pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Amendment, Major**
Facility Type	**Industrial**
Major / Minor	**Major**

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

Application No.	**PA0011657 A-2**
APS ID	**1024943**
Authorization ID	**1330026**

Applicant and Facility Information

Applicant Name	**Vicinity Energy Philadelphia Inc.**	Facility Name	**Vicinity Energy Schuylkill Gen Station**
Applicant Address	2600 Christian Street	Facility Address	2600 Christian Street
	Philadelphia, PA 19146		Philadelphia, PA 19146-2316
Applicant Contact	James Carty	Facility Contact	Jessica Hartley
Applicant Phone	(484) 431-4599	Facility Phone	(267) 350-5819
Client ID	179943	Site ID	491656
SIC Code	4961	Municipality	Philadelphia City
SIC Description	Trans. & Utilities - Steam And Air Conditioning Supply	County	Philadelphia
Date Application Received	September 22, 2020	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Amendment of NPDES permit

Summary of Review

The permittee has submitted an amendment of their NPDES permit for industrial wastewater discharge to Outfall 001 to Schuylkill River by requesting authorization of the Reverse Osmosis (RO) reject and Ultra Filtration (UF) clarifier overflow wastewater stream.

The facility operates Combined Heat and Power and District Energy system to support hospitals, campuses of City of Philadelphia buildings.

Vicinity Energy Schuylkill Gen Station proposing to improve its deionized water treatment system. It will replace city water use with additional withdrawal from existing intake. Vicinity Energy intends to install a new system to supply deionized water. The deionization process will consist of three main operations: UF, RO and Electrodeionization (EDI).

The RO reject water and UF clarifier overflow will discharge to a new internal monitoring point (IMP 401).

The system is designed to produce 2,000 gallons per minute (gpm) of deionized water. At design conditions, the system will use 3,038 gpm of incoming water, with 7% of the water entering the UF used to backwash accumulated solids, and 30% of the water entering the RO used to reject accumulated salts.

Chemical usage:
The Project reflects a significant reduction in chemical use from existing operations. Expected chemicals used during online operation are limited to those that will maintain effective UF and RO membrane operation. The system will use an average of 88 pounds per day of anti-scalant (polymer/phosphonate blend), an average of 44 pounds per day of sodium bisulfate for dechlorination, an average of 36 pounds per day of sodium hydroxide for pH control. The EDI resin bed is regenerated continuously using water and an electric charge, so no chemical regeneration is required.

Approve	Deny	Signatures	Date
X		Begay Omuralieva Begay Omuralieva / Environmental Engineering Specialist	May 4, 2021
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	05/04/2021

Summary of Review

Also, cleaning chemicals and coagulants are proposed to be used as: sodium hypochlorite, citric acid, sodium hypochlorite, sodium bisulfite and sodium hydroxidepolyaluminum chloride.

Based on submission effluent limits and monitoring requirements were proposed for IMP401.

Additional effluent requirements were added for Outfall 001:
Due to discharge to Schuylkill River the effluent is subject to DRBC's requirements. On 2/23/2021 DRBC issued draft docket that revised temperature, requirements for Outfall 001. Vicinity has provided the modeling study "Heat Dissipation Study, Vicinity Energy Schuylkill Outfall" dated January 21, 2020 to the DRBC which presents a model of the thermal influence of the discharge of effluent from Outfall No. 001 on the Schuylkill River and demonstrates whether the existing discharge meets the effluent quality requirements for temperature in Section 4.30.6 of the Commission's Water Quality Regulations. Based on the study DRBC has established Temperature and Heat Rejection requirements for Outfall 001:

OUTFALL 001 (Water Quality Zone 4 Schuylkill River)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Intake Water Temperature	Monitor and Report	Daily with corresponding effluent temperature
Outfall Effluent Temperature	98 °F 30-day rolling average*	Daily with corresponding influent temperature
	110 °F maximum instantaneous	
Heat Rejection	250 MMBtu/hr or greater for more than 7 consecutive days*	Daily with Temperature
Total Dissolved Solids	1,000 mg/l	Monthly

Docket included following:
The docket holder shall install such temperature monitoring and recording devices capable of monitoring and recording at least hourly Schuylkill River water influent temperatures and corresponding temperatures of effluent being discharged to the Schuylkill River through Outfall 001. The devices shall be installed and operational within 6-months of docket approval.

Therefore, the permit consists of 2 tiers (permit Effective Date to Start of Final Period and Start of Final Period Permit Expiration Date): One prior and another after installation and operation of temperature recording devices at the Outfall 001. Based on Implementation Guidance for Temperature Criteria document (391-2000-017) part C of the draft permit includes Heat Rejection Rate Limitations requirement.
Additionally, Part C of the draft permit consists special requirements regarding Temperature and Heat Rejection sampling and limit implementation.

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.

Compliance History

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Temperature (ºF) Daily Maximum	66.0	52	78	101	99	103.2	107.9	102.9	90.6	79	69	63.1
Temperature (ºF) Instantaneous Maximum	66.0	52	78	101	99	103.2	107.9	102.9	90.6	79	69	63.1

DMR Data for Outfall 101 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.014	0.015	0.018	0.012	0.012	0.012	0.023	0.023	0.013	0.017	0.017	0.016
Flow (MGD) Daily Maximum	0.016	0.018	0.026	0.021	0.021	0.023	0.025	0.026	0.023	0.020	0.020	0.024
pH (S.U.) Minimum	6.12	6.24	6.51	6.35	6.4	6.4	6.01	7.69	7.45	6.76	7.98	7.35
pH (S.U.) Maximum	8.57	8.70	8.57	8.19	8.05	8.20	7.7	8.86	8.42	8.6	8.90	8.92
TRC (mg/L) Average Monthly	0.015	0.048	0.01	0.005	0.02	0.01	0.048	0.95	1.74	0.25	0.31	0.56
TSS (mg/L) Average Monthly	1.25	2.0	3.75	4.5	1.8	1.25	2.5	2.0	19.5	1.75	1.0	4.75
TSS (mg/L) Daily Maximum	2.0	5.0	9.0	10.0	3.0	2.0	6.0	4.0	43.0	3.0	1.0	7.0
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Oil and Grease (mg/L) Daily Maximum	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0

DMR Data for Outfall 201 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
pH (S.U.) Daily Maximum		8.84										
TSS (mg/L) Daily Maximum		37										

Oil and Grease (mg/L) Daily Maximum		< 5.0										
Total Iron (mg/L) Daily Maximum		1.54										
PCBs (Wet Weather) (pg/L) Daily Maximum		31400										

DMR Data for Outfall 301 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	43.0	43.0	19.38	20.28	35.59	30.36	42.5	37.35	23.87	32.04	31.94	34.39
Flow (MGD) Daily Maximum	48.9	48.9	24.32	37.04	38.45	42.65	52.15	48.04	43.37	40.11	33.83	46.32
pH (S.U.) Daily Maximum	7.48	7.54	7.8	7.91	8.03	8.08	7.87	7.87	7.78	7.94	8.31	7.72
TSS (mg/L) Average Monthly	10.50	24	3.0	3.5	4.0	3.0	6.25	5.2	10.5	19.25	2.75	4.25
TSS (mg/L) Influent Average Monthly	2.5	31.6	5.75	8.75	26.8	23.5	16.75	27.6	46.0	31.75	5.0	5.25
TSS (mg/L) Daily Maximum	33.0	83	6.0	9.0	7.0	4.0	11.0	9.0	11.0	56.0	4.0	6.0
TSS (mg/L) Effluent Net Average Monthly	8.0	0.0	1.0	0.0	0.6	0.0	0.0	0.0	0.0	2.5	0.0	1.25
TSS (mg/L) Influent Daily Maximum	5.0	123	10.0	27.0	59.0	31.0	25	63.0	61.0	67.0	7.0	8.0
TSS (mg/L) Effluent Net Daily Maximum	28.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	10.0	0.0	4.0
TSS (mg/L) Influent Instantaneous Maximum	5.0	123	10.0	27.0	59.0	31.0	25	63.0	61.0	67.0	7.0	8.0
TSS (mg/L) Instantaneous Maximum	33.0	83	6.0	9.0	7.0	4.0	11.0	9.0	11.0	56.0	4.0	6.0
Oil and Grease (mg/L) Average Monthly	24.8	12.8	< 5.0	< 5.0	< 5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Oil and Grease (mg/L) Daily Maximum	84.0	44.0	< 5.0	< 5.0	< 5.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0

Compliance History

Effluent Violations for Outfall 101, from: March 1, 2020 To: January 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	05/31/20	Avg Mo	1.74	mg/L	0.5	mg/L
TRC	06/30/20	Avg Mo	0.95	mg/L	0.5	mg/L

Effluent Violations for Outfall 301, from: March 1, 2020 To: January 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Oil and Grease	01/31/21	Avg Mo	24.8	mg/L	15.0	mg/L
Oil and Grease	12/31/20	Daily Max	44.0	mg/L	30.0	mg/L
Oil and Grease	01/31/21	Daily Max	84.0	mg/L	30.0	mg/L

Other Comments: Following statement was sent to DEP:

We were experiencing issues with sampling pump at this monitoring point that required maintenance, and this work was performed. Once we received word from the lab that the sample taken on 1/20/21 was out of compliance, we reviewed the job that was performed. The maintenance manager noticed that the vacuum chamber looked like an oil filter housing. He asked the mechanic who had performed the repair and confirmed that was indeed the case. We believed this caused the excess oil and grease in the sample. The vacuum chamber was modified it that evening with proper pipe and fittings. The sample the following week was in compliance with a non-detect result.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Start of Final Period.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Temperature (°F)	XXX	XXX	XXX	XXX	Report	110*	1/week	I-S

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Start of Final Period through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
pH STD	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Temperature (deg F) *, **	XXX	XXX	XXX	98	XXX	110	Continuous	Metered
Heat Rejection Rate (MBTUs/day) **	XXX	Report ***	XXX	XXX	XXX	XXX	1/day	Calculation
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	100	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	1000.0 Avg Mo	2000.0 Daily Max	XXX	2500.0	1/week	Grab
Oil and Grease	XXX	XXX	XXX	15.0	20.0 Daily Max	30	1/week	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/week	Grab
Iron, Total	XXX	XXX	XXX	Report	XXX	XXX	1/week	Grab

* See Part C. I. Other Requirement: E.
** See Part C I, Other Requirements G., and H and Part C Other Requirement. I - Heat Rejection Rate Limitations.
*** See Part C I. Other Requirement I.

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

IMP 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/week	Grab
TSS	XXX	XXX	XXX	30.0	60.0	75	1/week	Grab
Oil and Grease	XXX	XXX	XXX	15.0	30.0	30	1/week	Grab

Compliance Sampling Location: at IMP 101

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

IMP 201, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
PCBs (Wet Weather) (pg/L)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: at IMP 201

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

IMP 301, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Average Monthly	Daily Maximum	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Estimate
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/week	Grab
TSS Effluent Net	XXX	XXX	XXX	30.0 Avg Mo	60.0	75	2/month	Calculation
TSS Intake	XXX	XXX	Report	Report	XXX	Report	2/month	Grab
TSS	XXX	XXX	Report	Report	XXX	Report	2/month	Grab
Oil and Grease	XXX	XXX	XXX	15.0 Avg Mo	30.0	30	2/month	Grab

Compliance Sampling Location: at IMP 301

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

IMP 401, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
TSS	XXX	XXX	XXX	30.0	XXX	100	1/week	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Oil and Grease	XXX	XXX	XXX	15	20	XXX	1/week	Grab
Total Aluminum	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Copper	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Lead	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Zinc	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab

Compliance Sampling Location: at IMP 401