 is permitted for the discharge of process effluent including AMD from earlier mining operations (by others), BFS leachate from the closed North Taylor slag disposal area and stormwater runoff as shown in Figure 2. Additional treatment was achieved via controlled flow through a set of designed wetland areas which were constructed under Part II permit WQM **0200205**. The treatment of AMD occurred in two stages. The first was limestone neutralization in a concrete basin. The second was via precipitation of pollutants, mostly metals, during dwell time in the wetlands area. More recently, the applicant had requested approval for the use of several flocculants to encourage faster and more complete removal of metals, with more focus on aluminum. Flow through these wetland areas was controlled by a series of stop-log weirs. **Outfall 002** is the point of discharge to the UNT (64937) to Streets Run, (aka. NTT).

In a meeting on March 5, 2019, USS informed the Department that the PTS is failing to capture all of the AMD flows and achieve the existing effluent limits. Since then, over the last five years, a number of alternate approaches for treatment of the BFS leachate and separate AMD discharges to UNT 64937 have been discussed. A new approach has been advanced

Summary of Review

to capture and treat the BFS leachate seeps separately from the AMD discharges. The leachate seeps will be treated via a smaller, active treatment system than currently in operation while the AMD previously captured to commingle for treatment with the BFS pile leachate will now be treated in more focused, AMD treatment system(s) tailored to their own requirements, apart from this NPDES permit, but included in WQM permit(s). This new approach was proposed by USS in their STEP Abandoned Mine Drainage Abatement Plan, (AMDAP) prepared by their consultant, BioMost, Inc. (BioMost) and issued in November 2023.

Outfall 004 discharges consist of uncontaminated stormwater runoff and groundwater infiltration from the drainage area shown in Figure 2. This area includes the cap over the closed hazardous waste landfill. Note that decades ago, AMD treatment ponds had been constructed. Stormwater discharges from these legacy ponds also discharged at Outfall 004. In high precipitation events circa August 2000, the receiving STT had been scoured by high flow at this point. Following that event, the Department allowed USS to backfill the north AMD pond for equipment access use and later to leave it backfilled.

Outfall 005 discharges consist of uncontaminated stormwater runoff and groundwater infiltration from the drainage area shown in Figure 2. This area includes the cap over the two closed residual waste landfills. Also included is the overflow from the sedimentation pond just north of the boundary between the two residual waste landfills (see Fig. 3).

IMPs 103 and 203 – These IMPs cover the discharge of leachate from the Hazardous Waste and the Residual Waste landfills, respectively, in the South Taylor area, along with stormwater runoff and previously some captured AMD, all to the 8,000-gallon Combined Effluent Tank from which it is pumped to the **USS Irvin Works** for additional treatment at the South Treatment Plant (aka. South Sewer Treatment Plant). As with Outfall 002, following AMDAP, some (or all) of the AMD previously captured and commingled with the other waste streams will instead be treated separately within more focused treatment systems tailored to individual AMD seep treatment requirements, apart from this permit, but included in WQM permit(s).

A walkdown and inspection of the site was conducted by Department and USS personnel on December 15, 2017. No violations were noted in this inspection. However, since issuance of the 2001 renewal, eight prior inspections had been documented. Violations had been noted in three prior inspections and/or reviews including DMR exceedances in May 2005 and during administrative review in June 2007. Aluminum exceedances were noted at **Outfall 002**. However, between June 2007 thru 2017, no violations were reported or documented including during the two compliance evaluations performed.

In contrast, starting in 2018, record high precipitation appears to have contributed to a number of effluent limit exceedances, especially for high aluminum concentrations. The applicant requested a meeting with the Department to discuss these issues in 2019. During this period and subsequently, a number of effluent limit exceedances have occurred at **Outfall 002** which were cited in Notice of Violations, issued on January 7, 2020 and on April 14, 2023.

As noted, a number of meetings have been held on various dates and at various locations since early 2019 between the Department and USS discussing treatment of a number of AMD seeps emanating from various locations on and adjacent to the STEP site. These discussions culminated in the AMDAP approach. Pursuant to implementing this, a new COA is under negotiation, the proposed AMDAP basis of which involves segregating and excluding the AMD discharges from this NPDES permit but will require multiple AMD treatment systems and interconnections, to be documented under other WQM Part II permits and/or WQM permit amendments.

Updated latitude and longitude coordinates for the outfalls were supplied by the applicant on February 12, 2019. This information was updated in eFacts. Some prior outfall information was inactivated in conjunction with this update.

It is recommended that a draft permit be published for public comment in response to this application.

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.	002	Design Flow (MGD)	0.15076
Latitude	40º 21' 51"	Longitude	-79º 56' 34"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Chemically treated BFS pile leachate and stormwater		
Receiving Waters	Unnamed Tributary to Streets Run	Stream Code	64937
NHD Com ID	99408112	RMI	0.384
Drainage Area	0.3 sq. miles	Yield (cfs/mi^2)	0.0061
Q_{7-10} Flow (cfs)	0.00182	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	922	Slope (ft/ft)	0.075
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Abandoned Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run
Nearest Downstream Public Water Supply Intake	PA American Water Co., Mon. River @ Becks Run		
PWS Waters	Monongahela River	Flow at Intake (cfs)	614
PWS RMI	4.6	Distance from Outfall (mi)	4.6

Changes Since Last Permit Issuance: Since the last permit issuance in September 2001, an innovative passive wetland treatment system was installed and had been in operation for over a decade. After historically high precipitation years in late 2017 and 2018, the wetland approach was changed to an active treatment via chemical addition and precipitation of metals in small sedimentation ponds. Although with more frequent prior issues, effluent limit exceedances have occurred more recently, with Notices of Violations (NOVs) being issued in January 2020 and March 2023. Both were subsequently resolved.

Other Comments: After the prolonged period under the new, active treatment approach, without using AMD, a fresh analysis of the effluent limits is considered for this outfall. The drainage area for Outfall 002 is shown below:

Figure 5: Drainage Area for USS STEP Outfall 002

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 21' 19"	Longitude	-79º 56' 52"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Stormwater runoff from capped areas including the closed hazardous waste and residual waste landfills as shown in Figures 2 and 6		
Receiving Waters	Unnamed Tributary to Streets Run	Stream Code	37196
NHD Com ID	99408188	RMI	0.31
Drainage Area	0.53 sq. miles	Yield (cfs/mi^2)	0.00694
Q_{7-10} Flow (cfs)	0.00368	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	980	Slope (ft/ft)	
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Abandoned Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run
Nearest Downstream Public Water Supply Intake	PA American Water Co., Mon. River at Becks Run		
PWS Waters	Monongahela River	Flow at Intake (cfs)	614
PWS RMI	4.6	Distance from Outfall (mi)	5.3

Changes Since Last Permit Issuance: On January 15, 2003, USS submitted their report, Site Investigation for Outfall 004. In this report, remediation recommendations were presented in order to improve the water quality and reduce or eliminate contaminants being discharged at this outfall. In more recent years' electronic Discharge Monitoring Reports (eDMRs) show no exceedances at Outfall 004.

Other Comments: Drainage areas to Outfalls 004 and 005 are shown in Figure 6 below:

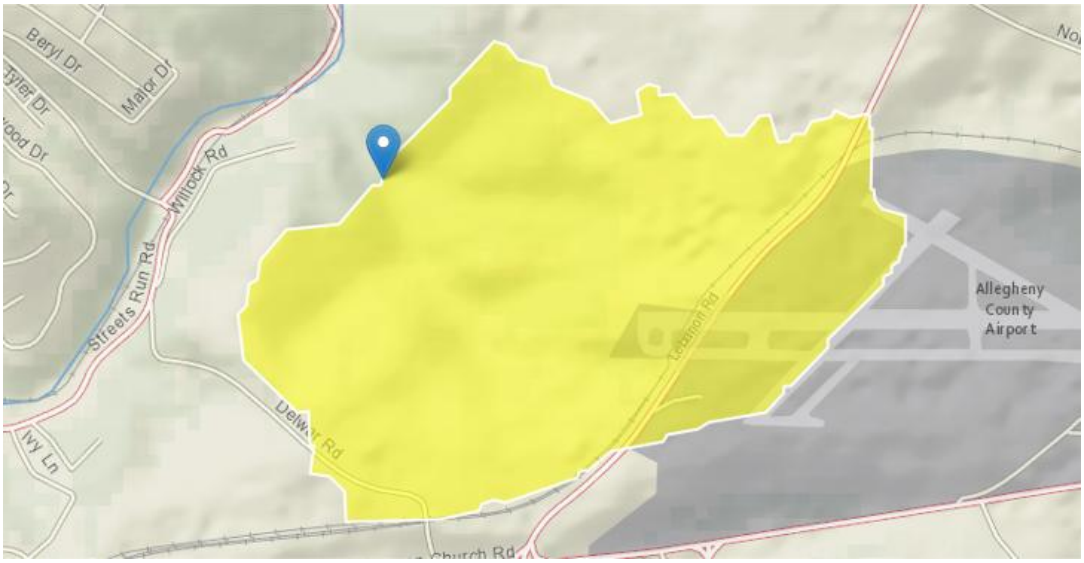


Figure 6: Drainage Area for USS STEP Outfalls 004 and 005

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 21' 21"	Longitude	-79º 56' 55"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Stormwater runoff and groundwater infiltration from the sedimentation pond and closed residual waste landfill areas as shown in Figures 2 and 6		

Receiving Waters	Unnamed Tributary to Streets Run	Stream Code	37196
NHD Com ID	99408188	RMI	0.31
Drainage Area	0.53 sq. miles	Yield (cfs/mi^2)	0.00694
Q_{7-10} Flow (cfs)	0.00368	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	996	Slope (ft/ft)	
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Abandoned Mine Drainage, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Streets Run

Nearest Downstream Public Water Supply Intake	PA American Water Co., Mon. River at Becks Run		
PWS Waters	Monongahela River	Flow at Intake (cfs)	614
PWS RMI	4.6	Distance from Outfall (mi)	5.28

Changes Since Last Permit Issuance: Outfall 006 has been eliminated with all runoff now being directed to the sedimentation pond. The overflow of this pond discharges at Outfall 005.

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	103	Design Flow (MGD)	0.126
Latitude	40º 22' 6"	Longitude	-79º 57' 37"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Internal Monitoring Point (IMP) of HWL after Pretreatment on the USS STEP site, but before being commingled with RWL and AMD for pumping to the USS Irvin Works WWTP under permit PA0004073, Outfall 001.		

Receiving Waters	Monongahela River	Stream Code	37185
NHD Com ID	99408282	RMI	17.36
Drainage Area	5410 sq. miles	Yield (cfs/mi^2)	0.0771
Q_{7-10} Flow (cfs)	417	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	750	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use	**Fish Consumption**	Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Unknown		
TMDL Status	Final	Name	Monongahela River

Nearest Downstream Public Water Supply Intake	PA American Water Co., Mon. River at Becks Run		
PWS Waters	Monongahela River	Flow at Intake (cfs)	614
PWS RMI	4.6	Distance from Outfall (mi)	12.5

Changes Since Last Permit Issuance: None reported

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	203	Design Flow (MGD)	0.37
Latitude	40º 21' 14.22"	Longitude	-79º 56' 47.55"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	IMP of RWL and AMD, untreated before commingling with treated HWL for pumping to the Irvin Works WWTP under permit PA0004073, Outfall 001.		

Receiving Waters	Monongahela River	Stream Code	37185
NHD Com ID	99408282	RMI	17.36
Drainage Area	5410	Yield (cfs/mi^2)	0.0771
Q_{7-10} Flow (cfs)	417	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	750	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use	**Fish Consumption**	Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Unknown		
TMDL Status	Final	Name	Monongahela River

Nearest Downstream Public Water Supply Intake	PA American Water Co., Mon. River at Becks Run		
PWS Waters	Monongahela River	Flow at Intake (cfs)	614
PWS RMI	4.6	Distance from Outfall (mi)	12.5

Changes Since Last Permit Issuance: None reported

Other Comments:

Treatment Facility Summary

Treatment Facility Name: South Taylor Environmental Park, North Taylor AMD PTS

WQM Permit No.	Issuance Date
0292201	October 14, 1993
0200205-T1	January 10, 2002

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Advanced	Neutralization /Sedimentation	No Disinfection	0.123

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.288	N/A	Not Overloaded	N/A	N/A

Changes Since Last Permit Issuance:

The PTS was constructed and its use initiated by the mid-2000's. After subsequent issues, detailed below, the PTS approach gave way to active chemical treatment of the BFS disposal area leachate, with area AMD seepage being diverted. Under the proposed AMDAP approach, separate AMD treatments will be handled apart from this NPDES permit.

Other Comments:
During PTS operation, nearby sources of AMD seepage were partially diverted and, for a time, partially collected in a slag lined pit for pH neutralization. These collected flows then entered a small mix pond and commingled with stormwater and leachate from the former BFS storage area for passive metals precipitation. Post mix pond, this flowed into a series of two wetlands as the final treatment step for biological uptake and settling/filtration of the solids. These wetlands discharged to NTT, Tributary 64937, of Streets Run via a V-notch weir at Outfall 002. Design calculations estimated this system to have an effective design lifetime of between 7 to 10 years before requiring recharge. This arrangement, in fact, operated generally in compliance with effluent limitations from roughly 2007 thru 2017.

A consensus summary of the March 5, 2019 meeting follows:

Summary Minutes of Meeting - March 5, 2019:

US Steel (USS) representatives informed the Department that over the recent period of increased rainfall in the area (circa 2017 - 2018 and through to the present) the hydrology of the North Taylor area has become altered. They are now experiencing significantly more Abandoned Mine Drainage (AMD) than was historically typical of the seepage from SPN-15 and SPN-16. These AMD flows have dramatically increased in discharge quantity as has the seepage identified as N-4. In addition, some new seeps and sources have emerged. Besides the increased quantity of AMD seepage, the level of some previous pollutants of concern have also increased, most notably the aluminum content from these seeps.

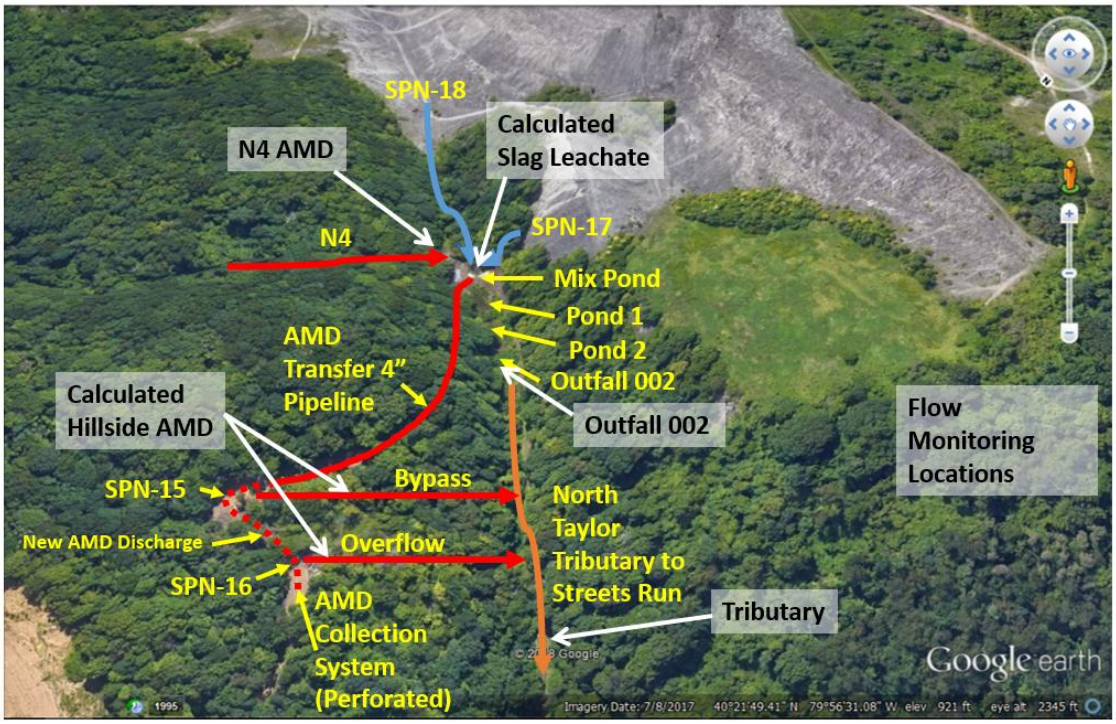
In addition, the slag seepage has also increased in quantity, but not as much as the AMD and with this increase, the elevated pH of the historical slag source has been mitigated (possibly diluted) to the point that SPN-17 and SPN-18 now have typical pH readings below 9 S.U. Thus, the original reason for the Outfall 002 treatment may be mitigated.

The amount of AMD, at present, exceeds the design basis of the Passive Treatment System (PTS) by an order of magnitude and that their PTS lacks the capacity to treat the current quantities of effluent. In the summer of 2017, a significant storm caused severe sediment deposition that rendered the AMD collection pipe (SPN-15 and 16) and slag pit to be inoperable. Water continued to flow through the mix pond and wetlands while the system was repaired and returned to normal operation. Although USS had hoped that this high AMD flow situation was temporary, the discharges at this time are unabated and do not appear to be returning to the previous baseline values.

After the meeting, USS shared the attached illustration (below) and summary of flow data. This was refined from an earlier version which was discussed during the meeting.

U. S. Steel – North Taylor Passive Treatment System

Tributary	
2/21/19	1599 gpm
2/25/19	1291 gpm
2/26/19	1153 gpm
3/6/19	1035 gpm
Outfall 002	
2/21/19	585 gpm
2/25/19	339 gpm
2/26/19	312 gpm
3/6/19	208 gpm
Calculated Hillside AMD	
2/21/19	1014 gpm
2/25/19	952 gpm
2/26/19	841 gpm
3/6/19	827 gpm
N4 AMD	
2/21/19	189 gpm
2/25/19	139 gpm
2/26/19	89 gpm
3/6/19	80 gpm
Calculated Slag Leachate	
2/21/19	396 gpm
2/25/19	200 gpm
2/26/19	223 gpm
3/6/19	128 gpm



As a follow-up to this meeting, A site walkdown/inspection was conducted on March 22, 2019. It became evident to the Department participants in this inspection that USS was already diverting most of the AMD flows in the area of NTT around the treatment system to avoid overloading. At the Department's urging, USS started considering approaches toward AMD discharge treatment. Department internal discussions were held with the Department's Bureau of Abandoned Mines to explore possibilities and design criteria. In parallel, USS was also researching AMD treatments with some collaboration between these efforts.

Subsequent to the March 2019 meeting and site inspection, exceedances at Outfall 002 ended. Aluminum in the discharge at Outfall 002 have been consistently below the effluent limit since that time.

On April 18, 2019, USS sent a partial set of updated sample analyses, specifically to address prior data that did not meet the Department's QLs. This data is included in the Table 3 below:

Table 3: 2019 Supplemental Sample Date Supplied for Outfall 002

Parameter	Lab QL (ug/L)	Lab MDL (ug/L)	Lab Result (ug/L)
Antimony	2.00	0.12	0.132 J
Arsenic	3.00	0.19	0.484 J
Copper	4.00	0.40	6.57
Lead	1.50	0.080	0.190 J
Silver	1.80	0.12	<1. 8
Thallium	2.00	0.15	0.207 J
Acrylamide	0.50	0.018	0.032 J

Summary of Inspections Since March 2019: There have been two onsite inspections at the USS STEP site since the one noted above on March 22, 2019. The first of these, held on March 23, 2023, was associated with a prior site visit, by invitation from USS and their consultant, BioMost, Inc. (BioMost), at the Milk Run AMD Treatment System (MRATS) in

North Fayette Township. The MRATS visit reviewed the design concepts USS and BioMost were considering for treating AMD seeps at the STEP site. The second inspection, conducted July 10, 2023, documented that a broken pipe, noted in the AMD collection system in the March 2023 inspection was capped in April. No violations were noted in this, most recent inspection.

Since March 2019, Notices of Violation (NOVs) were issued in January 2020 and again, after a site inspection held on March 23, 2023. Both the 2020 and 2023 NOVs were largely just a recapitulation of the same aluminum exceedances noted above in the 2018 – 2019 timeframe, with the addition of a single pH exceedance in September 2021.

In November 2023, USS shared the BioMost, Inc. written, Abandoned Mine Drainage Abatement Plan, South Taylor Environmental Park, Streets Run Watershed, West Mifflin Borough, Allegheny County, Pennsylvania (AMDAP). This document included the locations of all known AMD seeps, the accumulated data for each, the treatment approach and bases for each treatment. The project goals and objectives are as follows:

> Goal: Provide meaningful treatment for all the AMD discharges within both the NTT and STT watersheds.
> Objective 1: Demonstrate successful treatment in NTT by reaching or exceeding nonpoint source pollution reduction targets set forth by the Pennsylvania Department of Environmental Protection's (PADEP) 2009 Streets Run Watershed TMDL (2009 TMDL) and eliminate the impact of AMD on Outfall 002.
>
> Objective 2: Meet water quality criteria in [Table 2 from the 2009 TMDL, see Figure 7 below] within STT, remove AMD from the STEP Wastewater Treatment Plant waste streams and provide passive treatment for all identified AMD sources within the STT watershed.

Table 2. Applicable Water Quality Criteria

Parameter	*Criterion Value (mg/l)*	*Total Recoverable/Dissolved*
Aluminum (Al)	0.75	Total Recoverable
Iron (Fe)	1.50	30 day average; Total Recoverable
pH *	6.0-9.0	N/A

*The pH values shown will be used when applicable. In the case of freestone streams with little or no buffering capacity, the TMDL endpoint for pH will be the natural background water quality.

Figure 7: Excerpt of 2009 Streets Run Watershed TMDL – Water Quality Criteria (i.e. Endpoint)

The essential elements of the AMDAP document form the technical bases for the COA being negotiated. Through the end of 2024/early 2025, the focus has turned to funding arrangements for the design, construction, commissioning and long-term maintenance for the planned treatments. In summary, since the previous NPDES permit **PA0091685** renewal, the prior passive approach (PTS) before discharge at **Outfall 002** was largely successful from 2007 – 2017. Since later in 2019, the PTS approach has been abandoned in favor of the active treatment approach illustrated in Figure 8 below:

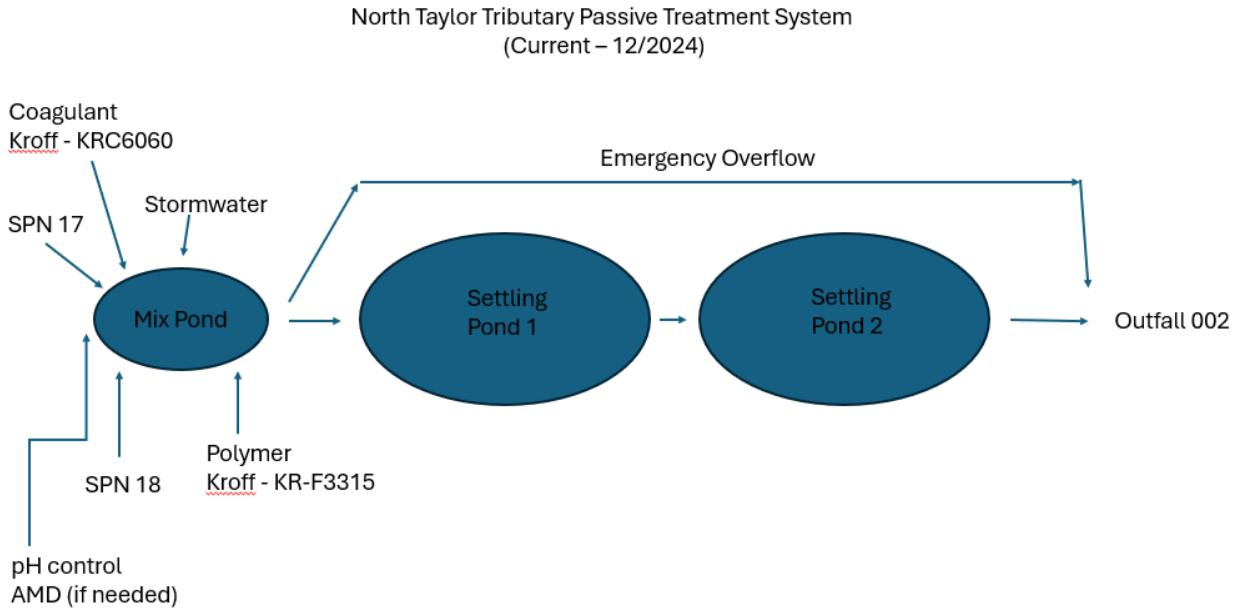


Figure 8: North Taylor Treatment System, circa late 2019 - Present

This change in approach has largely been successful in meeting the permit effluent limitations as measured at this outfall. Over the course of the last seven years, the Department and USS have forged an agreement on treatments for all of these AMD seeps. This agreement will be regulated via a COA and WQM Part II permits and will not be included in this NPDES permit.

However, the changes from the PTS to the current, active treatment approach, still requires an amendment to the WQM Part II permit **0200205** which is associated with this NPDES permit. The AMDAP approach for the treatment of the other AMD seeps, draining to both the NTT and the STT will be covered under the COA. The approach is expected to also require a yet unknown number of additional WQM Part II permits covering the various AMD treatment systems. In any case, these systems are being handled apart from this NPDES permit renewal.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	.123 (Max. 0.288)
Latitude	40º 18' 51"	**Longitude**	-79º 56' 34"

Wastewater Description: BFS pile leachate and stormwater, neutralized through a slag or limestone lined pond and settled through a designed wetlands area

Federal Effluent Limitation Guidelines

USS STEP is a captive landfill exclusively associated with iron and steel manufacturing. Consequently 40 CFR Part 445, applicable for many landfills, does not apply here. However, 40 CFR 420, applicable to a wide range of different iron and steel making activities, also does not apply as this code is not applicable to associated landfills. In addition, for prior versions of this permit, the Department has referenced portions of 40 CFR 471 for input and EPA guidance on handling AMD. However, STEP is not strictly subject to Federal Effluent Limitation Guidelines (ELGs). Since ELGs do not strictly apply, 40 CFR 125.3 requires determination of Best Professional Judgement (BPJ) to establish effluent limits.

Technology-Based Effluent Limitations (TBELS)

Federal involvement in the regulation of wastewaters from treatment plants began with the enactment of the 1965 amendments to the Federal Water Pollution Control Act (PL 84-660). These amendments required states to initiate water quality standards for interstate waters and gave states additional authority to require control/treatment of wastes from sewage and industrial discharges.

The primary objective of such TBELs is to decrease the total pollution load to all streams, while dealing equitably with discharges in a given class or category.

TBELs should not be looked at from the viewpoint of whether they will or will not protect the water quality; rather they should be considered as the baseline for decreasing pollution with more stringent requirements being imposed as needed to protect the water quality of a receiving stream. TBELs are established considering the Best Available Treatment (BAT).

The BAT treatment for aluminum is through chemical precipitation of $Al(OH)_3$ which hits its minimum solubility at a pH of 6.5. References for this include Water Chemistry by Snoeyink and Jenkins, 1980, esp. Chapter 6 and The Passive Treatment of Coal Mine Drainage, DOE/NETL-2004/1202 by Watzlaf, et al., 2004. However, the variable nature of the surging outpourings of AMD from the Pittsburgh Coal Seam during wet years like 2018 made control of aluminum using the PTS more challenging. During USS' 2018 – 2019 efforts to bring aluminum back within the established effluent limitations for Outfall 002, the Department prioritized supporting reviews for USS in approving requests for use of supplemental water treatment chemicals for their use upstream of Outfall 002. Requests were approved in August 2018 and January 2019.

The results of these adjustments was the BFS pile leachate treatment shown in Figure 8 which was mostly successful in achieving the objective of bringing the discharge at Outfall 002 back within it is permitted effluent limitations and other regulatory constraints since later in 2019.

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 4 below.

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) and 25 Pa. Code § 95.2(1) as indicated in Table 4 below.

Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table 4 below.

The facility does not use chlorination for treatment of the landfill leachate, therefore, no TRC limits are proposed.

Pursuant to 25 Pa. Code § 95.2(ii) effluent standards for Oil and Grease are indicated in Table 4 below.

The 2001 permit renewal contained TSS effluent limitations of 35 mg/L (Average Monthly) and 70 mg/L (Instantaneous Maximum) as indicated in Table 4 below.

Table 4: Regulatory Effluent Standards

Parameter	Monthly Avg.	Daily Max	IMAX	Units
Flow	Monitor/Report		----	MGD
Iron (Dissolved)	----	----	7.0	mg/L
pH	6.0 – 9.0 at all times			S.U.
Oil and Grease	15.0	30.0	----	mg/L
TSS	35.0	70.0	----	mg/L

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading. The facility is not new or expanding waste loading of TDS, therefore, the facility is considered to be exempt from 25 Pa. Code § 95.10 treatment requirements.

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.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established based on Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The current permitting action seeks to change the regulated flows and wastewater treatment processes by eliminating co-dilution of the existing slag leachate seeps and AMD flows through source segregation and source-specific treatment. AMD flows will be segregated and treated separately within a new wastewater treatment system authorized under a future Water Quality Management Permit. The proposed AMD system will be designed to meet the Department's Bureau of Abandoned Mine Remediation standards and achieve the total TMDL impairment reductions in two of Streets Run's tributaries creating a significant environmental improvement over the status quo. Accordingly, anti-backsliding provisions are not applicable to this situation as each of the wastewater sources are to be evaluated independently making previous limits obsolete.

Consistent with 40 CFR 122.44, there have been material and substantial alternations or additions to the permitted facility that justify the relaxation of any previously imposed effluent limits.

Water Quality-Based Effluent Limitations (WQBELs)

TMS, Version 1.4 is a single discharge, mass-balance water quality modeling program that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number and discharge flow rate are entered into TMS to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. The modeling approach outlined above is used to determine if any pollutants are present or likely to be present in a discharge at levels that may cause, have the reasonable potential to cause, or contribute to excursions above state water quality standards (i.e., a reasonable potential analysis). Discharge concentrations for the selected pollutants are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). TMS evaluates each pollutant by computing a Waste Load Allocation (WLA) for each applicable criterion

and associated WQ objective, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, TMS recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for the Discharge at Outfall 002

Discharges from Outfall 002 were evaluated based on concentrations reported on the most recent resampling laboratory results, received by the Department as revision 1 (R1), via email (see Attachment C). The USGS StreamStats utility indicated that a small degree of assimilative capacity was available in the NTT. The TMS model was run for Outfall 002 using the modeled discharge and receiving stream characteristics shown in Table 5 below. Special consideration was made to reflect the conditions under which the discharges occur based on precipitation influence. The mean harmonic flow was used for modeling purposes. The mean harmonic flow was then combined with the annual average flow of AMD to NTT, which was discussed in the November 2023 BioMost, Inc. AMDAP. These considerations more accurately reflect the flow conditions in NTT.

Table 5: TMS Inputs

Parameter	**Value**
River Mile Index	0.191
Discharge Flow (MGD)	0.15076
Basin/Stream Characteristics	
Parameter	**Value**
Area (mi^2)	2.932
Q_{7-10} (cfs)	0.706
Low-flow yield (cfs/mi^2)	0.241
Elevation (ft.)	875.5
Slope	0.0412

WQBELs are calculated by TMS by allocating the established Water Quality (WQ) criteria for the receiving surface water from 25 PA Code § 93. The criteria are then converted to a WQ objective. For metals with criteria established for its dissolved form, a translator is used to determine the criteria for the total metal which is then used as the WQ objective.

From this calculated objective for each pollutant concentration the discharge allocation is then reduced by available data of existing pollutant loads in the receiving waters using actual concentration data from instream monitoring. In this case, no upstream water quality data was available, so none was entered. The assumption of zero background concentration is therefore used for non-naturally occurring pollutants or where background data is insufficient to determine the background concentration.

The TMS model calculates and applies partial mixing factors for CFC, THH and CRL. The most limiting criteria is selected and, finally, WLAs are calculated for the IW discharger and compared to its reported discharge concentrations.

Note that the downstream public water intake on the Monongahela (Mon.) River at RMI 4.6 miles is the PA American Water Co., Monongahela River at Becks Run. This is greater than 4 miles downstream from this USS STEP site discharge. This PWS is both drawing from a much larger river and at a distance from the USS' site which is considered sufficient for PWS related pollutants (e.g. phenolics) to dissipate. Therefore, PWS data was not explicitly incorporated into the model.

The TMS model results are included as Attachment E. These results include recommended effluent limits and/or reporting requirements for the parameters shown in Table 6. Note that some undetected parameters' input values were set to the reported testing laboratory MDL. Also included in Table 6 for reference are the Department's target Quantitation Limits (QLs) as specified in DEP's most recent *Application for Permit to Discharge Industrial Wastewater*. The target QLs are the means by which DEP is implementing EPA's September 18, 2014 revisions to 40 CFR Parts 122 and 136 requiring applicants and permittees to use "sufficiently sensitive" EPA-approved analytical methods that are capable of detecting and measuring the pollutants at, or below, the applicable water quality criteria or permit limits.

Table 6: Outfall 002 WQBELs (with Governing Criteria and Target QLs)

Parameter	**Concentration (µg/L)**		**Governing WQBEL (µg/L)**	**Target QL (µg/L)**
	Monthly Avg	**Maximum Daily**		
Acrylamide*	Monitor	Monitor	1.71	--
Selenium, Total	20.1	25.4	20.1	5.0
Osmotic Pressure (mOsm/kg)	Monitor	Monitor	98.7	--

***** The renewal application reported Acrylamide was not detected at an MDL < 0.5 µg/L. USS investigated Acrylamide sources at the STEP Facility. They provided this statement on Oct. 3, 2024: "No acrylamide is utilized or produced at the site. A review of SDS/MSDS of water treatment additives was conducted as well. Certain polymers present in water treatment chemicals are manufactured with acrylamide monomers, which is industry standard. However, this polymerization process changes the characteristics of the chemical, and the polyacrylamide present in the length of the polymer chains is non-toxic. The content of the free acrylamide in the water treatment polymer is very low (<0.0001%) and would be below any toxicity threshold in the discharge." Since Acrylamide was not detected in the facility's effluent, the reasonable potential for Acrylamide is removed. No Acrylamide monitoring will be imposed.

The approach taken was to use the reported laboratory MDL values if supplied data indicated the pollutant was not detected. If the data indicated that the parameter was detected, then the highest reported value was used in the TMS analysis spreadsheet.

As can be seen in Table 6, some pollutants required establishing WQBELs. In other cases, only monitoring is required as the results did not exceed 50% of the most stringent WQBEL value, but the reported results were too high to rule out the possibility that discharges will result in excursions above Pennsylvania's water quality standards.

The Department reviewed the most recent 5 years of eDMR data, including from September 2019 through September 2024. Pollutants that required only monitoring and went undetected over that entire period include: Antimony, Arsenic, Mercury and Silver. Consequently, these pollutants will be dropped from the list for required monitoring. Benzo(a)Pyrene was also undetected, but a high degree of variability was evident in the laboratory analysis MDLs. Consequently, this pollutant will be retained for monitoring. In the next permit renewal review, this retention can be reassessed. Note that, in addition, pollutants with prior effluent limitations, including Cadmium, Copper, Thallium and Lead were also undetected in the same 5-year period and, in the updated sampling provided in September 2024 (see Attachment C), Cadmium, Copper and Thallium was also undetected in that recently supplied renewal application submittal. (Lead was assigned a "J" value or estimate.) In response, these will have their effluent limitations converted to report only which will allow another assessment in the next renewal review.

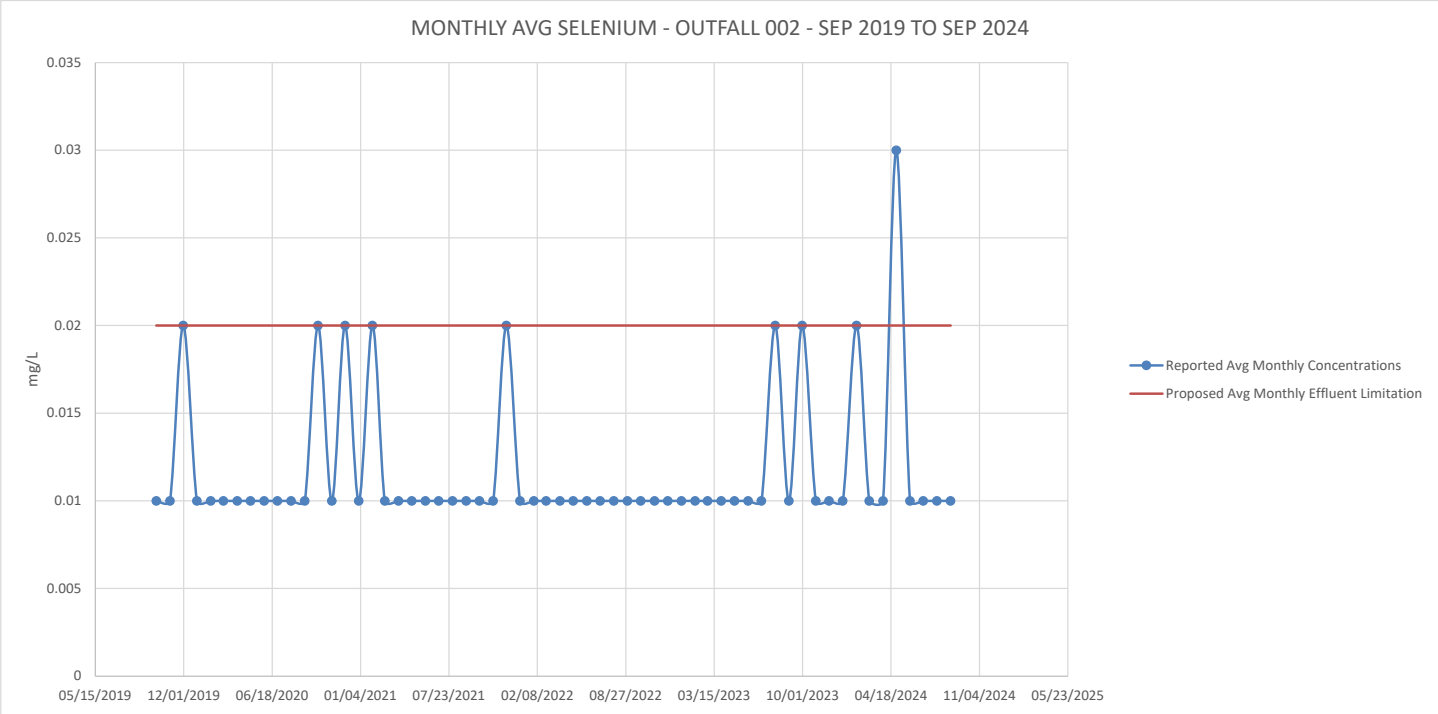
Table 7: Effluent Limitations Proposed for Outfall 002

Parameter	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	1/week	Measured
pH (S.U.)	6.0	XXX	XXX	9.0	1/week	Grab
Total Suspended Solids (mg/L)	XXX	35.0	70.0	XXX	1/week	Grab
Total Dissolved Solids (mg/L)	XXX	Report	Report	XXX	2/month	Grab
Osmotic Pressure (mOs/kg)	XXX	Report	Report	XXX	2/month	Grab
Total Aluminum (mg/L)	XXX	0.75	**0.75**	XXX	2/month	Grab
Cadmium (µg/L)	XXX	Report	Report	XXX	2/month	Grab
Chromium, Hexavalent (µg/L)	XXX	20.0	40.0	XXX	2/month	Grab
Cobalt (µg /L)	XXX	Report	Report	XXX	2/month	Grab
Copper (µg/L)	XXX	Report	Report	XXX	2/month	Grab
Cyanide, Free (µg/L)	XXX	40.0	80.0	XXX	2/month	Grab
Fluoride (mg/L)	XXX	Report	Report	XXX	2/month	Grab
Dissolved Iron (mg/L)	XXX	Report	Report	XXX	2/month	Grab
Total Iron (mg/L)	XXX	1.5	3.0	XXX	2/month	Grab
Lead (mg/L)	XXX	Report	Report	XXX	2/month	Grab
Total Manganese (mg/L)	XXX	1.0	2.0	XXX	2/month	Grab
Selenium (µg/L)	XXX	**20.1**	**25.4**	XXX	2/month	Grab
Sulfate (mg/L)	XXX	Report	Report	XXX	2/month	Grab
Thallium (mg/L)	XXX	Report	Report	XXX	2/month	Grab
Benzo(a)Pyrene (mg/L)	XXX	Report	Report	XXX	2/month	Grab

The proposed effluent limits listed in Table 7 above include more stringent effluent limitations for the values in **bold**, including for Aluminum and Selenium. A review of the performance over the last 5-year period for the onsite system in controlling these pollutants was conducted to assess the permittee's ability to meet the new limits.

For Aluminum, the lower DML appears to not pose a challenge. A review of the data over the last five years indicates that no exceedances of this limit would have occurred over that period at Outfall 002.

A review of the data indicates that the new WQBELs for Selenium would have been exceeded once over the 5-year period from September 2019 through September 2024. The average monthly concentrations reported for Selenium were frequently at or below the proposed average monthly effluent limitation as shown in the graph below.


MONTHLY AVG SELENIUM - OUTFALL 002 - SEP 2019 TO SEP 2024
mg/L
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
05/15/2019
12/01/2019
06/18/2020
01/04/2021
07/23/2021
02/08/2022
08/27/2022
03/15/2023
10/01/2023
04/18/2024
11/04/2024
05/23/2025
Reported Avg Monthly Concentrations
Proposed Avg Monthly Effluent Limitation

Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	0
Latitude	40º 21' 19"	**Longitude**	-79º 56' 52"

Wastewater Description: Stormwater runoff and groundwater infiltration from closed disposal landfill areas as shown in Figures 2 and 6

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.

If stormwater effluent data is reported in the application, it can be compared to stream criteria, EPA's 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.

In the case of the stormwater outfalls for USS STEP, although stormwater data was contained in the updated submittal from 2018, a much more extensive set of data was available from the eDMR submittals. Since monitoring requirements had previously been established in the prior permit, these will be maintained as the baseline status for this permit. These monitor and report parameters are shown in Table 8 below.

Table 8: Monitoring Requirements for Outfall 004

Parameter	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	2/ month	Measured
pH (S.U.)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Suspended Solids (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Dissolved Solids (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Aluminum (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Free Cyanide (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Cyanide (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Iron (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Dissolved Iron (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Manganese (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Sulfate (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Zinc (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab

Since the prior permit was issued, a Site Investigation Report for Outfall 004 was prepared, and the findings and conclusions submitted in January 2003. The recommendations found in section 8 of the report were confirmed to be implemented. A subsequent site inspection by the Department found the post work situation to be satisfactory.

Subsequently, the required monitoring has been included in regular discharge monitoring reports (DMRs) and starting in late 2014 have been included in electronic DMRs or eDMRs.

Sampling Parameter Removal Request

In their August 31, 2018 letter, Section 9, USS requested that the Department consider removal of certain pollutants from the required sampling list. For Outfall 004, USS supported their request with a table summarizing the results of eDMR data over the period from April 2017 through April 2018. They requested the removal of Cyanide (both total and free), Zinc, Sulfate and TDS.

The US EPA guidance established in Interim Guidance for Performance-Based Reduction of NPDES Permit Monitoring Frequencies does not address this situation, but only reductions in sampling frequency. However, the data analyses required under this guidance was followed in principle. The results of this process will inform the decision on USS' request to remove pollutants from required monitoring based on the results from monitoring during the prior permit term.

During the 2019 review, the then most recent 5 years of eDMR data was reviewed in consideration of USS' request. Values annotated in USS' eDMRs as being less than (<) a value, for analysis purposes the value was conservatively converted to be equal (=) to the indicated value. As before, an arithmetic average was used to simulate the LTA, computed for each reported pollutant and compared to the 2015 MSGP Benchmark for that pollutant, if applicable. Sample values were also compared to the most stringent criteria from the reasonable potential analyses for pollutants, if applicable. These established limits are listed in the Toxics Screening Analysis in Attachment A.

Table 9: Monitoring Results During the Prior Permit Term for Selected Parameters from Outfall 004

Parameter	eDMR Arithmetic Average	2015 MSGP Benchmark	Most Stringent Criteria	eDMR Maximum Recorded	Sample Frequency	Arithmetic Avg. and Max. Values meet all criteria
Total Cyanide (mg/L)	0.0117	0.022	N/A	0.066	1/ quarter	No
Free Cyanide (mg/L)	0.1447	N/A	N/A	2.000	1/ quarter	No*
Zinc (mg/L)	0.0151	0.12	0.1198	0.030	1/ quarter	**Yes**
Sulfate (mg/L)	202.643	N/A	250.	490.00	1/ quarter	No
Total Dissolved Solids (mg/L)	560.0	N/A	500.	1100.0	1/ quarter	No

* No criteria are available; comparison considered against total cyanide criteria which was also not met.

As can be seen from Table 9, of those parameters requested by USS for removal, only Zinc met all criteria over the entire period studied. For completeness, the EPA guidance has no criteria established to qualify for a reduction in frequency of measurement versus the current once per quarter frequency of measurement. Therefore, Zinc could have possibly been removed (if raw data is supplied and LTA values are calculated).

In October 2024, a review of the available eDMR data set over the subsequent 5-year period from September 2019 through September 2024 reveals that Zinc was routinely detected in the discharge at this Outfall. Consequently, it will continue to be required for monitoring. A review searching for undetected pollutants at Outfall 004 over this 5-year period came up empty. Therefore, the monitoring required for Outfall 004 is unchanged from prior practice and is shown in Table 8 above. (Note that the values used from the MSGP were updated in 2021, but there were no changes to those values used in this comparison.)

Apart from flow measurements, the quarterly sampling does not normally support a calculation of a monthly average, as was required previously. Therefore, the quarterly monitored pollutants will only require reporting of the daily maximum values.

Development of Effluent Limitations

Outfall No.	005	**Design Flow (MGD)**	0
Latitude	40º 21' 21"	**Longitude**	-79º 56' 55"

Wastewater Description: Stormwater runoff and groundwater infiltration from the sedimentation pond and closed residual waste landfill areas as shown in Figures 2 and 6

Note that monitoring for Outfall 006 of the previous permit has been diverted to the sedimentation pond. All of this runoff now discharges at Outfall 005.

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.

If stormwater effluent data is reported in the application, it can be compared to stream criteria, EPA's 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.

In the case of the stormwater outfalls for USS STEP, although stormwater data was contained in the updated submittal from 2018, a more extensive set of data was available from the eDMR submittals. Since monitoring requirements had previously been established in the prior permit, these will be maintained as the baseline status for this permit. These monitor and report parameters are shown in Table 10 below.

Table 10: Monitoring Requirements for Outfall 005

Parameter	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	1/ quarter	Measured
Total Aluminum (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Iron (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Manganese (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Total Cyanide (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab
Zinc (mg/L)	XXX	Report	Report	XXX	1/ quarter	Grab

Since 2001, required monitoring has been included in regular DMRs and starting in late 2014 have been included in eDMRs.

Sampling Parameter Removal Request

In their August 31, 2018 letter, Section 9, USS requested that the Department consider removal of certain pollutants from the required sampling list. For Outfall 005, USS supported their request with a table summarizing the results of eDMR data over the period from April 2017 through April 2018. They requested the removal of Cyanide and Zinc.

The US EPA guidance established in Interim Guidance for Performance-Based Reduction of NPDES Permit Monitoring Frequencies does not address this situation, but only provides guidance to allow reductions in sampling frequency. However, the data analyses required under this guidance was followed, in principle. The results of this process will inform the decision on USS' request to remove pollutants from required monitoring based on the results from monitoring during the prior permit term.

During the 2019 review, the then most recent 5 years of eDMR data was reviewed in consideration of USS' request. Values annotated in USS' eDMRs as being less than (<) a value, for analysis purposes the value was conservatively converted to be equal (=) to the indicated value. As before, an arithmetic average was used to simulate the LTA, computed for each reported pollutant and compared to the 2015 MSGP Benchmark for that pollutant, if applicable. Sample values were also compared to the most stringent criteria from the reasonable potential analyses for pollutants, if applicable. These established limits are listed in the Toxics Screening Analysis in Attachment A.

Table 11: Monitoring Results During the Prior Permit Term for Selected Parameters from Outfall 005

Parameter	Arithmetic Average	2015 MSGP Benchmark	Most Stringent Criteria	eDMR Maximum Recorded	Sample Frequency	Arithmetic Avg. and Max. Values meet all criteria
Total Cyanide (mg/L)	0.0176	0.022	N/A	0.077	1/ quarter	No
Zinc (mg/L)	0.0284	0.12	0.1198	0.060	1/ quarter	**Yes**

As can be seen from Table 11, of those parameters requested by USS for removal, only Zinc met all criteria over the entire period studied. For completeness, the EPA guidance has no criteria established to qualify for a reduction in frequency of measurement versus the current once per quarter frequency of measurement. However, the data provides an indication that Zinc could possibly be removed (if raw data had been supplied and LTA values are calculated.

In October 2024, a review of the available eDMR data set over the subsequent 5-year period from September 2019 through September 2024 reveals that Zinc and Cyanide were both routinely detected in the discharge at this Outfall. Consequently, these pollutants will continue to be required for monitoring. A review searching for undetected pollutants at Outfall 005 over this 5-year period came up empty. Therefore, the monitoring required for Outfall 005 is unchanged from prior practice and is shown in Table 10 above. (Note that the values used from the MSGP were updated in 2021, but there were no changes to those values used in this comparison.)

Note that the quarterly sampling does not normally support a calculation of a monthly average, as was required previously. Therefore, the quarterly monitored pollutants will only require reporting of the daily maximum values.

Treatment Facility Summary

Treatment Facility Name: South Taylor Environmental Park, Irvin Works HWL Pre-Treatment

WQM Permit No.	Issuance Date
0292201	October 14, 1993

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Pre-treatment	Rapid Sand Filtration, Chemical Precipitation, pH Neutralization, Membrane Filtration, Final pH Adjustment	No Disinfection	0.051

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.126	N/A	Not Overloaded	N/A	N/A

Changes Since Last Permit Issuance: None

Other Comments: None

Development of Effluent Limitations

Outfall No.	103	**Design Flow (MGD)**	0.126
Latitude	40º 22' 6"	**Longitude**	-79º 57' 37"
Wastewater Description:	Discharge from the hazardous waste treatment facility (aka. Wastewater Treatment Plant) monitored as an IMP of HWL after pre-treatment on the USS STEP site, before being commingled with RWL and AMD in the 8000-gallon Combined Effluent Tank (CET) before pumping to the Irvin Works south WWTP and ultimate discharge under permit **PA0004073**, Outfall 001.		

Federal Effluent Limitation Guidelines

USS STEP is a captive landfill exclusively associated with iron and steel manufacturing. Consequently 40 CFR Part 445, applicable for many landfills, does not apply here. However, 40 CFR 420, applicable to a wide range of different iron and steel making activities, also does not apply as this code is not applicable to associated landfills. Therefore, STEP is not subject to Federal ELGs. Since ELGs do not strictly apply, 40 CFR 125.3 requires determination of TBELs based upon BPJ to establish effluent limits.

The Consent Order and Adjudication entered into on June 23, 1993, settled disputes between USS and the Department regarding sampling at this outfall and included effluent limitations and monitoring for use at this outfall. It required conveyance of the treated leachate from the Hazardous Waste landfill to USS Irvin Works for further treatment and subsequent discharge under NPDES permit PA0004073. This agreement was incorporated into amendment 1 of NPDES permit **PA0091685**, issued as final on July 14, 1994. The rationale which formed the bases for these effluent limitations were "developed from the Combined Metals Database for a Lime, Settle and Filtration System (LS&F) with the exception of iron and cyanide." This monitoring has been maintained through the 2001 permit renewal, basically unaltered, from this 1994 amendment.

Therefore IMP 103 is the point of this monitoring prior to conveyance of HWL leachate from the USS STEP site pre-treatment plant, after commingling, to the USS Mon Valley Works Irvin Plant (Irvin) where it is piped to IMP 201, commingled with other Irvin waste streams and treated before discharge at Outfall 001 under NPDES Permit **PA0004073**. As noted above, EAFD is classified as a hazardous waste due to its content of heavy metals and their oxides. The pre-treatment system is considered adequate to alter the system's output from hazardous waste to an equivalent to residual waste leachate.

Intermediate Monitoring Point (IMP) and Pre-Treatment Effluent Monitoring

40 CFR § 122.41 and § 123.25 (e) requires permittees to properly operate and maintain their facilities in compliance with applicable regulations. Monitoring of internal waste streams may be required under 40 CFR § 122.45 (h). In the case of the IMP outfalls for USS STEP, since significantly different waste streams are commingled in the 8000-gallon CET, monitoring facilitates detection, trouble shooting and diagnostics in the case where discharge excursions occur from the HWL before these are commingled with the RWL and, possibly, AMD seeps downstream. Since monitoring requirements had been established in the prior permit, these will be maintained as the baseline status for this permit. These monitor and report parameters are shown in Table 12 below.

Table 12: Effluent Limitations from Prior Permit for Outfall/IMP 103

Parameter	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	Continuous	Measured
pH (S.U.)	6.0	XXX	9.0	XXX	Daily	Grab
Total Suspended Solids (mg/L)	XXX	12.0	15.0	XXX	2/ month	24 HC
Oil and Grease (mg/L)	XXX	10.0	10.0	30.0	2/ month	Grab
Acrylonitrile (mg/L)	XXX	Report	Report	XXX	1/ quarter	4 Grabs / 8H
Aluminum (mg/L)	XXX	2.71	6.11	XXX	2/ month	24 HC
Beryllium (mg/L)	XXX	0.34	0.82	XXX	2/ month	24 HC
Cadmium (mg/L)	XXX	0.08	0.20	XXX	2/ month	24 HC
Hexavalent Chromium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Total Chromium (mg/L)	XXX	0.15	0.37	XXX	2/ month	24 HC

Table 12: Effluent Limitations from Prior Permit for Outfall/IMP 103

Parameter	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Copper (mg/L)	XXX	0.61	1.28	XXX	2/ month	24 HC
Total Cyanide (mg/L)	XXX	2.0	4.0	XXX	2/ month	24 HC
Free Cyanide (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Iron (mg/L)	XXX	1.5	3.0	XXX	2/ month	24 HC
Lead (mg/L)	XXX	0.13	0.28	XXX	2/ month	24 HC
Manganese (mg/L)	XXX	0.23	0.30	XXX	2/ month	24 HC
Selenium (mg/L)	XXX	0.37	0.82	XXX	2/ month	24 HC
Silver (mg/L)	XXX	0.12	0.29	XXX	2/ month	24 HC
Zinc (mg/L)	XXX	0.42	1.02	XXX	2/ month	24 HC
Benzo(a)Pyrene (mg/L)	XXX	Report	Report	XXX	1/ quarter	24 HC
Phenolics (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC

This required monitoring has been recorded on regular DMRs and starting in late 2014 have been included in eDMRs.

Sampling Parameter Removal Request

In their August 31, 2018 letter, Section 9, USS requested that the Department consider reductions in the required sampling both in the number of the pollutants of interest to be reported and in the frequency of required sampling for select other pollutants. For IMP 103, USS supported their request with a table summarizing the results of eDMR data over the period from May 2017 through April 2018 and, in addition, with the samples analyzed and submitted for the updated permit renewal application. They requested the removal of all of the monitor and report parameters: Hexavalent Chromium, Free Cyanide, Phenolics, Acrylonitrile and Benzo(a)Pyrene. They asked for a reduction in the frequency of reporting for all other monitored pollutants with established effluent limitations.

The US EPA guidance established in Interim Guidance for Performance -Based Reduction of NPDES Permit Monitoring Frequencies only addresses reductions in sampling frequency imposed where effluent limits have been established. However, the data analyses required under this guidance may also be applied to all the requested changes, in principle. The results of this process will inform the decision on USS' request to reduce monitoring frequency of the required monitoring based on the results from the prior permit term.

During the 2019 review, the then most recent 5 years of eDMR data was reviewed in consideration of USS' request. Values annotated in USS' eDMRs as being less than (<) a value, for analysis purposes the value was conservatively converted to be equal (=) to the indicated value. As before, an arithmetic average was used to simulate the LTA, computed for each reported pollutant and compared to 25% of the monthly average effluent limits, where applicable. Where the parameters meet the criteria, a frequency reduction in accordance with Table 1 of the EPA guidance document may be considered. Where applicable the indicated reduced frequency is shown on the right most column.

Table 13: Monitoring Frequency Reduction Analyses for Selected Parameters from IMP 103

Parameter	Arithmetic Average	Average Monthly Limit	Daily Maximum Limit	<25% of Avg. Monthly Limit	Proposed Sample Frequency	Reduced Sample Frequency
Flow (MGD)	XXX	Report	Report	N/A	Continuous	
pH (S.U.)	6.0	XXX	9.0	N/A	Daily	
Total Suspended Solids (mg/L)	2.17314	12.0	15.0	**Yes**	2/ month	1/ quarter
Oil and Grease (mg/L)	5.0804	10.0	10.0	No	2/ month	
Acrylonitrile (mg/L)	0.0046	Report	Report	N/A	1/ quarter	
Aluminum (mg/L)	0.0837	2.71	6.11	**Yes**	2/ month	1/ quarter
Beryllium (mg/L)	0.00286	0.34	0.82	**Yes**	2/ month	1/ quarter
Cadmium (mg/L)	0.00433	0.08	0.20	**Yes**	2/ month	1/ quarter
Hexavalent Chromium (mg/L)	0.00368	Report	Report	N/A	2/ month	
Total Chromium (mg/L)	0.00647	0.15	0.37	**Yes**	2/ month	1/ quarter
Copper (mg/L)	0.01324	0.61	1.28	**Yes**	2/ month	1/ quarter
Total Cyanide (mg/L)	0.1293	2.0	4.0	**Yes**	2/ month	1/ quarter
Free Cyanide (mg/L)	0.0259	Report	Report	N/A	2/ month	
Iron (mg/L)	0.1904	1.5	3.0	**Yes**	2/ month	1/ quarter
Lead (mg/L)	0.00726	0.13	0.28	**Yes**	2/ month	1/ quarter
Manganese (mg/L)	0.01882	0.23	0.30	**Yes**	2/ month	1/ quarter
Selenium (mg/L)	0.00951	0.37	0.82	**Yes**	2/ month	1/ quarter
Silver (mg/L)	0.00578	0.12	0.29	**Yes**	2/ month	1/ quarter
Zinc (mg/L)	0.01471	0.42	1.02	**Yes**	2/ month	1/ quarter
Benzo(a)Pyrene (mg/L)	0.00325	Report	Report	N/A	1/ quarter	
Phenolics (mg/L)	0.01137	Report	Report	N/A	2/ month	

As can be seen from Table 13, most of those parameters requested by USS for elimination or reduction in frequency the review indicates the possibility to allow monitoring at a reduced frequency. For those remaining parameters that are "report only", it would also be reasonable to set their frequency with the majority, as well. This would leave only Oil and Grease as remaining at a twice per month frequency. However, it may be instructive that the Department's target QL for this parameter is half of the limits specified. Therefore, it may prove temporarily impossible to meet the threshold for frequency reduction. This being the case, professional judgement may indicate that all reporting frequencies be relaxed to quarterly. Note, however, that arithmetic averages are not equivalent to LTA. Therefore, this change will not be made at this time.

The question of removal of parameters is beyond the scope of the guidance noted. As with other outfalls, the pollutant data's arithmetic average and maximum value over the nearly five years of eDMR sampling and reporting was compared with the 2015 MSGP, the Department's target QL and/or the most stringent criteria found in the Table in Attachment A, where applicable. (Note that the values used from the MSGP were updated in 2021, but there were no changes to those values used in this comparison.)

Table 14: Monitor and Report Parameter Results During the Prior Permit Term for Selected Parameters from Outfall/IMP 103

Parameter	Arithmetic Average	Target QL or 2015 MSGP Benchmark	Most Stringent Criteria	eDMR Maximum Recorded
Acrylonitrile (mg/L)	0.00459	0.005	0.000051	0.02
Hexavalent Chromium (mg/L)	0.00368	0.001	0.0104	0.024
Free Cyanide (mg/L)	0.02588	0.022*	N/A	0.24
Benzo(a)Pyrene (mg/L)	0.00325	0.0025	0.0000038	0.0054
Phenolics (mg/L)	0.01137	0.01	0.005	0.12

* The MSGP benchmark for Total Cyanide is shown for comparison purposes. Target QL is 0.01.

Based on these monitor and report pollutants being measurable and at least occasionally above the established, most stringent criteria. It appeared imprudent to eliminate these monitor and report parameters at that time.

However, in October 2024, a review of the available eDMR data set over the subsequent 5-year period from September 2019 through September 2024 reveals that Beryllium, Cadmium, Lead and Silver were not detected in the discharge at this IMP during that period. Consequently, these pollutants are recommended to be dropped from those requiring effluent limitations, but to continue monitoring. In the next permit renewal review, the continuing need to monitor these pollutants can be further assessed. In addition, this same review revealed that quarterly monitoring for Acrylonitrile and Benzo(a)Pyrene were also not detected in this 5-year period. Thus, these are recommended to be dropped from monitoring. Therefore, the monitoring required for IMP 103 is recommended to be changed from prior practice to that shown in Table 15 below:

Table 15: Final Monitoring Requirements to be Imposed at Outfall/IMP 103

Parameter	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	Continuous	Measured
pH (S.U.)	6.0	XXX	XXX	9.0	Daily	Grab
Total Suspended Solids (mg/L)	XXX	12.0	15.0	XXX	2/ month	24 HC
Oil and Grease (mg/L)	XXX	10.0	10.0	30.0	2/ month	Grab
Aluminum (mg/L)	XXX	2.71	6.11	XXX	2/ month	24 HC
Beryllium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Cadmium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Hexavalent Chromium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Total Chromium (mg/L)	XXX	0.15	0.37	XXX	2/ month	24 HC
Copper (mg/L)	XXX	0.61	1.28	XXX	2/ month	24 HC
Total Cyanide (mg/L)	XXX	2.0	4.0	XXX	2/ month	24 HC
Free Cyanide (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Iron (mg/L)	XXX	1.5	3.0	XXX	2/ month	24 HC
Lead (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Manganese (mg/L)	XXX	0.23	0.30	XXX	2/ month	24 HC
Selenium (mg/L)	XXX	0.37	0.82	XXX	2/ month	24 HC
Silver (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Zinc (mg/L)	XXX	0.42	1.02	XXX	2/ month	24 HC
Phenolics (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC

Anti-Backsliding Considerations

As noted above, the Federal CWA, Section 402(o)(1) prohibits renewals “to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.” However, the CWA is considered to apply to point discharges to receiving waters of the Commonwealth. This IMP discharges to a pipeline conveying the effluent for treatment at another USS location, the Irvin Works. At the other site this discharge is covered by another NPDES permit. Therefore, these sections of the Federal CWA are considered to be not applicable here.

Development of Effluent Limitations

Outfall No.	203	**Design Flow (MGD)**	0.37
Latitude	40º 21' 15"	**Longitude**	-79º 56' 45"
Wastewater Description:	Discharge from the residual waste landfill monitored as an IMP, before being commingled with pre-treated HWL in the 8000-gallon Combined Effluent Tank (CET) before pumping to the Irvin Works WWTP and ultimate discharge under permit PA0004073, Outfall 001.		

Intermediate Monitoring Point (IMP) and Pre-Treatment Effluent Monitoring

40 CFR § 122.41 and § 123.25 (e) requires permittees to properly operate and maintain their facilities in compliance with applicable regulations. Monitoring of internal waste streams may be required under 40 CFR § 122.45 (h). In the case of the IMP outfalls for USS STEP, since significantly different waste streams are commingled in the 8000-gallon CET, monitoring facilitates detection, trouble shooting and diagnostics in the case where discharge excursions occur from the HWL before these are commingled with the RWL and , possibly, AMD seeps downstream. Since monitoring requirements had been established in the prior permit, these will be maintained as the baseline status for this permit. These monitor and report parameters are shown in Table 16 below.

Table 16: Monitoring from Prior Permit for Outfall/IMP 203

Parameter	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample/ Report Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	Continuous	Measured
pH (S.U.)	XXX	Report	Report	XXX	2/ month	Grab
Total Suspended Solids (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Oil and Grease (mg/L)	XXX	Report	Report	XXX	2/ month	Grab
Acrylonitrile (mg/L)	XXX	Report	Report	XXX	1/ quarter	4 Grabs / 8H
Aluminum (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Beryllium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Cadmium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Hexavalent Chromium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Copper (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Total Cyanide (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Free Cyanide (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Iron (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Lead (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Manganese (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Selenium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Silver (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Zinc (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Benzo(a)Pyrene (mg/L)	XXX	Report	Report	XXX	1/ quarter	24 HC
Phenolics (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC

Since 2001, required monitoring has been included in regular DMRs and starting in late 2014 have been included in eDMRs.

Sampling Parameter Removal Request

In their August 31, 2018 letter, Section 9, USS requested that the Department consider reductions in the required sampling both in the number of the pollutants of interest to be reported and in the frequency of required sampling for select other pollutants. For IMP 203, USS supported their request with a table summarizing the results of eDMR data over the period from May 2017 through April 2018 and, in addition, with the samples analyzed and submitted for the updated permit renewal application. They requested the removal of most of the monitor and report parameters: oil and grease, Cadmium, Hexavalent Chromium, Lead, Copper, Selenium, Beryllium, Silver, Zinc, Free Cyanide, Phenolics, Acrylonitrile and Benzo(a)Pyrene. They asked for a reduction in the frequency of reporting for all other monitored pollutants to twice per quarter.

The US EPA guidance established in Interim Guidance for Performance -Based Reduction of NPDES Permit Monitoring Frequencies only addresses reductions in sampling frequency imposed where effluent limits have been established. So, it does not strictly apply to this USS request. However, the main value of this monitoring data is to serve for comparison to the analogous data obtained for IMP 103. Therefore, a similar analysis was conducted for the data from IMP 203 as described above for IMP 103 and, where applicable, the data is compared to limits from IMP 103.

During the 2019 review, the then most recent 5 years of eDMR data was reviewed in consideration of USS' request. Values annotated in USS' eDMRs as being less than (<) a value, for analysis purposes the value was conservatively converted to be equal (=) to the indicated value. The arithmetic average was then computed for each reported pollutant and compared to 25% of the monthly average effluent limits from the same pollutant for IMP 103, where applicable. Where the parameters meet the criteria, a frequency reduction in accordance with Table 1 of the EPA guidance document may be considered. Where indicated the allowable reduced frequency is shown on the right most column. Note that Total Chromium was omitted from the list of pollutants for IMP 203 as compared to IMP 103.

Table 17: Monitoring Frequency Reduction Analyses for IMP 203

Parameter	Arithmetic Average	IMP 103 Average Monthly Limit	IMP 103 Daily Maximum Limit	<25% of Avg. Monthly Limit	Proposed Sample / Reporting Frequency	Reduced Sample Frequency
Flow (MGD)	XXX	Report	Report	N/A	Continuous	
pH (S.U.)	6.0	XXX	9.0	N/A	2/ month	
Total Suspended Solids (mg/L)	3.8294	12.0	23.0	No	2/ month	
Oil and Grease (mg/L)	5.0824	10.0	10.0	No	2/ month	
Acrylonitrile (mg/L)	0.00457	Report	Report	N/A	1/ quarter	
Aluminum (mg/L)	0.0837	2.71	6.11	**Yes**	2/ month	1/ quarter
Beryllium (mg/L)	0.00283	0.34	0.82	**Yes**	2/ month	1/ quarter
Cadmium (mg/L)	0.00757	0.08	0.20	**Yes**	2/ month	1/ quarter
Hexavalent Chromium (mg/L)	0.00334	Report	Report	N/A	2/ month	
Total Chromium (mg/L)	omitted	0.15	0.37	N/A	N/A	N/A
Copper (mg/L)	0.01422	0.61	1.28	**Yes**	2/ month	1/ quarter
Total Cyanide (mg/L)	0.13351	2.0	4.0	**Yes**	2/ month	1/ quarter
Free Cyanide (mg/L)	0.00945	Report	Report	N/A	2/ month	
Iron (mg/L)	1.93725	1.5	3.0	No	2/ month	
Lead (mg/L)	0.00706	0.13	0.28	**Yes**	2/ month	1/ quarter
Manganese (mg/L)	0.313922	0.23	0.30	No	2/ month	
Selenium (mg/L)	0.010392	0.37	0.82	**Yes**	2/ month	1/ quarter
Silver (mg/L)	0.00582	0.12	0.29	**Yes**	2/ month	1/ quarter
Zinc (mg/L)	0.01614	0.42	1.02	**Yes**	2/ month	1/ quarter
Benzo(a)Pyrene (mg/L)	0.00328	Report	Report	N/A	1/ quarter	
Phenolics (mg/L)	0.01208	Report	Report	N/A	2/ month	

As can be seen from Table 17 when compared to Table 13, the results are quite similar, but also not quite as favorable. This may be expected since IMP 103 is post pre-treatment while IMP 203 is untreated RWL. Never-the-less, most of those parameters requested by USS for elimination or reduction in frequency might be allowed to be monitored at a reduced frequency. Since the primary benefit of collecting this data is for comparison, professional judgement indicates that all reporting frequencies for pollutants could be set to the same frequency. Note, however, that arithmetic averages are not equivalent to LTA. Therefore, this change will not be made at this time.

The question of removal of parameters is (as before) beyond the scope of the guidance. As with IMP 103, the pollutant data's arithmetic average and maximum value over the nearly five years of eDMR sampling and reporting is compared with the 2015 MSGP, the Department's target QL and/or and the most stringent criteria found in the Table in Attachment A, where applicable.

Note that the values used from the MSGP were updated in 2021, but there were no changes to those values used in this comparison. Further, the MSGP benchmark for Aluminum was changed in 2021, however, the target QL was used in this comparison for Aluminum, not the MSGP benchmark. This comparison can be seen in Table 18 below:

Table 18: Monitor and Report Parameter Results During the Prior Permit Term for Selected Parameters from Outfall/IMP 203

Parameter	Arithmetic Average	Target QL or 2015 MSGP Benchmark	Most Stringent Criteria	eDMR Maximum Recorded
Acrylonitrile (mg/L)	0.00457	0.005	0.000051	0.02
Aluminum (mg/L)	0.08373	0.010	0.75	0.29
Beryllium (mg/L)	0.002827	0.001	N/A	0.02
Cadmium (mg/L)	0.007573	0.0002	0.000271	0.01
Chromium, Hexavalent (mg/L)	0.003340	0.001	0.0104	0.01
Copper (mg/L)	0.014216	0.004	0.0093	0.10
Free Cyanide (mg/L)	0.009449	0.022*	N/A	0.05
Lead (mg/L)	0.007059	0.001	0.0032	0.05
Selenium (mg/L)	0.010392	0.005	0.005	0.10
Silver (mg/L)	0.005824	0.0004	0.0038	0.05
Zinc (mg/L)	0.016137	0.005	0.1198	0.12
Benzo(a)Pyrene (mg/L)	0.00328	0.0025	0.0000038	0.0054
Phenolics (mg/L)	0.01208	0.01	0.005	0.07

* The MSGP benchmark for Total Cyanide is shown for comparison purposes. Target QL is 0.01 mg/L.

Those pollutants in bold, although measurable, over about a 5-year period were found to never exceed 10% of the most stringent criteria. Therefore, it appeared in 2019 to be possible to consider discontinuing monitoring, but for only a lone pollutant, absent a contemporary criterion. For the others, based on these monitor and report pollutants being measurable and at least occasionally exceeding the established, most stringent criteria. It appeared imprudent to eliminate these from reporting requirements at that time.

However, in October 2024, a review of the available eDMR data set over the subsequent 5-year period from September 2019 through September 2024 reveals that monthly reports for Beryllium, Lead, Phenolics and Silver and quarterly reports for Acrylonitrile and Benzo(a)Pyrene show that none of these were ever detected (above the target QL) in the discharge at this IMP during this period. Consequently, these pollutants are recommended to be dropped from monitoring. In contrast, Aluminum, Hexavalent Chromium and Zinc have routinely been detected, resulting in their retention for monitoring. Therefore, the monitoring required for IMP 203 is recommended to be changed from prior practice to that shown in Table 27. Capturing these changes in reporting, the final monitoring requirements are shown in Table 19 for IMP 203.

Note that, on balance, a reduction of sampling frequency may be appropriate for both IMPs 103 and 203 and should be considered in the next permit renewal, should the permittee supply LTA data over an extended period of time.

Table 19: Final Monitoring Requirements to be Imposed at IMP 203

Parameter	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	Continuous	Measured
pH (S.U.)	XXX	Report	Report	XXX	Daily	Grab
Total Suspended Solids (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Oil and Grease (mg/L)	XXX	Report	Report	XXX	2/ month	Grab
Aluminum (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Cadmium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Chromium, Hexavalent (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Copper (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Total Cyanide (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Free Cyanide (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Iron (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Manganese (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Selenium (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC
Zinc (mg/L)	XXX	Report	Report	XXX	2/ month	24 HC

Tools and References Used to Develop Permit	
☐	WQM for Windows Model
☒	PENTOXSD for Windows Model
☐	TRC Model Spreadsheet
☐	Temperature Model Spreadsheet
☒	Toxics Screening Analysis Spreadsheet (see Attachment A)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☒	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: SOP for Clean Water Program New and Reissuance IW and Industrial SW Individual NPDES Permit Applications, SOP No. BPNPSM-PMT-001. Version 1.5 (Rev. Oct. 11, 2013)
☒	Other: US EPA, Office of Water, Interim Guidance for Performance-Based Reduction of NPDES Permit Monitoring Frequences, EPA 833-B-96-001, April 1996.

Attachments

Attachment A: EPA 2015 Multi-Sector General Permit Benchmark Values

Attachment B: Updated Renewal Application Pages from September 30, 2024

Attachment C: TOXCONC 2.0 Spreadsheet, with Long-term Averages for Selected Toxics at Outfall 002

Attachment D: Toxics Management Spreadsheet, Version 1.4, Inputs and Results for Outfall 002

ATTACHMENT A:

EPA 2015 Multi-Sector General Permit (MSGP) Benchmark Values

Summary Comparison of 2015 vs. 2021 MSGP Benchmarks

available acute ambient water quality criteria for priority toxic and non-priority pollutants in saltwater. These benchmark values reflect the toxicity of these metals in saline waters and replace the freshwater-based benchmark values in the 2008 permit. In some cases, the saltwater values represent significant changes in the benchmarks for facilities discharging into saline waters. The values for arsenic, copper, cyanide, and nickel are lowered by an order of magnitude. The values for cadmium and lead are increased by an order of magnitude, while the value for selenium is increased two orders of magnitude. Benchmark values for the other metals increase (mercury) or decrease (silver, and zinc) by smaller amounts.

The following table presents the permit's freshwater and saltwater benchmark values, and the source of those values. In most cases, EPA has not revised benchmarks since they were first published in the 1995 MSGP. However, eight of the ten benchmarks that were assigned the freshwater acute water quality criterion value as differentiated from the 2000 MSGP's value that was based on the method detection limit (MDL) (i.e., arsenic, cadmium, copper, cyanide, mercury, nickel, selenium, and silver) were lowered in the 2008 MSGP based on CWA section 302(a) EPA-recommended criteria. Excluding mercury and nickel, the benchmark values were changed from 3.18 times the MDL to the ambient acute water quality criteria value. Mercury and nickel benchmarks were revised based on EPA's updated acute aquatic life recommended criteria. In each case, at least one EPA-approved 40 CFR Part 136 analytical method exists with detection limits below these benchmark values.

MSGP Benchmark Values and Sources			
Pollutant	**MSGP Benchmark**	**MSGP Source**	**Different**
Aluminum (T) (pH 6.5 - 9)	00.75 mg/L	1	No
Beryllium (T)	0.13 mg/L	2	No
Iron (T)	1.0 mg/L	3	No
Biochemical Oxygen Demand (5 day)	30 mg/L	4	No
pH	6.0 – 9.0 s.u.	4	No
Chemical Oxygen Demand	120 mg/L	5	No
Total Phosphorus	2.0 mg/L	6	No
Total Suspended Solids	100 mg/L	7	No
Nitrate + Nitrite Nitrogen	0.68 mg/L	7	No
Magnesium (T)	0.064 mg/L	8	No
Turbidity	50 NTU	9	Yes
Antimony (T)	0.64 mg/L	12	No
Ammonia*	2.14 mg/L	13	No
Cadmium (T) Freshwater)† (Saltwater)	0.0021 mg/L 0.04 mg/L	1 14	Yes
Copper (T)* (Freshwater)† (Saltwater)	0.014 mg/L 0.0048 mg/L	1 14	Yes NA

MSGP Benchmark Values and Sources			
Pollutant	**MSGP Benchmark**	**MSGP Source**	**Different**
Cyanide (Freshwater) (Saltwater)	0.022 mg/L 0.001 mg/L	1 14	Yes
Mercury (T) (Freshwater) (Saltwater)	0.0014 mg/L 0.0018 mg/L	1 14	No; criteria updated^
Nickel (T) (Freshwater)† (Saltwater)	0.47 mg/L 0.074 mg/L	1 14	No; criteria updated^
Selenium (T)* (Freshwater) (Saltwater)	0.005 mg/L 0.29 mg/L	3 14	Yes
Silver (T)* (Freshwater)† (Saltwater)	0.0038 mg/L 0.0019 mg/L	1 14	Yes
Zinc (T) (Freshwater)† (Saltwater)	0.12 mg/L 0.09 mg/L	1 14	No; criteria updated^
Arsenic (T) (Freshwater) (Saltwater)	0.15 mg/L 0.069 mg/L	3 14	Yes NA
Lead (T)* Freshwater)† (Saltwater)	0.082 mg/L 0.21 mg/L	3 14	No

(T) Total recoverable

* New criteria are currently under development, but values are based on existing criteria.

† These pollutants are dependent on water hardness where discharged into freshwaters. The freshwater benchmark value listed is based on a hardness of 100 mg/L. When a facility analyzes receiving water samples for hardness, the permittee must use the hardness ranges provided in Table 1 in Appendix J of the 2015 MSGP and in the appropriate tables in Part 8 of the 2015 MSGP to determine applicable benchmark values for that facility. Benchmark values for discharges of these pollutants into saline waters are not dependent on receiving water hardness and do not need to be adjusted.

^ The values for these pollutants do not have a new basis. They are still based on the water quality criteria, but the "National Recommended Water Quality Criteria" was updated in 2002.

Sources:

1. "National Recommended Water Quality Criteria." Acute Aquatic Life Freshwater (EPA-822-F-04-010 2006-CMC)
2. "EPA Recommended Ambient Water Quality Criteria for Beryllium." LOEL Acute Freshwater (EPA-440-5-80-024 October 1980)
3. "National Recommended Water Quality Criteria." Chronic Aquatic Life Freshwater (EPA-822-F-04-010 2006-CCC)
4. Secondary Treatment Regulations (40 CFR 133)
5. Factor of 4 times BOD5 (5 day biochemical oxygen demand) concentration - North Carolina Benchmark
6. North Carolina stormwater Benchmark derived from NC Water Quality Standards
7. National Urban Runoff Program (NURP) median concentration
8. Minimum Level (ML) based upon highest Method Detection Limit (MDL) times a factor of 3.18

9. Combination of simplified variations on Stormwater Effects Handbook, Burton and Pitt, 2001 and water quality standards in Idaho, in conjunction with review of DMR data
10. "National Ambient Water Quality Criteria." Acute Aquatic Life Freshwater. This is an earlier version of the criteria document that has subsequently been updated. (See source #1)
11. "National Ambient Water Quality Criteria." Chronic Aquatic Life Freshwater. This is an earlier version of the criteria document that has subsequently been updated. (See source #3)
12. "National Ambient Water Quality Criteria. "Human Health for the Consumption of Organism Only (EPA-822-F-01-0102006
13. "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses." USEPA Office of Water (PB85-227049 January 1985)
14. "National Recommended Water Quality Criteria." Acute Aquatic Life Saltwater (CMC) available at: http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#altable

Benchmark Monitoring Schedule (Part 6.2.1.2). Facilities required to conduct benchmark monitoring must do so in each of the first 4 quarters of permit coverage starting September 2, 2015, unless a modified benchmark monitoring schedule is included in the SWPPP for areas with "Climates with Irregular Stormwater Runoff" (see Part 6.1.6).

Following the first 12 months (4 quarterly or otherwise consecutive monitoring events) of monitoring, if the average of the 4 monitoring values for any parameter does not exceed the benchmark, permittees have fulfilled the benchmark monitoring requirements for that parameter for the duration of the permit term.

However, if the average of the 4 quarters of monitoring values exceeds any benchmark for a parameter, permittees must evaluate their control measures to determine if modifications are necessary to meet the effluent limits in the permit. If so, facilities must either:

- Make the necessary modifications and continue quarterly sampling until the discharger has completed 4 quarters of monitoring of that pollutant for which the average does not exceed the benchmark; or
- Make a determination that no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice to meet the permit's technology-based effluent limits, or necessary to meet the permit's water quality-based effluent limits. If permittees make this determination, the accompanying rationale must be included in the post-SWPPP documentation. No further corrective action is required, but permittees must monitor annually for the pollutant for the remainder of the permit term.

As explained earlier in this section of the Fact Sheet, in most cases, commonsense, pollution prevention-oriented stormwater control modifications will be possible by most facilities with benchmark exceedances. A determination that no further pollutant reductions are technologically available and economically practicable and achievable will be highly site-specific, and must be based on well-documented good engineering judgment. Again, the permittee is not required to retain a professional engineer or other consultant in order to make this determination, unless EPA concludes that the SWPPP is inadequate per Part 5.1. EPA notes that if existing facilities subject to benchmark monitoring have previously made such a determination under the 2008 MSGP, they must conduct four quarters of benchmark monitoring in the first year of permit coverage under the 2015 MSGP. However, provided there is no separate water quality exceedance, and provided that there have been no significant changes in the facility's operation that could impact the level of pollutants in stormwater discharges, if benchmark concentrations are again exceeded under the 2015 MSGP, existing permittees may rely on their previous rationale supporting a determination that no further pollutant reductions are

exceedance of the benchmark threshold is not a violation of the permit. At the same time, the permit contains a narrative effluent limitation to protect water quality.

Part 4.2.2.2 Summary of the 2021 MSGP Benchmark Thresholds

The following table presents the 2021 MSGP's freshwater and saltwater benchmark thresholds, and the source of those values. EPA updated the benchmark thresholds to match the units that appear in the source documents as indicated.

2015 and 2021 MSGP Benchmark Values and Sources

Pollutant		2015 MSGP Benchmark	2015 MSGP Source (see footnotes)	2021 MSGP Benchmark	2021 MSGP Source (see footnotes)
Total Recoverable Aluminum (T)		0.75 mg/L	1	1,100 µg/L	18
Total Recoverable Beryllium		0.13 mg/L	2	130 µg/L[a]	2
Total Recoverable Iron		1.0 mg/L	3	Removed	16
Biochemical Oxygen Demand (5-day)		30 mg/L	4	30 mg/L	4
pH		6.0 – 9.0 s.u.	4	6.0 – 9.0 s.u.	4
Chemical Oxygen Demand		120 mg/L	5	120 mg/L	5
Total Phosphorus		2.0 mg/L	6	2.0 mg/L	6
Total Suspended Solids (TSS)		100 mg/L	7	100 mg/L	7
Nitrate and Nitrite Nitrogen		0.68 mg/L	7	0.68 mg/L	7
Total Recoverable Magnesium		0.064 mg/L	8	Removed	16
Turbidity		50 NTU	9	50 NTU	9
Total Recoverable Antimony		0.64 mg/L	12	640 µg/L[a]	1
Ammonia		2.14 mg/L	13	2.14 mg/L	1
Total Recoverable Cadmium	Freshwater[b]	0.0021 mg/L	1	1.8 µg/L[a]	15
	Saltwater	0.04 mg/L	14	33 µg/L[a]	15
Total Recoverable Copper	Freshwater	0.014 mg/L	1	5.19µg/L	18
	Saltwater	0.0048 mg/L	14	4.8 µg/L	14
Total Recoverable Cyanide	Freshwater	0.022 mg/L	1	22 µg/L[a]	1
	Saltwater	0.001 mg/L	14	1 µg/L[a]	14
Total Recoverable Mercury	Freshwater	0.0014 mg/L	1	1.4 µg/L[a]	1
	Saltwater	0.0018 mg/L	14	1.8 µg/L[a]	14
Total Recoverable Nickel	Freshwater[b]	0.47 mg/L	1	470 µg/L[a]	1
	Saltwater	0.074 mg/L	14	74 µg/L[a]	14
Total Recoverable Selenium	Freshwater	0.005 mg/L	3	1.5 µg/L for still/standing (lentic) waters 3.1 µg/L for flowing (lotic) waters	17
	Saltwater	0.29 mg/L	14	290 µg/L[a]	14

ATTACHMENT B:
Updated Renewal Application Pages, Received September 30, 2024

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 1

Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number 002** (Show location of sampling point on Line Diagram);
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 1 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
BOD5 mg/L	< 3	< 3.14			< 3	< 1.99	3	3	3	SM 5210B
Chemical Oxygen Demand mg//L	6.49	6.80			< 5.89	< 3.97	3	1	5	EPA 410.4
Total Organic Carbon mg/L	4.6	4.82			4.17	2.88	3	0	0.5	SM 5310B
Total Suspended Solids (mg/L)	1.8	1.89			< 1.26	< 0.98	3	1	0.39 (MDL) / 0.62 (RL)	SM 2540D
Ammonia-Nitrogen (mg/L)	0.15	0.16			0.12	0.08	3	0	0.02	EPA 350.1
Temperature, field (deg C)	Not a heated discharge						NA	NA	NA	NA
pH, field (su)	pH limit already included in NPDES permit (refer to eDMR data)						NA	NA	NA	NA
Fecal Coliform (MPN / 100 mL)	210	NA			< 15.3	NA	2	1	1	Colilert-18
Oil and Grease (mg/L)	6.4	5.241			< 4.23	< 0.48	3	2	1.3 (MDL) / 5 (RL)	EPA 1664B
Total Res. Chlorine (mg/L)	Believed absent				Believed absent		Believed absent			
Total Phosphorus (mg/L)	0.057	0.052			< 0.046	< 0.032	3	2	0.032 (MDL) / 0.05 (RL)	EPA 365.1
TKN (mg/L)	< 0.87	0.912			< 0.87	< 0.576	3	3	0.87 (MDL)	SM4500NH3G
Nitrite + Nitrate-Nitrogen (mg/L)	1.1	1.048			1.01	0.662	3	0	0.02	EPA 353.2
Total Dissolved Solids (mg/L)	See attached TOXCONC Sheet:		1900	mg/L, TOXCONC projection			63	0	100	SM2540C
Color (Pt-Co Units)	< 2.5	NA			< 2.5	NA	3	3	2.5	SM2120B
Bromide (mg/L)	< 3.2	< 1.22			< 1.1	< 0.423	3	2	0.032 / 3.2 MDL; 20 / 2 RL	EPA 300.0
Chloride (mg/L)	123	113.2			< 110.3	< 73.3	3	1	100	EPA 300.0
Sulfate (mg/L)	See attached TOXCONC Sheet:		1212	mg/L, TOXCONC projection			62	0	100	EPA 300.0
Sulfide (mg/L)	< 0.42	0.440			< 0.42	< 0.278	3	3	0.42 (MDL)	SM4500S2F
Surfactants (mg/L)	< 0.04	0.042			< 0.04	< 0.027	3	3	0.04 (MDL)	SM5540C
Fluoride (mg/L)	11.2	4.262			< 3.78	< 1.457	3	2	0.067 (MDL)	EPA 300.0
Total Hardness as CaCO3 (mg/L)	830	869.9			820	544.4	3	0	5	SM2340C

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 2
Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number 002** (Show location of sampling point on Line Diagram)
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 2 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
Aluminum, Total (ug/L)	See attached TOXCONC Sheet:		87	ug/L, TOXCONC projection			63	6	10	EPA 200.8
Antimony, Total (ug/L)	< 0.12	< 0.0001			< 0.12	< 0.0001	3	3	0.12 (MDL)	EPA 200.8
Arsenic, Total (ug/L)	< 3	< 0.0031			< 3	< 0.0020	3	3	3	EPA 200.8
Barium, Total (ug/L)	35.8	0.0372			35.2	0.0234	3	0	5	EPA 200.8
Beryllium, Total (ug/L)	< 0.06	< 0.00006			< 0.06	< 0.00004	3	3	0.06 (MDL)	EPA 200.8
Boron, Total (ug/L)	390	0.091			384	0.058	3	0	20	EPA 200.8
Cadmium, Total (ug/L)	< 0.2	< 0.00021			< 0.20	< 0.00013	3	3	0.2	EPA 200.8
Chromium, Total (ug/L)	< 5	< 0.00524			< 5	< 0.00331	3	3	5	EPA 200.8
Chromium, Hexavalent (ug/L)	See attached TOXCONC Sheet:		3	ug/L, TOXCONC projection			63	1	0.05	EPA 218.6
Cobalt, Total (ug/L)	J 1.56	J 0.00152			J 1.49	J 0.00098	3	3	0.13 (MDL); 5.0 (RL)	EPA 200.8
Copper, Total (ug/L)	< 4	< 0.00419			< 4	< 0.00265	3	3	4	EPA 200.8
Cyanide, Total (ug/L)	8.28	0.00524			< 6.39	0.00404	3	1	5	KELADA-01
Iron, Total (ug/L)	See attached TOXCONC Sheet:		132	ug/L, TOXCONC projection			63	36	80	EPA 200.8
Iron, Dissolved (ug/L)	See attached TOXCONC Sheet:		95	ug/L, TOXCONC projection			63	57	80	EPA 200.8
Lead, Total (ug/L)	J 0.348	< 0.00019			< 0.2	< 0.00010	3	3	0.08 (MDL) / 1.5 (RL)	EPA 200.8
Manganese, Total (ug/L)	See attached TOXCONC Sheet:		196	ug/L, TOXCONC projection			63	0	5	EPA 200.8
Mercury, Total low-level (ug/L)	0.00064	< 0.0000006			< 0.00057	< 0.00000	3	1	0.0005	EPA 1631E
Molybdenum, Total (ug/L)	11.4	0.0118			11.2	0.0074	3	0	5	EPA 200.8
Nickel, Total (ug/L)	< 5	< 0.00280			< 3.4	< 0.00165	3	3	0.25 (MDL) / 5 (RL)	EPA 200.8
Phenols, Total (ug/L)	< 5	< 0.00280			< 3.3	< 0.00212	3	3	2.5 (MDL) / 5 (RL)	EPA 420.4
Selenium, Total (ug/L)	See attached TOXCONC Sheet:		17	ug/L, TOXCONC projection			63	1	5	EPA 200.8
Silver, Total (ug/L)	< 0.12	< 0.00013			< 0.12	< 0.00008	3	0	0.12 (MDL)	EPA 200.8
Thallium, Total (ug/L)	< 0.15	< 0.00016			< 0.15	< 0.00010	3	3	0.15 (MDL)	EPA 200.8
Zinc, Total (ug/L)	10.2	0.01069			< 10.1	0.00670	3	2	10	EPA 200.8

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 3 (PAGE 1 OF 2)
Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number 002** (Show location of sampling point on Line Diagram)
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 2 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used (MDL listed below)	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
Acrolein (ug/L)	< 1.3	< 0.00136			< 1.3	< 0.00086	3	3	1.3	EPA 624.1
Acrylonitrile (ug/L)	< 2	< 0.00210			< 2	< 0.00133	3	3	2	EPA 624.1
Benzene (ug/L)	< 0.12	< 0.00013			< 0.12	< 0.00008	3	3	0.12	EPA 624.1
Bromoform (ug/L)	< 0.37	< 0.00039			< 0.37	< 0.00025	3	3	0.37	EPA 624.1
Carbon Tetrachloride (ug/L)	< 0.23	< 0.00024			< 0.23	< 0.00015	3	3	0.23	EPA 624.1
Chlorobenzene (ug/L)	< 0.25	< 0.00026			< 0.25	< 0.00017	3	3	0.25	EPA 624.1
Chlorodibromomethane (ug/L)	< 0.25	< 0.00026			< 0.25	< 0.00017	3	3	0.25	EPA 624.1
Chloroethane (ug/L)	< 0.47	< 0.00049			< 0.47	< 0.00031	3	3	0.47	EPA 624.1
2-Chloroethylvinyl Ether (ug/L)	< 3.1	< 0.00325			< 3.1	< 0.00205	3	3	3.1	EPA 624.1
Chloroform (ug/L)	< 0.15	< 0.00016			< 0.15	< 0.00010	3	3	0.15	EPA 624.1
Dichlorobromomethane (ug/L)	< 0.18	< 0.00019			< 0.18	< 0.00012	3	3	0.18	EPA 624.1
1,1-Dichloroethane (ug/L)	< 0.13	< 0.00014			< 0.13	< 0.00009	3	3	0.13	EPA 624.1
1,2-Dichloroethane (ug/L)	< 0.12	< 0.00013			< 0.12	< 0.00008	3	3	0.12	EPA 624.1
1,1-Dichloroethylene (ug/L)	< 0.13	< 0.00014			< 0.13	< 0.00009	3	3	0.13	EPA 624.1
1,2 Dichloropropane (ug/L)	< 0.26	< 0.00027			< 0.26	< 0.00017	3	3	0.26	EPA 624.1
1,3-Dichloropropylene (ug/L)	< 0.47	< 0.00049			< 0.47	< 0.00031	3	3	0.47	EPA 624.1
1,4 Dioxane (ug/L)	< 0.44	< 0.00046			< 0.44	< 0.00029	3	3	0.44	EPA 625.1
Ethylbenzene (ug/L)	< 0.2	< 0.00021			< 0.2	< 0.00013	3	3	0.2	EPA 624.1
Methyl Bromide (ug/L)	< 0.42	< 0.00044			< 0.42	< 0.00028	3	3	0.42	EPA 624.1
Methyl Chloride (ug/L)	< 0.33	< 0.00035			< 0.33	< 0.00022	3	3	0.33	EPA 624.1
Methylene Chloride (ug/L)	< 0.14	< 0.00015			< 0.14	< 0.00009	3	3	0.14	EPA 624.1
1,1,2,2-Tetrachloroethane (ug/L)	< 0.38	< 0.00040			< 0.38	< 0.00025	3	3	0.38	EPA 624.1
Tetrachloroethylene (ug/L)	< 0.27	< 0.00028			< 0.27	< 0.00018	3	3	0.27	EPA 624.1

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 3 (PAGE 2 OF 2)
Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number** 002 (Show location of sampling point on Line Diagram)
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 3 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used (MDL listed below)	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
Toluene (ug/L)	< 0.24	< 0.00025			< 0.24	< 0.00016	3	3	0.24	EPA 624.1
1,2-Trans-Dichloroethylene (ug/L)	< 0.08	< 0.00008			< 0.08	< 0.00005	3	3	0.08	EPA 624.1
1,1,1-Trichloroethane (ug/L)	< 0.12	< 0.00013			< 0.12	< 0.00008	3	3	0.12	EPA 624.1
1,1,2-Trichloroethane (ug/L)	< 0.13	< 0.00014			< 0.13	< 0.00009	3	3	0.13	EPA 624.1
Trichloroethylene (ug/L)	< 0.29	< 0.00030			< 0.29	< 0.00019	3	3	0.29	EPA 624.1
Vinyl Chloride (ug/L)	< 0.33	< 0.00035			< 0.33	< 0.00022	3	3	0.33	EPA 624.1

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 4
Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number 002** (Show location of sampling point on Line Diagram)
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 4 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used (Max MDL of 3 samples listed below)	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
2-Chlorophenol (ug/L)	< 0.24	< 0.00023			< 0.19	< 0.00015	3	3	0.24	EPA 625.1
2,4-Dichlorophenol (ug/L)	< 0.36	< 0.00036			< 0.29	< 0.00023	3	3	0.36	EPA 625.1
2,4-Dimethylphenol (ug/L)	< 0.37	< 0.00037			< 0.30	< 0.00023	3	3	0.37	EPA 625.1
4,6-Dinitro-o-Cresol (ug/L)	< 0.28	< 0.00027			< 0.23	< 0.00018	3	3	0.28	EPA 625.1
2,4-Dinitrophenol (ug/L)	< 2.7	< 0.00262			< 1.78	< 0.00126	3	3	2.70	EPA 625.1
2-Nitrophenol (ug/L)	< 0.35	< 0.00035			< 0.28	< 0.00022	3	3	0.35	EPA 625.1
4-Nitrophenol (ug/L)	< 1.1	< 0.00115			< 0.91	< 0.00071	3	3	1.10	EPA 625.1
P-Chloro-m-Cresol (ug/L)	< 0.27	< 0.00026			< 0.22	< 0.00017	3	3	0.27	EPA 625.1
Pentachlorophenol (ug/L)	< 1.0	< 0.00099			< 0.81	< 0.00063	3	3	1.00	EPA 625.1
Phenol (ug/L)	< 0.22	< 0.00021			< 0.18	< 0.00014	3	3	0.22	EPA 625.1
2,4,6-Trichlorophenol (ug/L)	< 0.26	< 0.00025			< 0.21	< 0.00016	3	3	0.26	EPA 625.1

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 5 (PAGE 1 OF 3)
Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number 002** (Show location of sampling point on Line Diagram)
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 5 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used (Max MDL of 3 samples listed below)	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
Acenaphthene (ug/L)	< 0.084	< 0.00008			< 0.068	< 0.00005	3	3	0.084	EPA 625.1
Acenaphthylene (ug/L)	< 0.077	< 0.00008			< 0.063	< 0.00005	3	3	0.077	EPA 625.1
Acrylamide (ug/L)	< 0.5	< 0.00019			< 0.5	< 0.00019	3	3	0.5	HPLC/MS/MS ALS SOP
Anthracene (ug/L)	< 0.092	< 0.00009			< 0.074	< 0.00006	3	3	0.092	EPA 625.1
Benzidine (ug/L)	< 2.1	< 0.00199			< 1.67	< 0.00128	3	3	2.1	EPA 625.1
Benzo(a)Anthracene (ug/L)	< 0.1	< 0.00010			< 0.082	< 0.00006	3	3	0.1	EPA 625.1
Benzo(a)Pyrene (ug/L)	< 0.045	< 0.00005			< 0.037	< 0.00003	3	3	0.045	EPA 625.1
3,4-Benzo-fluoranthene (ug/L)	< 0.053	< 0.00005			< 0.043	< 0.00003	3	3	0.053	EPA 625.1
Benzo(ghi)Perylene (ug/L)	< 0.092	< 0.00009			< 0.074	< 0.00006	3	3	0.092	EPA 625.1
Benzo(k)Fluoranthene (ug/L)	< 0.049	< 0.00005			< 0.040	< 0.00003	3	3	0.049	EPA 625.1
Bis(2-Chloro-ethoxy)Methane (ug/L)	< 0.3	< 0.00029			< 0.243	< 0.00019	3	3	0.3	EPA 625.1
Bis(2-Chloroethyl) Ether (ug/L)	< 0.38	< 0.00038			< 0.310	< 0.00024	3	3	0.38	EPA 625.1
Bis(2-Chloro-isopropyl) Ether (ug/L)	< 0.24	< 0.00025			< 0.227	< 0.00019	3	3	0.24	EPA 625.1
Bis(2-Ethylhexyl)Phthalate (ug/L)	< 0.41	< 0.00041			< 0.333	< 0.00026	3	3	0.41	EPA 625.1
4-Bromophenyl Phenyl Ether (ug/L)	< 0.34	< 0.00034			< 0.277	< 0.00021	3	3	0.34	EPA 625.1
Butyl Benzyl Phthalate (ug/L)	< 0.31	< 0.00030			< 0.250	< 0.00019	3	3	0.31	EPA 625.1
2-Chloronaphthalene (ug/L)	< 0.077	< 0.00008			< 0.063	< 0.00005	3	3	0.077	EPA 625.1
4-Chlorophenyl Phenyl Ether (ug/L)	< 0.32	< 0.00031			< 0.260	< 0.00020	3	3	0.32	EPA 625.1
Chrysene (ug/L)	< 0.049	< 0.00005			< 0.040	< 0.00003	3	3	0.049	EPA 625.1

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 5 (PAGE 2 OF 3)
Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number 002** (Show location of sampling point on Line Diagram)
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 5 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used (Max MDL of 3 samples listed below)	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
Dibenzo(a,h)Anthracene (ug/L)	< 0.075	< 0.00007			< 0.061	< 0.00005	3	3	0.075	EPA 625.1
1,2-Dichlorobenzene (ug/L)	< 0.4	< 0.00040			< 0.327	< 0.00025	3	3	0.4	EPA 624.1
1,3- Dichlorobenzene (ug/L)	< 0.67	< 0.00066			< 0.543	< 0.00042	3	3	0.67	EPA 624.1
1,4- Dichlorobenzene (ug/L)	< 0.33	< 0.00032			< 0.267	< 0.00021	3	3	0.33	EPA 624.1
3,3'-Dichlorobenzidine (ug/L)	< 0.47	< 0.00047			< 0.383	< 0.00030	3	3	0.47	EPA 625.1
Diethyl Phthalate (ug/L)	< 0.18	< 0.00017			< 0.142	< 0.00011	3	3	0.18	EPA 625.1
Dimethyl Phthalate (ug/L)	< 0.67	< 0.00066			< 0.543	< 0.00042	3	3	0.67	EPA 625.1
Di-n-Butyl Phthalate (ug/L)	< 0.22	< 0.00021			< 0.177	< 0.00014	3	3	0.22	EPA 625.1
2,4-Dinitrotoluene (ug/L)	< 0.18	< 0.00018			< 0.146	< 0.00011	3	3	0.18	EPA 625.1
2,6-Dinitrotoluene (ug/L)	< 0.11	< 0.00012			< 0.092	< 0.00007	3	3	0.11	EPA 625.1
Di-n-Octyl Phthalate (ug/L)	< 0.55	< 0.00053			< 0.443	< 0.00034	3	3	0.55	EPA 625.1
1,2-Diphenylhydrazine (ug/L)	< 0.14	< 0.00015			< 0.117	< 0.00009	3	3	0.14	EPA 625.1
Fluoranthene (ug/L)	< 0.085	< 0.00008			< 0.069	< 0.00005	3	3	0.085	EPA 625.1
Fluorene (ug/L)	< 0.053	< 0.00005			< 0.043	< 0.00003	3	3	0.053	EPA 625.1
Hexachlorobenzene (ug/L)	< 0.45	< 0.00045			< 0.367	< 0.00028	3	3	0.45	EPA 625.1
Hexechlorobutadiene (ug/L)	< 0.009	< 0.00001			< 0.009	< 0.00001	3	3	0.009	EPA 625.1
Hexachlorocyclopentadiene (ug/L)	< 0.0094	< 0.00001			< 0.009	< 0.00001	3	3	0.0094	EPA 625.1
Hexachloroethane (ug/L)	< 0.64	< 0.00063			< 0.517	< 0.00040	3	3	0.64	EPA 625.1

ANALYSIS RESULTS TABLE
POLLUTANT GROUP 5 (PAGE 3 OF 3)
Please read instructions carefully before completing this form

APPLICANT NAME	U. S. Steel Corporation, South Taylor Environmental Park

X **Outfall / IMP Number 002** (Show location of sampling point on Line Diagram)
Treatment Facility Influent Sampling Results (Show location of sampling point on Line Diagram)
Intake Sampling Results (Specify Source: _____)
Background (Upstream) Sampling Results (Specify Location: _____)
New Discharge (Basis for Information: _____)

POLLUTANT GROUP 5 Parameters	CONCENTRATION / MASS PRESENT						No. Analyses	No. "Non-Detect" Results	QL Used (Max MDL of 3 samples listed below)	Method Used
	Min / Max Daily Value		Max Avg Monthly Value		Long-Term Avg Value					
	Conc	Mass (lb/day)	Conc	Mass (lb/day)	Conc	Mass (lb/day)				
Indeno(1,2,3-cd) Pyrene (ug/L)	< 0.069	< 0.00007			< 0.06	< 0.00004	3	3	0.069	EPA 625.1
Isophorone (ug/L)	< 0.35	< 0.00035			< 0.28	< 0.00022	3	3	0.35	EPA 625.1
Naphthalene (ug/L)	< 0.069	< 0.00007			< 0.06	< 0.00004	3	3	0.069	EPA 625.1
Nitrobenzene (ug/L)	< 0.27	< 0.00026			< 0.22	< 0.00017	3	3	0.27	EPA 625.1
N-Nitroso-di-methylamine (ug/L)	< 0.49	< 0.00049			< 0.40	< 0.00031	3	3	0.49	EPA 625.1
N-Nitroso-di-n-propylamine (ug/L)	< 0.36	< 0.00036			< 0.29	< 0.00023	3	3	0.36	EPA 625.1
N-Nitroso-di-n-phenylamine (ug/L)	< 0.51	< 0.00050			< 0.41	< 0.00032	3	3	0.51	EPA 625.1
Phenanthrene (ug/L)	< 0.084	< 0.00008			< 0.07	< 0.00005	3	3	0.084	EPA 625.1
Pyrene (ug/L)	< 0.09	< 0.00009			< 0.07	< 0.00006	3	3	0.09	EPA 625.1
1,2,4-Trichlorobenzene (ug/L)	< 0.42	< 0.00042			< 0.34	< 0.00027	3	3	0.42	EPA 625.1

Note: Unless otherwised noted, for samples reported as ND at the MDL, the MDL was used as the ND value. For samples reported as "J" value (between RL and MDL), "< RL" was used to complete the table.

Other notes:

Lead: Three results were obtained: < 0.08 ug/L; < 0.08 ug/L and 0.348 ug/L as a "J" flag with MDL of 0.08 ug/L and RL of 1.5 ug/L

Cobalt: Three results were obtained : 1.46 ug/L J flag; 1.45 ug/L J flag; 1.56 ug/L J flag; all with 0.13 ug/L MDL and 5.0 ug/L RL

The following parameters are monitored rountinely under the NPDES permit, but sampling data specific to the NPDES permit renewal application is reported above in order to ensure that PADEP's target QLs were achieved: cadmium, silver, lead, benzo(a)pyrene, antimony, arsenic, copper, mercury, thallium, fluoride, cobalt.

ATTACHMENT C:

TOXCONC 2.0 Spreadsheet,
with Long-term Averages for Selected Toxic Pollutants
at Outfall 002

Inputs:

Facility:	U.S. Steel STEP	
NPDES #:	PA0091685	
Outfall No:	002	
n (Samples/Month):	4	
Reviewer/Permit Engineer	John Duryea	

Parameter Name	Al	Fe	D. Fe	Mn	free CN 1/22- 6/2	Hex. Cr	Se	Sulfate	TDS	O. P.	free CN 1/23 - 6/24		
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L		
Detection Limit	0.01	0.08	0.08		0.002		0.005			25	0.002		
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.62)*												
1/6/2022	0.029	<0.080	<0.08	0.047	<0.0020	0.00197	0.0166	1400	1,600.00	17			
1/20/2022	0.019	<0.080	0.1	0.044	<0.0020	0.00217	0.0102	770	1,300.00	17			
2/3/2022	0.050	<0.080	<0.08	0.073	0.0023	0.00193	0.0103	1100	1,400.00	15			
2/17/2022	0.022	<0.080	<0.08	0.041	0.0023	0.00191	0.0107	750	1,300.00	15			
3/3/2022	0.042	<0.080	<0.08	0.042	0.0039	0.0024	0.0121	800	1,200.00	15			
3/17/2022	0.068	<0.080	<0.08	0.061	0.0035	0.00224	0.0107	840	1,200.00	15			
4/5/2022	0.048	<0.080	<0.08	0.104	0.0057	0.00193	0.012	880	1,500.00	19			
4/21/2022	0.144	<0.080	<0.08	0.073	0.0027	0.00144	0.013	650	1,300.00	15			
5/3/2022	0.063	<0.080	<0.08	0.086	0.0045	0.00141	0.0108	740	1,400.00	18			
5/18/2022	0.153	<0.080	<0.08	0.082	0.0042	0.00205	0.0114	960	1,200.00	16			
6/1/2022	0.225	<0.080	<0.08	0.149	0.0041	0.00248	0.0112	1000	1,400.00	16			
6/21/2022	0.053	0.096	<0.08	0.203	0.0026	0.00157	0.0123	1000	1,700.00	19			
7/6/2022	0.042	0.099	<0.08	0.212	0.0022	0.00106	0.0136	1100	1,800.00	19			
7/21/2022	0.143	0.146	<0.08	0.203	0.0045	0.00089	0.0123	990	1,600.00	19			
8/10/2022	<0.010	0.118	<0.08	0.039	0.0026	0.0018	<0.0050	1100	1,800.00	21			
8/25/2022	0.056	0.08	<0.08	0.12	0.0028	0.00177	0.0143	1000	1,600.00	19			
8/31/2022	0.032	<0.080	0.09	0.094	<0.0020	0.00186	0.0134	1100	1,800.00	19			
9/14/2022	0.045	0.094	<0.08	0.132	<0.0020	0.00163	0.013	983	1,600.00	23			
9/21/2022	0.082	0.141	<0.08	0.126	<0.0020	0.00156	0.0138	1060	1,700.00	20			
10/6/2022	0.023	0.083	<0.08	0.078	0.0026	<0.00117	0.0129	1110	1,700.00	26			
10/19/2022	0.013	<0.080	<0.08	0.101	<0.0020	0.00102	0.0133	1240	910	22			
11/3/2022	0.014	0.087	<0.08	0.167	<0.0020	0.00087	0.0128	1230	1,800.00	<25.0			
11/17/2022	0.017	<0.080	<0.08	0.084	<0.0020	0.00644	0.0151	1080	1,500.00	<25.0			
12/6/2022	0.020	<0.080	0.1	0.092	<0.0020	0.00155	0.014	1180	1,900.00	<25.0			
1/3/2023	0.034	0.135	<0.08	0.08	<0.0020	0.00149	0.0109	1030	1,500.00	<25.0	<0.0020		
1/24/2023	0.045	<0.080	<0.08	0.042	<0.0020	0.00132	0.0153	967	1,600.00	28	<0.0020		
2/2/2023	0.020	<0.080	<0.08	0.037	<0.0020	0.00215	0.0124	869	1,300.00	15	<0.0020		
2/21/2023	0.018	<0.080	<0.08	0.059	0.0024	0.00179	0.011	895	1,600.00	<25.0	0.0024		
3/9/2023	0.012	<0.080	<0.08	0.049	<0.0020	0.00153	0.0143	923	1,500.00	<25.0	<0.0020		
3/22/2023	0.010	<0.080	<0.08	0.05	<0.0020	0.00159	0.0129	900	1,700.00	<25.0	<0.0020		
4/4/2023	0.021	<0.080	<0.08	0.043	<0.0020	0.00154	0.0134	893	1,500.00	<25.0	<0.0020		
4/20/2023	<0.010	<0.080	<0.08	0.056	<0.0020	0.00139	0.0111	951	1,600.00	18	<0.0020		
5/11/2023	0.050	0.149	<0.08	0.074	<0.0020	0.0009	0.0106	929	1,500.00	25	<0.0020		
5/18/2023	0.010	<0.080	0.08	0.145	<0.0020	0.00092	0.012	920	1,600.00	<100.0	<0.0020		
6/7/2023	<0.010	<0.080	<0.08	0.087	<0.0020	0.00078	0.0125	1060	1,800.00		<0.0020		
6/22/2023	0.024	0.088	<0.08	0.092	<0.0020	0.00085	0.0113	974	1,800.00	15	<0.0020		
7/6/2023	0.031	<0.080	<0.08	0.109	<0.0020	0.00112	0.0171	1080	1,500.00	14	<0.0020		
7/20/2023	0.027	<0.080	<0.08	0.101	<0.0020	0.00096	0.0156	1100	1,700.00	14	<0.0020		
8/3/2023	0.033	0.158	<0.08	0.14	<0.0020	0.00066	0.0117	1080	850	15	<0.0020		
8/17/2023	0.073	0.136	<0.08	0.172	<0.0020	0.00083	0.0117	1050	1,600.00	10	<0.0020		
9/7/2023	0.023	0.131	<0.08	0.135	<0.0020	0.00125	0.0171	1110	1,700.00	18	<0.0020		
9/21/2023	0.017	0.084	<0.08	0.121	0.002	0.00093	0.0128	1080	1,700.00	26	0.002		
10/5/2023	0.016	0.118	<0.08	0.193	<0.0020	0.00059	0.0112	1090	1,600.00	20	<0.0020		
10/11/2023	0.014	0.148	<0.08	0.184	<0.0020	0.00047	0.0102	1120	1,800.00	13	<0.0020		
11/9/2023	0.011	0.114	<0.08	0.2	<0.0020	0.00063	0.0105	1090	1,800.00	18	<0.0020		
11/16/2023	<0.010	<0.080	<0.08	0.19	<0.0020	0.00017	0.0102		2,100.00	16	<0.0020		
12/6/2023	0.013	<0.080	<0.08	0.143	<0.0020	0.00067	0.0121	1300	1,800.00	15	<0.0020		
12/20/2023	<0.010	0.122	<0.08	0.165	<0.0020	0.0005	0.0117	998	1,800.00	17	<0.0020		
1/4/2024	<0.010	0.096	<0.08	0.13	0.0023	0.000685	0.0114	1050	1,700.00	12	0.0023		
1/18/2024	0.010	<0.080	<0.08	0.062	<0.0020	0.00158	0.0196	1050	770	17	<0.0020		
2/8/2024	0.021	<0.080	<0.08	0.039	<0.0020	0.00222	0.0144	851	1,300.00	13	<0.0020		
2/22/2024	0.017	<0.080	<0.08	0.071	<0.0020	0.00179	0.0142	873	1,400.00	18	<0.0020		
3/7/2024	0.022	0.172	<0.08	0.09	<0.0020	0.00126	0.0117	818	1,700.00	13	<0.0020		
3/21/2024	0.013	<0.080	<0.08	0.054	<0.0020	0.00164	0.0154	954	1,600.00	23	<0.0020		
4/9/2024	0.046	<0.080	<0.08	0.057	<0.0020	0.00222	0.0147	971	1,900.00	12	<0.0020		
4/25/2024	0.037	0.286	<0.08	0.092	0.0029	0.00304	0.041	942	1,300.00	17	0.0029		
5/2/2024	0.028	<0.080	<0.08	0.116	0.0029	0.00213	0.0122	924	1,300.00	19	0.0029		
5/16/2024	0.053	<0.080	<0.08	0.131	0.0022	0.00189	0.0136	932	1,400.00	12	0.0022		
6/5/2024	0.041	0.083	<0.08	0.126	0.0022	0.00195	0.0131	947	1,300.00	15	0.0022		
6/13/2024	0.024	< 0.080	< 0.08	0.142		0.0019	0.01125	1155	1,500.00	16			
6/19/2024	0.031	0.112	<0.08	0.171	0.0021	0.00146	0.0107	1220	1,600.00	13	0.0021		
6/20/2024	0.032	0.0857	0.103	0.174		0.0014	0.0133	1640	1400				
6/27/2024	0.041	0.117	0.15	0.186		0.0012	0.0119	1100	1400				
										Note: apparent OP outlier of 260 mOs/kg on 6/7/23 removed from data set. Value not consistent with TDS result or other OP data.			

Results:

		Reviewer/Permit Engineer:	John Duryea
Facility:	U.S. Steel STEP		
NPDES #:	PA0091685		
Outfall No:	002		
n (Samples/Month):	4		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Al (mg/L)	Delta-Lognormal	0.8759667	0.0870667
Fe (mg/L)	Delta-Lognormal	0.3190417	0.1329975
D. Fe (mg/L)	Delta-Lognormal	0.1199208	0.0951088
Mn (mg/L)	Lognormal	0.5523669	0.1962623
Free CN 1/22- 6/24 (mg/L	Delta-Lognormal	0.3147711	0.0032433
Hex. Cr (mg/L)	Delta-Lognormal	0.6049600	0.0029421
Se (mg/L)	Delta-Lognormal	0.0000085	0.0167337
Sulfate (mg/L)	Lognormal	0.1554391	1211.6633203
TDS (mg/L)	Lognormal	0.1859663	1900.1558096
O. P, ()	Delta-Lognormal	0.2431196	25.0000000
Free CN 1/23 - 6/24 (mg/L	Delta-Lognormal	0.1066343	0.0023310

Facility:	U.S. Steel STEP		
NPDES #:	PA0091685		
Outfall No:	002		
n (Samples/Month):	4		

Parameter Name	Al	Fe	D. Fe	Mn	Free CN 1/22- 6/2	Hex. Cr	Se	Sulfate	TDS	O. P,	ree CN 1/23 - 6/2
Number of Samples	63	63	63	63	60	63	63	62	63	61	36
Samples Nondetected	6	36	57	0	37	1	1	0	0	10	28
LOGNORMAL											
Log MEAN	NA	NA	NA	-2.3553265	NA	NA	NA	6.9103198	7.3211826	NA	NA
Log VAR.				0.2662867				0.0238741	0.0339989		
(LTA) [E(x)]				0.1083723				1014.6071648	1537.9136955		
Variance [V(x)]				0.0035834				24872.3415104	81796.0536695		
CV (raw)				0.5523669				0.1554391	0.1859663		
CV (n)				0.2761835				0.0777196	0.0929831		
Monthly Avg. (99%, n-day)				0.1962623				1211.6633203	1900.1558096		
DELTA-LOGNORMAL											
Delta-Log MEAN	-3.4937844	-2.1534320	-2.2848318	NA	-5.8468026	-6.6032403	-4.3550091	NA	NA	2.8266738	-6.0515305
Delta-Log VAR.	0.5181129	0.0847641	0.0448557		0.0878608	0.2958693	0.0430582			0.0477273	0.0195268
(LTA) [E(x)]	0.0365737	0.0976189	0.0822952		0.0023906	0.0015472	0.0129929			18.5598501	0.0020839
Variance [V(x)]	0.0010264	0.0009700	0.0000974		0.0000006	0.0000009	0.0000085			20.3605198	0.0000000
CV (raw)	0.8759667	0.3190417	0.1199208		0.3147711	0.6049600	0.2242045			0.2431196	0.1066343
Delta-Log VAR. (n)	0.1754470	0.0228618	0.0054563		0.0221786	0.0875475	0.0124886			0.0146006	0.0028702
A, Table E-2, TSD	0.1918380	0.0305530	0.0295864		0.0320580	0.0914941	0.0125669			0.0148056	0.0067537
B, Table E-2, TSD	-0.0000062	-0.0768093	-1.7191673		-0.1120549	0.0000000	0.0000000			-0.0013120	-0.5077856
C, Table E-2, TSD	0.0000450	0.1914887	3.7373528		0.2752736	0.0000000	0.0000000			0.0019476	1.0827286
Delta-Log MEAN (n)	-3.3960900	-2.3168033	-2.4450665		-6.0200678	-6.5150796	-4.3495975			2.9134495	-6.1520101
phi (Φ)	0.9889474	0.9766667	0.8950000		0.9739130	0.9898387	0.9898387			0.9880392	0.9550000
Z*	2.2800000	1.9800000	1.2500000		1.9400000	2.3200000	2.3200000			2.2500000	1.6900000
Monthly Avg. (99%, n-day)	0.0870667	0.1329975	0.0951088		0.0032433	0.0029421	0.0167337			25.0000000	0.0023310
NORMAL											
MEAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VAR.											
(LTA) [E(x)]											
Variance [V(x)]											
CV (raw)											
CV (n)											
Monthly Avg. (99%, n-day)											

ATTACHMENT E:

Toxics Management Spreadsheet, Version 1.4,
Inputs and Results for Outfall 002

Discharge Information

Instructions | Discharge | Stream

Facility: **US Steel South Taylor Env. Park** NPDES Permit No.: **PA0091685** Outfall No.: **002**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Blast Furnace Slag pile leachate**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.15076	760	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1900.15581			0.186						
	Chloride (PWS)	mg/L		123									
	Bromide	mg/L	<	3.2									
	Sulfate (PWS)	mg/L		1211.66332			0.1554						
	Fluoride (PWS)	mg/L		11.2									
Group 2	Total Aluminum	µg/L		87.0667			0.876						
	Total Antimony	µg/L	<	0.12									
	Total Arsenic	µg/L	<	3									
	Total Barium	µg/L		35.8									
	Total Beryllium	µg/L	<	0.06									
	Total Boron	µg/L		390									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	5									
	Hexavalent Chromium	µg/L		2.9421			0.605						
	Total Cobalt	µg/L	<	1.56									
	Total Copper	mg/L	<	0.004									
	Free Cyanide	µg/L		2			0.1066						
	Total Cyanide	µg/L		8.28									
	Dissolved Iron	µg/L		95.1088			0.1199						
	Total Iron	µg/L		132.9975			0.319						
	Total Lead	µg/L	<	0.348									
	Total Manganese	µg/L		196.2623			0.5524						
	Total Mercury	µg/L		0.00064									
	Total Nickel	µg/L	<	5									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		16.7337			0.22						
	Total Silver	µg/L	<	0.12									
	Total Thallium	µg/L	<	0.15									
	Total Zinc	mg/L		0.0102									
	Total Molybdenum	µg/L		11.4									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L	<	0.5									
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.12									
	Bromoform	µg/L	<	0.37									
	Carbon Tetrachloride	µg/L	<	0.23									

Group 3	Chlorobenzene	µg/L		0.25									
	Chlorodibromomethane	µg/L	<	0.25									
	Chloroethane	µg/L	<	0.47									
	2-Chloroethyl Vinyl Ether	µg/L	<	3.1									
	Chloroform	µg/L	<	0.15									
	Dichlorobromomethane	µg/L	<	0.18									
	1,1-Dichloroethane	µg/L	<	0.13									
	1,2-Dichloroethane	µg/L	<	0.12									
	1,1-Dichloroethylene	µg/L	<	0.13									
	1,2-Dichloropropane	µg/L	<	0.26									
	1,3-Dichloropropylene	µg/L	<	0.47									
	1,4-Dioxane	µg/L	<	0.44									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.42									
	Methyl Chloride	µg/L	<	0.33									
	Methylene Chloride	µg/L	<	0.14									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.38									
	Tetrachloroethylene	µg/L	<	0.27									
	Toluene	µg/L	<	0.24									
	1,2-trans-Dichloroethylene	µg/L	<	0.08									
	1,1,1-Trichloroethane	µg/L	<	0.12									
	1,1,2-Trichloroethane	µg/L	<	0.13									
	Trichloroethylene	µg/L	<	0.29									
	Vinyl Chloride	µg/L	<	0.33									
Group 4	2-Chlorophenol	µg/L	<	0.24									
	2,4-Dichlorophenol	µg/L	<	0.36									
	2,4-Dimethylphenol	µg/L	<	0.37									
	4,6-Dinitro-o-Cresol	µg/L	<	0.28									
	2,4-Dinitrophenol	µg/L	<	2.7									
	2-Nitrophenol	µg/L	<	0.35									
	4-Nitrophenol	µg/L	<	1.1									
	p-Chloro-m-Cresol	µg/L	<	0.27									
	Pentachlorophenol	µg/L	<	1									
	Phenol	µg/L	<	0.22									
	2,4,6-Trichlorophenol	µg/L	<	0.26									
Group 5	Acenaphthene	µg/L	<	0.084									
	Acenaphthylene	µg/L	<	0.077									
	Anthracene	µg/L	<	0.092									
	Benzidine	µg/L	<	2.1									
	Benzo(a)Anthracene	µg/L	<	0.1									
	Benzo(a)Pyrene	µg/L	<	0.045									
	3,4-Benzofluoranthene	µg/L	<	0.053									
	Benzo(ghi)Perylene	µg/L	<	0.092									
	Benzo(k)Fluoranthene	µg/L	<	0.049									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.3									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.38									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.24									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.41									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.34									
	Butyl Benzyl Phthalate	µg/L	<	0.31									
	2-Chloronaphthalene	µg/L	<	0.077									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.32									
	Chrysene	µg/L	<	0.049									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.075									
	1,2-Dichlorobenzene	µg/L	<	0.4									
	1,3-Dichlorobenzene	µg/L	<	0.67									
	1,4-Dichlorobenzene	µg/L	<	0.33									
	3,3-Dichlorobenzidine	µg/L	<	0.47									
	Diethyl Phthalate	µg/L	<	0.18									
	Dimethyl Phthalate	µg/L	<	0.67									
	Di-n-Butyl Phthalate	µg/L	<	0.22									
	2,4-Dinitrotoluene	µg/L	<	0.18									
	2,6-Dinitrotoluene	µg/L	<	0.11									
	Di-n-Octyl Phthalate	µg/L	<	0.55									

	1,2-Diphenylhydrazine	µg/L	<	0.14									
	Fluoranthene	µg/L	<	0.085									
	Fluorene	µg/L	<	0.053									
	Hexachlorobenzene	µg/L	<	0.45									
	Hexachlorobutadiene	µg/L	<	0.009									
	Hexachlorocyclopentadiene	µg/L	<	0.0094									
	Hexachloroethane	µg/L	<	0.64									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.069									
	Isophorone	µg/L	<	0.35									
	Naphthalene	µg/L	<	0.069									
	Nitrobenzene	µg/L	<	0.27									
	n-Nitrosodimethylamine	µg/L	<	0.49									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.36									
	n-Nitrosodiphenylamine	µg/L	<	0.51									
	Phenanthrene	µg/L	<	0.084									
	Pyrene	µg/L	<	0.09									
	1,2,4-Trichlorobenzene	µg/L	<	0.42									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg		25			0.2431						

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

US Steel South Taylor Env. Park, NPDES Permit No. PA0091685, Outfall 002

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **"North Taylor Trib" UNT 64937 to Stree**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	064937	0.191	875.5	2.932			Yes
End of Reach 1	064937	0	834	5.18			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.191	0.1	0.706			2	2.5					100	7		
End of Reach 1	0	0.1	0.716			3	3								

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.191														
End of Reach 1	0		1.51												

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

US Steel South Taylor Env. Park, NPDES Permit No. PA0091685, Outfall 002

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All | ( ) Inputs | ( ) Results | ( ) Limits

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Selenium	0.025	0.032	20.1	25.4	50.2	µg/L	20.1	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Acrylamide	Report	Report	Report	Report	Report	µg/L	1.71	CRL	Discharge Conc > 25% WQBEL (no RP)
Osmotic Pressure	XXX	XXX	Report	Report	Report	mOs/kg	98.7	AFC	Discharge Conc > 10% WQBEL (no RP)

Model Results

US Steel South Taylor Env. Park, NPDES Permit No. PA0091685, Outfall 002

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All | ( ) Inputs | ( ) Results | ( ) Limits

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.191	0.71		0.71	0.233	0.041	2.5	2.	0.8	0.188	0.062	0.004
0	0.72		0.716								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.191	5.48		5.48	0.233	0.041	5.533	2.	0.361	0.516	0.023	0.002
0	1.51		1.51								