pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0217514**
Facility Type	**Non-Municipal**	APS ID	**919900**
Major / Minor	**Minor**	Authorization ID	**1359397**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Honeywell Electronic Materials Inc.**	Facility Name	**Honeywell Electric Materials (Fombell)**
Applicant Address	195 Hartzell School Road	Facility Address	195 Hartzell School Road
	Fombell, PA 16123-1207		Fombell, PA 16123-1207
Applicant Contact	Amanda Brown	Facility Contact	Amanda Brown
Applicant Phone	(724) 452-2976	Facility Phone	(724) 452-2976
Client ID	238716	Site ID	241780
Ch 94 Load Status		Municipality	Marion Township
Connection Status		County	Beaver
Date Application Received	June 16, 2021	EPA Waived?	Yes
Date Application Accepted	August 25, 2021	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Civil & Environmental Consultants, Inc. (consultant) on behalf of Honeywell Electronic Materials Inc. (permittee) on June 16, 2021 for permittee's Honeywell Electric Material (Fombell) (facility). The facility a minor STP with an average annual design flow of 0.015 MGD. The treated effluent is discharged through Outfall 001 Connoquenessing Creek (WWF) at RMI 15.31 in state watershed 20-G. The existing permit will expire on December 31, 2021. The terms and conditions of the existing permit was automatically extended since the renewal application was received at least 180 days prior to expiration date. Renewal NPDES permit applications under Clean Water program are not covered by PADEP's PDG per 021-2100-001.

This fact sheet is developed in accordance with 40 CFR §124.56.

Changes in this renewal: E.Coli yearly monitoring, minimum DO changed to 5.0 mg/l. Requirements related to stormwater monitoring are removed.

Sludge use and disposal description and location(s): Liquid sludge is hauled off to Beaver Falls WWTP for further processing.

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.

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	August 25, 2021
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	09/01/2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.015
Latitude	40º 48' 8"	Longitude	-80º 11' 52"
Quad Name	Zelienople	Quad Code	1204
Wastewater Description:	Sewage Effluent		
Receiving Waters	Connoquenessing Creek	Stream Code	34025
NHD Com ID	99678246	RMI	15.31
Drainage Area	333 mi^2	Yield (cfs/mi^2)	0.032
Q_{7-10} Flow (cfs)	**2.205**	Q_{7-10} Basis	Please see below
Elevation (ft)	872	Slope (ft/ft)	
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use	**None**	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	N/A
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Background/Ambient Data		Data Source	
pH (SU)	8.0	WQN0907, median Jul-Sep, 1999-2018	
Temperature (°C)	22.14	WQN0907, median Jul-Sep, 1999-2019	
Nearest Downstream Public Water Supply Intake		Beaver Falls Municipal Authority	
PWS Waters	Beaver River	Flow at Intake (cfs)	
PWS RMI	3.05	Distance from Outfall (mi)	24.68

Changes Since Last Permit Issuance: None

Other Comments:
USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on August 26, 2021) was utilized to determine the drainage area and low flow statistics of the receiving stream at discharge point. The drainage area was found to be 333 mi^2. The corresponding Q_{7-10} and Q_{30-10} values are 10.6 cfs and 14.6 cfs, respectively.

Q_{7-10} runoff rate = 10.6 cfs/333 mi^2 = 0.032 cfs/mi^2
Q_{30-10}/Q_{7-10} = 14.6 cfs/10.6 cfs = 1.38

Default Q_{1-10}/Q_{7-10} value of 0.64 from 391-2000-007 will be used for modeling, if needed.

DEP's SOP (BCW-PMT-033, revised Oct 1, 2020) section II.B.4 states that where a facility is eligible for technology based limits of $CBOD_5$ exceeding 25 mg/l, application managers will evaluate a WQBEL for $CBOD_5$ as follows:

a. *Model the discharge using Toxics Management Spreadsheet (TMS)*
b. *Multiply the acute partial mix factor by the Q_{7-10} of the receiving waters*
c. *Run the WQM 7.0 model using the adjusted Q_{7-10} and apply the WQBEL in the permit, if less than the technology-based limits*
d. *Establish the average monthly concentration limit for TSS at the same concentration as for $CBOD_5$ using BPJ, if the $CBOD_5$ limit is a WQBEL*

The attached TMS model suggested a PMFa of 20.8%. A partial mixing factor, according to DEP's technical guidance (391-2000-011), is used to describe the factional portion of the stream that mixes with the discharge at the criteria

compliance times. The partial mix factor is a value between 0 and 1; 1 presenting complete mixing and less than 1 represents there is incomplete mixing between the discharge and the stream. Therefore, the revised Q_{7-10} will be **10.6 * 0.208 or 2.205 cfs**.

PWS Intake:
The nearest downstream public water supply is Beaver Falls Municipal Authority on Beaver River at RMI 3.05. Its approximately 24.68 miles downstream of Outfall 001. The distance is calculated as follows:

RMI at Outfall 001 on Connoquenessing Creek (34025) ---------- +15.31 mile
RMI at Beaver River at confluence with 34025 ---------- + 12.42 mile
RMI at PWS ---------- - 3.05 mile

Total = 24.68 mile

Wastewater Characteristics:
A median pH of 7.6 from daily DMR during dry months July through September for the year 2020-2021 and a default temperature of 20^{0}C (per 391-2000-013) will be used for modeling, if needed.

Background data:
The data collected from nearest WQN Station #907 showed a median pH of 8.0 (July-September, 1999-2018) and temperature of 22.14 °C (July-September, 1999-2019).

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Warm Water Fishes (WWF). No High-Quality stream or Exceptional Value water is impacted by this discharge; therefore, no Antidegradation Analysis is performed for the discharge.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	011	Design Flow (MGD)	0
Latitude	40º 48' 8.47"	Longitude	-80º 11' 51.35"
Quad Name	Zelienople	Quad Code	1204
Wastewater Description:	Stormwater		

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	012	Design Flow (MGD)	0
Latitude	40º 48' 8.47"	Longitude	-80º 11' 51.35"
Quad Name	Zelienople	Quad Code	1204
Wastewater Description:	Stormwater		

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	013	Design Flow (MGD)	0
Latitude	40º 48' 0.19"	Longitude	-80º 11' 53.00"
Quad Name	Zelienople	Quad Code	1204
Wastewater Description:	Stormwater		

Changes Since Last Permit Issuance: None

Other Comments: The above Outfalls 011, 012, and 013 are stormwater only outfalls. Non POTW minor sewage facilities are not subjected to any stormwater requirements, therefore, existing Part C condition related to requirements for stormwater outfalls will be removed.

Treatment Facility Summary				
Treatment Facility Name: Honeywell Sewer Treatment Plant				
WQM Permit No.	**Issuance Date**			
0497401	5/6/1997			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Chlorine Tablets	0.015
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
			Hauled off	Other WWTP

Changes Since Last Permit Issuance: None

Treatment Plant Description

Honeywell Electric Materials Fombell facility is a minor sewage treatment facility with a design flow of 0.015 MGD. It is in Marion township, Beaver County. The treatment plant is an extended aeration facility with chlorine disinfection. The treated effluent is discharged through Outfall 001 into Connoquenessing Creek at RMI 15.31. The wastewater is generated from an office building and manufacturing site housing an annual average of 85 employees.

PADEP's most recent inspection to the facility on August 9, 2021 indicated the facility is composed of the following treatment units: one influent pump station, one EQ tank, two aeration basins, one clarifier, one chlorine contact tank, and one sludge holding tank/lagoon.

The following wastewater treatment chemicals are used at the facility:

Wastewater treatment chemicals	Purpose	Maximum use rate	Unit
Delta Floc	Phosphorus removal	15	Gallons/year
Sodium Bicarbonate	pH/alkalinity control	50	Lbs./month
Chlorine tablets	Disinfection	0.25	Tablets/day

The sludge is hauled off to Beaver Falls WWTP for further treatment/disposal.

Summary of inspection:
08/09/2021: CEI conducted. Effluent exceedances reported in eDMR which constituted a violation. Several recommendations were made including completion and submission of influent and process control form, O&M plan preparation and implementation, and installation of screening at the EQ tank for floatable solids. An NOV was issued afterwards.

Compliance History

DMR Data for Outfall 001 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Average Monthly	0.00084	0.000740	0.00088	0.000910	0.00118	0.000731	0.00124	0.0013	0.000976	0.000861	0.000670	0.000638
pH (S.U.) Minimum	7.2	7.6	7.6	7.2	7.4	7.3	7.6	7.1	7.1	7.5	7.6	6.8
pH (S.U.) Maximum	7.8	8.0	7.9	8.0	8.0	7.9	7.9	7.8	7.8	7.8	7.9	7.7
DO (mg/L) Minimum	4.0	5.2	5.0	7.0	8.0	6.0	7.0	6.9	5.0	4.0	5.0	4.0
TRC (mg/L) Average Monthly	0.29	0.295	0.27	0.33	0.34	0.31	0.40	0.40	0.28	0.48	0.15	0.22
TRC (mg/L) IMAX	0.71	1.44	1.01	0.74	1.01	0.74	1.51	1.13	1.18	2.2	0.63	0.87
CBOD5 (mg/L) Average Monthly	3.9	4.2	4.65	4.5	7.8	5.25	3.55	3.15	3.0	3.0	3.8	3.0
CBOD5 (mg/L) IMAX	3.9	5.4	6.3	5.6	8.8	5.7	4.1	3.3	3.0	3.0	4.6	3.0
TSS (mg/L) Average Monthly	12.5	9.5	10.5	10.0	8.0	3.5	7.0	10.5	14.0	9.5	8.0	3.0
TSS (mg/L) IMAX	17.0	15.0	18.0	14.0	9.0	4.0	10.0	14.0	21.0	10.0	9.0	3.0
Fecal Coliform (No./100 ml) Geometric Mean	1	1	1.41	< 1	1	< 1	1	1	1.4	< 1	1.4	1.0
Fecal Coliform (No./100 ml) IMAX	1	1	2	< 1	1	< 1	1	1	2.0	< 1	2.0	1.0
Total Nitrogen (mg/L) Daily Maximum							37.4					
Total Phosphorus (mg/L) Average Monthly	0.285	0.435	0.45	0.41	0.36	0.3	0.24	0.35	0.48	0.375	0.49	0.10
Total Phosphorus (mg/L) IMAX	0.32	0.44	0.45	0.48	0.39	0.31	0.37	0.35	0.57	0.48	0.55	0.10

Compliance History

Effluent Violations for Outfall 001, from: August 1, 2020 to: June 30, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	09/30/20	IMAX	2.2	mg/L	1.6	mg/L

Other Comments: The submitted Non-compliance report form stated that the IMAX TRC exceedance was as a result of low flow and newly installed chlorine feed system. The issue was promptly resolved.

Existing Effluent Limitations and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements specified in the existing final NPDES (amended) permit that was in effect between January 1, 2017 to December 31, 2021.

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	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.015	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Min	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	0.5	XXX	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	25.0	XXX	XXX	50.0	2/month	Grab
Total Suspended Solids	XXX	XXX	30.0	XXX	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	2.0	XXX	XXX	4.0	2/month	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .015
Latitude 40º 48' 8.00" **Longitude** -80º 11' 52.00"
Wastewater Description: Sewage Effluent

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)

Comments: These standards apply, subject to Water Quality Analysis and BPJ where applicable.

Water Quality-Based Limitations

PADEP's SOP No. BCW-PMT-033 states that for minor individual sewage renewal applications or any renewal of a discharge with a very large dilution ratio, the application manager may review the results of previous modeling efforts and determine that existing CBOD5 and NH3-N limitations are technically adequate and appropriate. The previous fact sheet didn't utilize the WQM modeling, rather relied on the modeling results from 1996. That modeling effort is old and the permit writer for this renewal believes that it should be re-evaluated with updated site-specific data. Therefore, WQM 7.0, TRC, and if needed TMS will be utilized.

WQM 7.0:

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The following data were used in the attached computer model of the stream:

- Discharge pH 7.6 (median Jul-Sep, 2020-2021, eDMR data)
- Discharge Temperature 20°C (Default per 391-2000-007)
- Discharge Hardness 100 mg/l (Default)
- Stream pH 8.0 (WQN#0907, median Jul-Sep, 1999-2018)
- Stream Temperature 22.14°C (WQN#0907, median Jul-Sep, 1999-2019)
- Stream Hardness 100 mg/l (Default)

The following nodes were considered in modeling:

Node 1: Honeywell Electric Materials (PA0217514) Outfall 001 at Connoquenessing Creek (34025)
Elevation: 872 ft (USGS National Map viewer, 08/26/2021)
Drainage Area: 333 mi^2 (StreamStat Version 3.0, 08/26/2021)
River Mile Index: 15.31 (PA DEP eMapPA)

	Low Flow Yield:	0.032 cfs/mi^2
	Discharge Flow:	0.015 MGD
Node 2:	At confluence with Camp Run	
	Elevation:	870.99 ft (USGS National Map viewer, 08/26/2021)
	Drainage Area:	348 mi^2 (StreamStat Version 3.0, 08/26/2021)
	River Mile Index:	14.85 (PA DEP eMapPA)
	Low Flow Yield:	0.032 cfs/mi^2
	Discharge Flow:	0.0 MGD

NH_3-N:
WQM 7.0 suggested NH_3-N limit of 25 mg/l as monthly average and 50 mg/l as IMAX limit during summer to protect water quality standards. PADEP's SOP BCW-PMT-033 states that for existing dischargers, if WQM modeling results for summer indicates that an average monthly limit of 25 mg/l is acceptable, the application manager will generally establish a year round monitoring requirement for ammonia-nitrogen, at a minimum. However, the application data indicated an average discharge concentration of 4.62 mg/l, which is much lower than 25 mg/l. Therefore, monitoring is not necessary.

$CBOD_5$:
The WQM 7.0 model confirms secondary treatment is sufficient to protect the existing instream criteria. Therefore, existing limits will be carried over in this renewal.

Dissolved Oxygen (DO):
The existing permit has a minimum DO of 4.0 mg/l. Per Pa Code 25 Ch.93.7, a minimum DO of 5.0 is required for WWF. This is also supported by WQM 7.0 output. Therefore, the minimum DO will be changed to 5.0 mg/l.

Toxics:
Minor sewage facilities with design flow less than 0.1 MGD are not required to submit any toxic data if there are no industrial or commercial contributors. The permit application confirmed that there are no commercial or industrial contributors to their WWTP, and all flows are strictly sewage in nature. Therefore, toxics are not a concern for this facility.

Additional Considerations

Fecal Coliform:
The recent coliform guidance in 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. These are existing limits which will be carried over in this renewal.

E. Coli:
DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends annual E. Coli monitoring for all sewage dischargers with a design flow between 0.002 MGD and 0.05 MGD. This requirement will be applied from this permit term.

pH:
The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 § 95.2(1)) which are existing limits and will be carried over.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly and 60 mg/L instantaneous maximum are attainable limits for secondary treatment facilities which will remain in the permit.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns at the discharge point for Outfall 001. The Instantaneous Maximum (IMAX) limit is 1.6 mg/l. These are the existing limits that will be carried over in this renewal.

Flow Monitoring:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Best Professional Judgement (BPJ):

Total Phosphorus:
Current permit has average monthly and IMAX limit of 2.0 mg/l and 4.0 mg/l respectively. These limits will be carried over in this renewal. A review of the most recent 12 month's eDMR data indicated the facility is discharging at an approximate average monthly rate of 0.3 mg/l.

Total Nitrogen:
PADEP's SOP BCW-PMT-033 suggests monitoring requirement, at a minimum, for facilities with design flow greater than 2,000 GPD. This is an existing requirement which will be carried over in this renewal.

Monitoring Frequency and Sample Types:
Otherwise specified above, the monitoring frequency and sample type of compliance monitoring for existing parameters are recommended by DEP's SOP and Permit Writers Manual and/or on a case-by-case basis using best professional judgment (BPJ).

Anti-Backsliding

The proposed limits are at least as stringent as are in existing permit, unless otherwise stated; therefore, anti-backsliding is not applicable.

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.

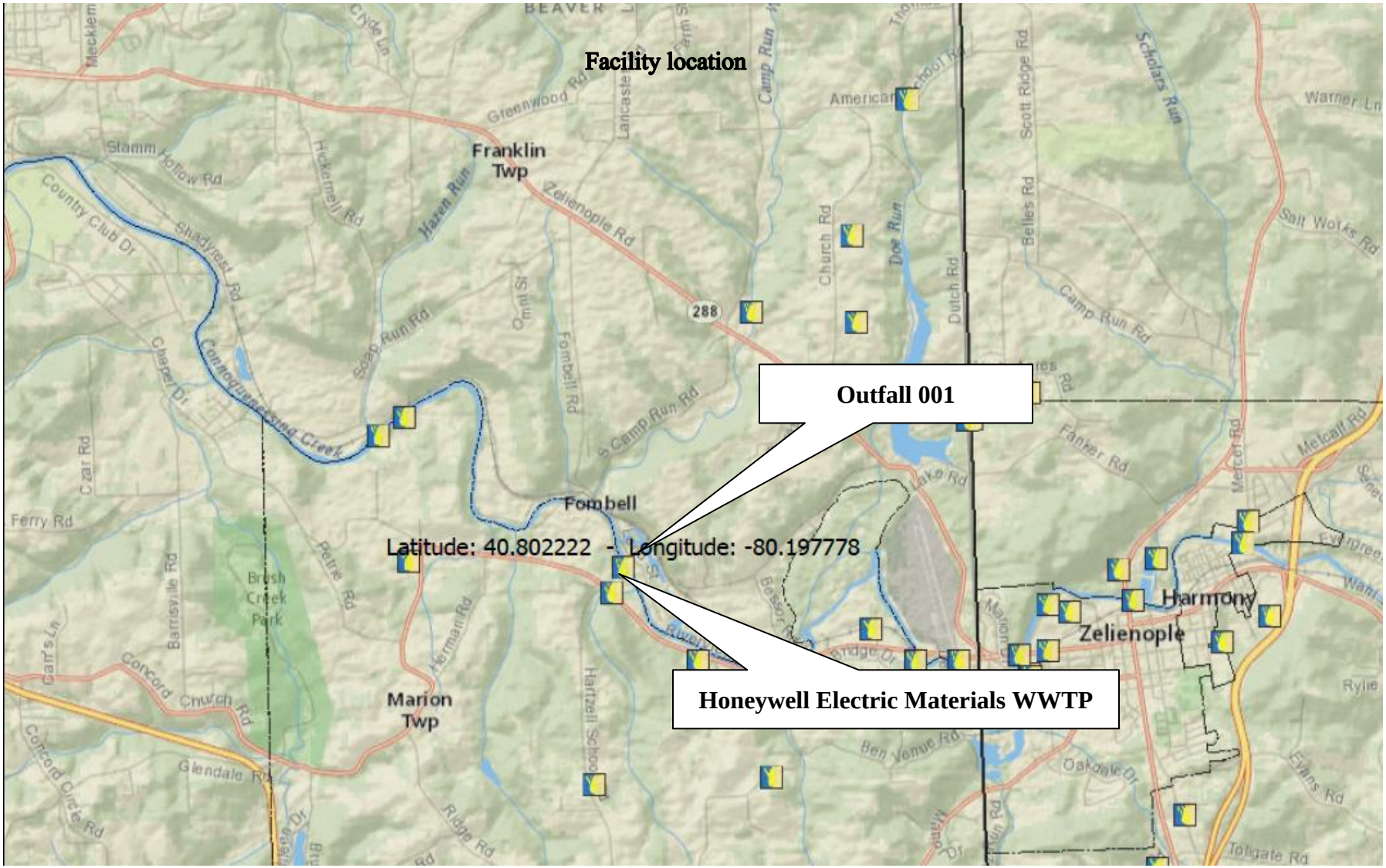
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

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	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.015	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	0.5	XXX	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	25.0	XXX	XXX	50.0	2/month	Grab
TSS	XXX	XXX	30.0	XXX	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	2.0	XXX	XXX	4.0	2/month	Grab

Compliance Sampling Location: At Outfall 001

Other Comments: None

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	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: BCW-PMT-033
☐	Other:



Honeywell Electric Materials WWTP NPDES Permit #: PA0217514 Marion Township, Beaver County		pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION	Reza H Chowdhury Project Manager August 31, 2021

StreamStats Delineation Report

PA0217514 at 001

Region ID: PA
Workspace ID: PA20210827021951757000
Clicked Point (Latitude, Longitude): 40.80223, -80.19753
Time: 2021-08-26 22:20:12 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	333	square miles
ELEV	Mean Basin Elevation	1192	feet

Low-Flow Statistics Parameters [100.0 Percent (333 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	333	square miles	2.26	1400
ELEV	Mean Basin Elevation	1192	feet	1050	2580

Low-Flow Statistics Flow Report [100.0 Percent (333 square miles) Low Flow Region 4]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	20.9	ft^3/s	43	43
30 Day 2 Year Low Flow	30.7	ft^3/s	38	38
7 Day 10 Year Low Flow	10.6	ft^3/s	66	66
30 Day 10 Year Low Flow	14.6	ft^3/s	54	54
90 Day 10 Year Low Flow	22.5	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

StreamStats at node 2

Region ID: PA
Workspace ID: PA20210827022359320000
Clicked Point (Latitude, Longitude): 40.80800, -80.20174
Time: 2021-08-26 22:24:18 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	348	square miles
ELEV	Mean Basin Elevation	1192	feet

Low-Flow Statistics Parameters [100.0 Percent (348 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	348	square miles	2.26	1400
ELEV	Mean Basin Elevation	1192	feet	1050	2580

Low-Flow Statistics Flow Report [100.0 Percent (348 square miles) Low Flow Region 4]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	22	ft^3/s	43	43
30 Day 2 Year Low Flow	32.2	ft^3/s	38	38
7 Day 10 Year Low Flow	11.2	ft^3/s	66	66
30 Day 10 Year Low Flow	15.4	ft^3/s	54	54
90 Day 10 Year Low Flow	23.6	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

WQM Modeling

Input Data WQM 7.0

	SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
	20C	34025	CONNOQUENESSING CREEK	15.310	872.00	333.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.032	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.14	8.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Honeywell Elect	PA0217514	0.0150	0.0150	0.0150	0.000	20.00	7.60

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20C	34025	CONNOQUENESSING CREEK	14.850	870.99	348.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.032	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.14	8.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20C	34025	CONNOQUENESSING CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
15.310	10.66	0.00	10.66	.0232	0.00042	.898	66.32	73.88	0.18	0.157	22.14	8.00
Q1-10 Flow												
15.310	6.82	0.00	6.82	.0232	0.00042	NA	NA	NA	0.14	0.201	22.13	8.00
Q30-10 Flow												
15.310	14.71	0.00	14.71	.0232	0.00042	NA	NA	NA	0.21	0.131	22.14	8.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.38	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20C	34025	CONNOQUENESSING CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
15.310	Honeywell Elect	2.27	50	2.27	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
15.310	Honeywell Elect	.57	25	.57	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
15.31	Honeywell Elect	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20C	34025	CONNOQUENESSING CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
15.310	0.015	22.135	7.999
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
66.315	0.898	73.876	0.179
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.05	0.035	0.05	0.825
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.236	0.536	Tsivoglou	5
Reach Travel Time (days)			
0.157			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.016	2.05	0.05	7.93
0.031	2.05	0.05	7.93
0.047	2.05	0.05	7.93
0.063	2.05	0.05	7.93
0.078	2.04	0.05	7.93
0.094	2.04	0.05	7.93
0.110	2.04	0.05	7.93
0.125	2.04	0.05	7.93
0.141	2.04	0.05	7.93
0.157	2.04	0.05	7.93

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20C	34025	CONNOQUENESSING CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
15.310	Honeywell Elect	PA0217514	0.015	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

10.6	= Q stream (cfs)	0.5	= CV Daily
0.015	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	145.738	1.3.2.iii	WLA cfc =	142.075
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	54.305	5.1d	LTA_cfc =	82.596

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)