

Application Type Renewal
Facility Type Sewage
Major / Minor Major

**NPDES PERMIT FACT SHEET
ADDENDUM**

Application No. PA0043257
APS ID 5349
Authorization ID 1311419

Applicant and Facility Information

Applicant Name	<u>New Freedom Borough Authority</u>	Facility Name	<u>New Freedom Borough STP</u>
Applicant Address	<u>49 E High Street</u> <u>New Freedom, PA 17349-9665</u>	Facility Address	<u>12 N Main Street</u> <u>Railroad, PA 17355</u>
Applicant Contact	<u>John Smith</u>	Facility Contact	<u>John Smith</u>
Applicant Phone	<u>(717) 235-2337</u>	Facility Phone	<u>(717) 235-2337</u>
Client ID	<u>87475</u>	Site ID	<u>448222</u>
SIC Code	<u>4952</u>	Municipality	<u>New Freedom Borough</u>
SIC Description	<u>Trans. & Utilities - Sewerage Systems</u>	County	<u>York</u>
Date Published in PA Bulletin	<u>January 1, 2022</u>	EPA Waived?	<u>No</u>
Comment Period End Date	<u>February 1, 2022</u>	If No, Reason	<u></u>
Purpose of Application	<u>NPDES Renewal.</u>		

Internal Review and Recommendations

A draft permit was prepared on December 14, 2021 and published in the *Pennsylvania Bulletin* on January 1, 2022 for public comments for 30 days. US EPA has indicated via email dated January 20, 2022 that the agency does not have any comments related to the wasteload allocation requirements for the South Branch Codorus Creek TMDL and Chesapeake Bay TMDL and Whole Effluent Toxicity Testing Requirements.

During the 30-day public commenting period, the permittee submitted a draft permit comment letter on January 26, 2022 and its addendum on February 2, 2022 in response to the conference call held on January 27, 2022. Based on the comments outlined in these documents, DEP has decided to change the following:

1. Dichlorobromomethane
The draft permit contains WQBELs for Dichlorobromomethane as the reasonable potential has been determined. However, the permittee expressed that the facility may not be able to achieve compliance with these WQBELs upon issuance of the permit renewal. As such, the permittee requested a monitoring requirement for the first year of the permit cycle in order to provide the permittee with a more effective baseline for maintaining permit compliance and evaluating potential process improvements including a sample profile through the treatment process, identifying and potentially eliminating the source, and other alternative options such as optimizing disinfection operation, pH adjustment, ammonia addition, and post-aeration treatment. Based on this, DEP has agreed to provide one-year interim monitoring period before WQBELs become effective.
2. Part C Condition
DEP has decided to remove Part C.V.H of the draft permit which allows the permittee to utilize liquid sodium hypochlorite in the event of failure of the gas chlorination system. This is because, as mentioned by the permittee, the facility no longer uses chlorine gas as the disinfection system but uses liquid sodium hypochlorite.

Approve	Return	Deny	Signatures	Date
X			<i>Jinsu Kim</i> Jinsu Kim / Environmental Engineering Specialist	February 5, 2022
x			<i>Maria D. Bebenek for</i> Daniel W. Martin, P.E. / Environmental Engineer Manager	February 8, 2022
x			<i>Maria D. Bebenek</i> Maria D. Bebenek, P.E. / Program Manager	February 8, 2022

Internal Review and Recommendations

3. Chlorine Demand Site-Specific Study

DEP has decided to include an optional chlorine demand site-specific study in Part C of the permit. As mentioned in the original fact sheet dated December 11, 2021, chlorine demand of stream and discharge were based on the site-specific study done more than 20 years ago. DEP will use default values for the next permit renewal unless a site-specific study is done by the permittee during the permit term. The following condition will be added to Part C:

“Total Residual Chlorine (TRC) effluent limits specified in Part A of this permit are partly based on a site-specific study done more than 20 years ago. Given the age of the study, default chlorine demand of stream and discharge (0.3 mg/l and 0 mg/l, respectively) will be used for the next permit renewal unless the permittee conducts a site-specific study during this permit term and provides updated site-specific chlorine demand of stream and discharge with the subsequent permit renewal application. If the permittee elects to evaluate chlorine demand concentrations, the study shall be performed in accordance with DEP’s guidance, “Implementation Guidance Total Residual Chlorine (TRC) Regulation” (DEP ID 391-2000-015), Appendix B, or subsequent guidance published by DEP.”

The original draft permit should have included in this condition, but the condition was unintentionally excluded from the permit.

4. Sections of the original fact sheet have been corrected as requested by the permittee and are attached to this fact sheet addendum.

Based on the changed mentioned above, it is recommended that the draft permit be revised and republished in the *Pennsylvania Bulletin* for another 30 days. All comment letters/email have been attached to this fact sheet addendum.

Kim, Jin Su

From: Fulton, Jennifer <Fulton.Jennifer@epa.gov>
Sent: Thursday, January 20, 2022 5:00 PM
To: Kim, Jin Su
Cc: Martin, Daniel; Furjanic, Sean; Schumack, Maria; Martinsen, Jessica; Hales, Dana; Blanco-Gonzalez, Joe; Martino, Leah; Camperson, Joseph
Subject: [External] PA0043257, New Freedom Borough WWTP

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Jinsu,

According to our Memorandum of Agreement, the Environmental Protection Agency (EPA) Region III has received the draft National Pollutant Discharge Elimination System (NPDES) permit for:

New Freedom Borough WWTP
New Freedom Borough Authority
NPDES Number: PA0043257
EPA Received: December 15, 2021
30-day response due date: January 14, 2021
Requested Extension: January 21, 2022

This is a major permit that discharges to South Branch Codorus Creek and is a significant discharger to the Chesapeake Bay. Therefore, EPA has performed a limited review of the draft permit based on the wasteload allocation (WLA) requirements of the South Branch Codorus Creek TMDL and the Chesapeake Bay Watershed TMDL and Whole Effluent Toxicity (WET). EPA has completed its review and offers no comments.

If there are any changes proposed to the draft permit and/or fact sheet, please coordinate with Joe Camperson on my staff via telephone at 215-814-5784 or via electronic mail at camperson.joseph@epa.gov if you have any questions.

Thank you,
Jen Fulton





ARRO Consulting, Inc.
Corporate Headquarters
108 West Airport Road
Lititz, PA 17543
P: (717) 569-7021

January 26, 2022

Jinsu Kim
Pennsylvania Department of Environmental Protection (PA DEP)
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

Re: Draft NPDES Permit PA0043257 – Response

Dear Jinsu:

On behalf of the New Freedom Borough Authority (the Authority), ARRO Consulting, Inc. (ARRO) has reviewed the draft NPDES permit referenced above and dated December 14, 2021 and, along with the Authority staff, has prepared the following comments for your consideration.

Draft Permit:

1. The Authority has significant concerns with the proposed effluent limits for Dichlorobromomethane. These concerns are amplified as the limits would become effective immediately under the new permit. As a new permit parameter, the Authority would be significantly challenged to assure compliance given the limited data collected to date as well as limited options for reducing effluent concentrations. The Authority respectfully requests the permit be revised to include a monitoring (only) requirement for Dichlorobromomethane. This change would:
 - Allow the Authority time to compile a profile of anticipated effluent results through the course of (at least) a year to account for season variation. The Fact Sheet notes (p. 11, Water Quality-Based Limitations) that “Based on the sample results, the facility will be able to meet WQBELs recommended by the worksheet”. Data collected to date (see attached Exhibit) is from samples taken between October and February and does not provide the Authority or PA DEP with data showing the impact of season temperatures, flow, and loading on effluent concentrations.
 - Allow the Authority to consider process changes to reduce Dichlorobromomethane in the WWTP effluent including disinfection management, impacts from cascade aeration, etc.

Please consider providing a copy of the WQBEL calculation worksheets in the original format (i.e. Excel, etc.) allowing editing and/or more detailed review if possible.

If this request can not be approved, please consider providing an interim monitoring requirement for one to two years, with an effective limit at that time. This would allow the Authority time to collect additional data and review all required considerations for compliance with the proposed limits.

www.arroconsulting.com

Jinsu Kim
Pennsylvania Department of Environmental Protection
January 26, 2022
Page 2

2. Part C, Section 10, Paragraph H (p. 31) notes that "The permittee is authorized to use liquid sodium hypochlorite as a means of disinfection in the event of failure of the gas chlorination system". Chlorine gas is no longer utilized at the Wastewater Treatment Plant (WWTP), and disinfection is done with sodium hypochlorite, which should be corrected in the permit documentation (reference November 2, 2016 letter to PA DEP from New Freedom Borough and email response from PA DEP on November 3, 2016).

Fact Sheet:

3. There are references on page 1 (Summary of Review) and page 3 (Treatment Facility Summary) of the Fact Sheet to the use of two (2) belt filter presses for sludge treatment. The belt filter presses at the WWTP have been replaced with two (2) volute presses, which should be corrected in the permit documentation.
4. On page 10, under Water Quality-Based Limitations, the section under Total Residual Chlorine (TRC) notes that "chlorine gas is used for disinfection". Chlorine gas is no longer utilized at the WWTP, and disinfection is done with sodium hypochlorite, which should be corrected in the permit documentation.
5. On page 10, Development of Effluent Limitations and Monitoring Requirements, it notes a Technology-Based Limitation for TRC of 0.5 mg/L. The Water Quality-Based Limitations note that the TRC_CALC "worksheet indicate that existing effluent limits are still protective of water quality." Please provide a copy of the TRC_CALC calculation worksheet in the original format (i.e. Excel, etc.) allowing editing and/or more detailed review if possible.

ARRO and the Authority appreciate your consideration of these comments and corresponding responses and revisions. If you have any questions, please contact me at 717-560-2767 or at matthew.warfel@arroconsulting.com.

Sincerely,



Matthew D. Warfel, PE
Chief Operating Officer
ARRO Consulting, Inc.

MDW:mem

Enclosures: (1)

c: John Smith – New Freedom Borough (via email)
Andrew Shaffer – New Freedom Borough (via email)



ARRO Consulting, Inc.
Corporate Headquarters
108 West Airport Road
Lititz, PA 17543
P: (717) 569-7021

February 1, 2022

Jinsu Kim
Pennsylvania Department of Environmental Protection (PA DEP)
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

Re: Draft NPDES Permit PA0043257 – Response to Proposed Dichlorobromomethane Limits

Dear Jinsu:

On behalf of the New Freedom Borough Authority (the Authority) and in response to our discussion on the afternoon of January 27, 2022, ARRO Consulting, Inc. (ARRO) respectfully requests that the proposed effluent limits for Dichlorobromomethane in the Authority's draft permit be revised to a monitoring requirement for the first year of the permit cycle.

The monitoring year will provide the Authority the following assistance in effectively complying with the proposed limits in the future:

1. As previously noted, the Authority has concerns with the note in the Fact Sheet that notes (p. 11, Water Quality-Based Limitations) that "Based on the sample results, the facility will be able to meet WQBELs recommended by the worksheet". Existing effluent Dichlorobromomethane data has been collected between October and February and does not reflect effluent during warmer-water conditions, which have the potential to result in increased effluent concentrations¹.

The additional monitoring period will provide the Authority with a more effective baseline for maintaining permit compliance and evaluating potential process improvements.

2. The Authority proposes to investigate potential process improvements to reduce the effective concentration of Dichlorobromomethane in the effluent. This includes preparing a sample profile of Dichlorobromomethane concentrations through the treatment process flow to assist in identifying the source of these byproducts. If, in doing so, the Authority identifies other sources (than disinfection byproducts), alternatives for reducing or eliminating these sources will be evaluated.

Additional methods for the reduction of Dichlorobromomethane in the effluent will be identified, tested, and implemented if appropriate. Examples of process improvements that may be

¹ Hua, Guanghui and Yeats, Steven. Control of Trihalomethanes in Wastewater Treatment. Florida Water Resources Journal, April 2010.

Jinsu Kim
Pennsylvania Department of Environmental Protection
February 1, 2022
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considered depending on the baseline testing include optimizing disinfection operation, pH adjustment, ammonia addition, and post-treatment alternatives such as aeration¹.

ARRO and the Authority appreciate your consideration of this request. If you have any questions, please contact me at 717-560-2767 or at matthew.warfel@arroconsulting.com.

Sincerely,



Matthew D. Warfel, PE
Chief Operating Officer
ARRO Consulting, Inc.

MDW:mem

Enclosures: (1)

c: John Smith – New Freedom Borough (via email)
Andrew Shaffer – New Freedom Borough (via email)

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Kim, Jin Su

From: Kim, Jin Su
Sent: Wednesday, January 26, 2022 7:02 AM
To: Warfel, Matthew
Cc: Andy Shaffer; John Smith; Schober, Michael
Subject: RE: [External] RE: New Freedom Borough Authority - New Freedom Borough STP Draft NPDES Permit Package (PA0043257)
Attachments: DEP_Toxics_Management_Spreadsheet.xlsb; TRC_CALC.xls

Hi Matt,

Thanks for the comments. I will address them shortly. Meanwhile, attached are DEP Water Quality worksheets you requested. Please let me know if you have any problem with running these worksheets. Please note that in TRC_CALC Worksheet, chlorine demand values of stream/discharge are site-specific values obtained in 1998 by the New Freedom Borough Authority. Because the site-specific study was done more than 20 years ago, these values will no longer become valid for the next permit renewal and default values will be used. A condition explaining this should have been included in Part C of the draft permit as described on page 10 of the Fact Sheet but it was unintentionally excluded. The final permit as well as any further draft permits will include a condition regarding the optional site-specific study for chlorine demand.

Jinsu

Jinsu Kim | Permits Section
Department of Environmental Protection | Clean Water Program
Southcentral Regional Office
909 Elmerton Avenue | Harrisburg, Pa 17110-8200
Phone: 717.705.4825 | Fax: 717.705.4760
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From: Warfel, Matthew <Matthew.Warfel@arroconsulting.com>
Sent: Tuesday, January 25, 2022 6:04 PM
To: Kim, Jin Su <jikim@pa.gov>
Cc: Andy Shaffer <manager@newfreedomboro.org>; John Smith <wwtpd@newfreedomboro.org>; Schober, Michael <michael.schober@arroconsulting.com>
Subject: [External] RE: New Freedom Borough Authority - New Freedom Borough STP Draft NPDES Permit Package (PA0043257)
Importance: High

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Jinsu – Attached please find ARRO and the Authority's comments on the draft permit. A paper copy will be mailed to your attention tomorrow.

We appreciate your consideration of our comments and look forward to your response. Please feel free to contact me with any comments or questions.

Thanks again –

Modifications to the Original Fact Sheet (see shaded part)

NPDES Permit Fact Sheet
New Freedom Borough WWTP

NPDES Permit No. PA0043257

Treatment Facility Summary				
Treatment Facility Name: New Freedom STP				
WQM Permit No.		Issuance Date		
6791408		Last issued on 10/28/2019		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Sodium Hypochlorite	2.25
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
7.2	3850	Not Overloaded	Aerobic Digestion	Combination of methods

NFBA owns and operates a sanitary wastewater treatment facility located at 12 North Main Street Railroad PA 17355. The facility is designed for an annual average design flow of 2.25 MGD and hydraulic design capacity of 7.2 MGD with an organic design capacity of 3,850 lbs/day. The facility serves the areas of New Freedom Borough (47.22%), Shrewsbury Borough (51.95%) and Railroad Borough (0.83%). All sewers are 100% separated. The facility utilizes a Sequencing Batch Reactor (SBR) activated sludge treatment process consisting of screening, SBRs (3), Chlorination, and outfall to South Branch Codorus Creek.

Sludges are treated onsite via aerobic diesters (3), gravity thickener and **volute press (2)** prior to being hauled off site for either landfill disposal (Modern Landfill) or land application under PAG083573.

Ferric Chloride is added for phosphorous removal and Sodium Hypochlorite is used for disinfection. The application reported six (6) commercial and industrial users connected to the sewer system. These users are shown below:

Name	Description	Flow (GPD)	Significant Industrial User?	Categorical Industry?
Johnson Controls, Inc	Industrial air conditioning chiller	4,080	No	No
Crescent Industries, Inc	Plastic injection molding	1,227	No	No
J.J. Hartenstein Mortuary, Inc.	Funeral Home and Residence	120	No	No
Seiling and Jones, Inc.	Architectural plywood and laminate of veneer	764	No	No
Truck Specialties Inc	Truck repair shop	48	No	No
Shrewsbury Wash and Stor. Inc.	Car wash and mini storage	3,096	No	No

NFBA is currently not implementing an approved pretreatment program administered by US EPA.

NFBA currently utilizes another outfall (39° 45' 47", -76° 42' 0") discharges stormwater drained from the site (79,337 sq.ft.).

NPDES Permit Fact Sheet
New Freedom Borough WWTP

NPDES Permit No. PA0043257

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 Design Flow (MGD) 2.25
 Latitude 39° 45' 50" Longitude 76° 42' 13"
 Wastewater Description: Sewage

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
CBOD ₅	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

CBOD₅, NH₃-N and Dissolved Oxygen (DO)

WQM 7.0 is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD₅, NH₃-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. DEP recently updated this model (ver. 1.1) to include the new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. A multiple discharge analysis is needed as there is another POTW discharge (Glen Rock STP PA0020818) located approximately 3 miles downstream from this discharge. The stream designation at Glen Rock STP discharge is however cold-water fishes; therefore, the model will be utilized to reflect this change in stream designation within the South Branch Codorus Creek watershed. The model output indicates that all existing effluent limits for these pollutants are still appropriate. No changes are therefore recommended.

Total Residual Chlorine (TRC)

Since chlorine gas is used for disinfection, since chlorine is used, TRC effluent levels must be regulated under 25 Pa Code §92a.48(b)(2). DEP's TRC_CALC worksheet has been utilized to develop appropriate permit requirements for TRC. A site-specific study was conducted in 1998 by NFBA. During the study, stream chlorine demand of 0.32 mg/L and discharge chlorine demand of 0.41 mg/L were obtained. DEP's SOP no. BCW-PMT-033 indicates that if site-specific TRC study data is more than 20 years old, the data is still to be used to develop limits for the renewal but the permit will also include a condition in Part C for the permittee to collect a new site-specific study and provide the results with the subsequent permit renewal application. The worksheet indicate that existing effluent limits are still protective of water quality. No changes are therefore recommended.

Toxic Pollutants

DEP utilizes a Toxics Management Spreadsheet to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The worksheet combines the functionality of DEP's Toxics Screening Analysis worksheet and PENTOXSD. The worksheet output shows the existing WQBELs for Total Copper are still protective of water quality; therefore, no changes are recommended. The worksheet also recommends a routine monitoring requirement for Total Arsenic, Total Iron, Dissolved Iron, and Total Zinc. It is therefore recommended that the monitoring requirements for these pollutants be included in the draft permit.