



# Department of the Environment

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## Tracking “Performance Credit” for Point Source

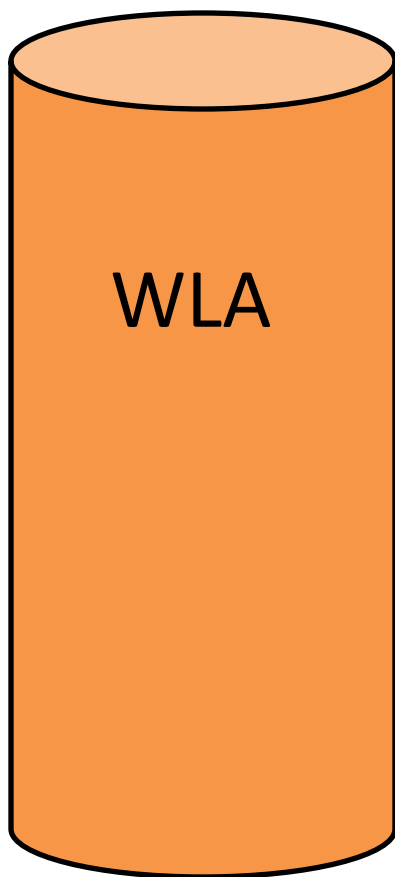
**October 5, 2016**

Maryland Water Quality Trading Committee Meeting



**Maryland**  
Department of  
the Environment

# Waste Load Allocation



Annual Maximum Nutrient Loads  
Assigned from TMDL to a WWTP



**Maryland**  
Department of  
the Environment

# Permit Requirement – WLA

Permit No. 14-DP-0106 (NPDES MD0020958)

Page No. 6 of 35

## II. SPECIAL CONDITIONS

### A. Effluent Limitations, Outfall 001A <sup>(1) (2) (3) (4)</sup>

The quality of the effluent discharged by the facility at a discharge point location-001A shall be limited at all times as shown below:

Effluent Characteristics	Maximum Effluent Limits					
	Monthly Average Loading Rate, Pounds/day	Weekly Average Loading Rate, Pounds/day	Daily Average Loading Rate, Pounds/day	Monthly Average Concentration, mg/l	Weekly Average Concentration, mg/l	Daily Average Concentration, mg/l
BOD <sub>5</sub>	350	530	N/A	30	45	N/A
TSS	350	530	N/A	30	45	N/A

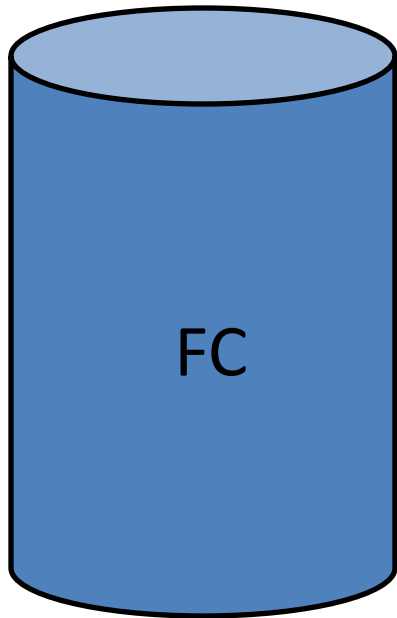
Effluent Characteristics	Maximum Effluent Limits		
	Total Monthly Loading Rate, Pounds/Month	Annual Maximum Loading Rate, Pounds/Year	Monthly Average Concentration, mg/l
TSS	REPORT	127,914	--
Total Phosphorus-P <sup>(5)(6) (7)</sup>	REPORT	1,279	REPORT
Total Nitrogen-N <sup>(2)(8) (1)</sup>	REPORT	17,055	REPORT

Effluent Characteristics	Effluent Limits	
	Maximum	Minimum
E. Coli	126 MPN/ 100 ml monthly geometric mean value	N/A
Total Residual Chlorine <sup>(8)</sup>	Nondetectable level (See footnote- 8)	N/A
pH	8.5	6.5
Dissolved Oxygen	N/A	5.0 mg/l at anytime

An annual average flow of 1.4 million gallons per day (mgd) was used in waste allocation calculations (expressed as waste loading rate limit), and this unit shall be used when reporting on the Discharge Monitoring Report (DMR), (EPA Form 3320-1, Rev. 01/06). Notification is to be provided to the Department at least 180 days before the annual average flow is expected to exceed this flow level. If a permit modification is required, the Department will initiate the public participation NPDES process.

# Floating Cap



**(Annual Total Flow) × (ENR Performance Criteria\*)**

A discharge requirement to ensure the facility is continuous operating at ENR level

\* 4 mg/L for Total Nitrogen & 0.3 mg/L for Total Phosphorus

# Permit Requirement – Floating Cap

Permit No. 14-DP-0106 (NPDES MD0020958)

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## II. SPECIAL CONDITIONS

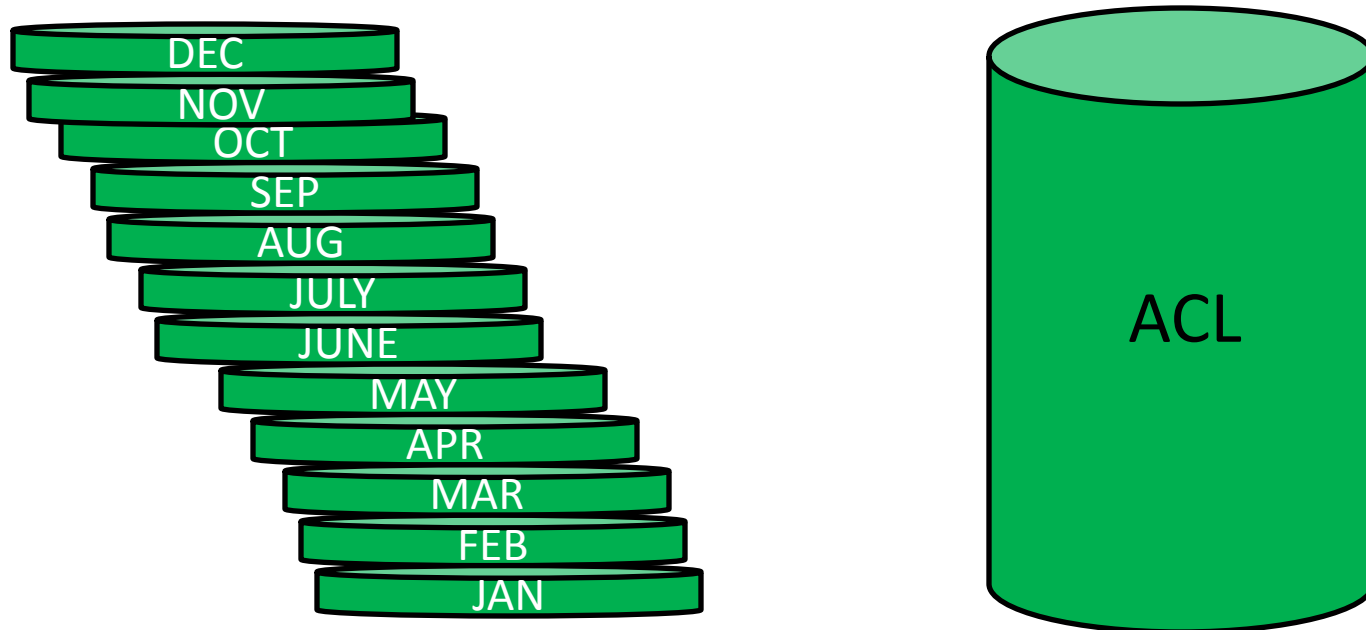
### A. Effluent Limitations, Outfall 001A, Continued:

#### *Footnotes for effluent limitations:*

- (1) When this permit is renewed, the new limitations may not be equal to the above limitations.
- (2) There shall be no discharge of floating solids or visible foam other than trace amounts.
- (3) The permit may also be reopened in accordance with the requirements of MDE's Watershed Permitting Plan under which all discharge permits in a watershed are issued the same year.
- (4) The Potomac River Frederick County is on the 303(d) list as the impaired waters for mercury and PCBs in fish tissue. There are no approved TMDLs to address these impairments. This permit is in conformance with the "Chesapeake Bay TMDL for Nitrogen, Phosphorus and Sediment" established on December 29, 2010.  
When TMDLs for other remaining parameters are completed, limits may be imposed, after the public participation process, to incorporate any TMDL requirements.
- (5) **The permittee shall operate the ENR facility in a manner that optimizes the nutrient removal capability of the facility as stipulated in the Grant Agreement for ENR upgrade.**  
**The first exceedance of the permit limit shall be counted and reported as daily exceedances beginning from the first exceedance, determined to the nearest day, through December 31. In addition, after any such exceedance, the permittee shall demonstrate to the Department's satisfaction that the facility is optimizing its nutrient removal capability, and neither the arrival of the next calendar year nor the issuance of a permit renewal during a period of noncompliance shall obviate continuance of any noncompliance status related to treatment optimization requirements.**
- (6) **At the end of each calendar year, the permittee shall comply with the concentration-based limitations for the Annual Maximum Loading Rate defined below or the Tributary Strategy-based loading rate limitation listed in above in the effluent limitations table, whichever is lower:**
  - (a) **TN Limitation (lbs/year): 4.0 mg/l x annual total flow (calendar year based in million gallons per year) x 8.34. To the extent that the permittee alleges that temperature levels of 12 degrees C or lower have diminished the treatment system's capability of complying with this concentration-based loading rate limitation for Total Nitrogen, the permittee shall provide notification beginning with the calendar year report under the "Upset" provision in Section III.B.6 of this permit. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.**
  - (b) **TP Limitation (lbs/year): 0.30 mg/l x annual total flow (calendar year based in million gallons per year) x 8.34.****The details and results of all required annual calculations shall be submitted to the Department with the Discharge Monitoring Report for December. See Special Condition II.J for further details.**  
**The concentration-based loading requirements may be revised if the limits or schedule are determined to be impracticable based on actual performance and the Department re-opens the permit as a major modification (which requires public participation) to impose (an) alternate effluent limitation(s) or revised schedule.**
- (7) The permittee may request that the permit be reopened and modified to include nutrient trading consistent with the most current "Maryland Policy for Nutrient Cap Management and Trading in Maryland's Chesapeake Bay Watershed" in effect at that time.
- (8) Total residual chlorine limitation of *the nondetectable level* shall be applicable, when chlorine or any chlorine-containing compound is used in any treatment process(es), including but not limited to disinfection, that could become a potential constituent of the effluent discharged from the Brunswick WWTP. The wastewater shall be dechlorinated to reduce effluent total residual chlorine concentration to the nondetectable level (See definition I.M).

# Annual Cumulative Loads (ACL)

Cumulative Monthly Loads Reported by the Facility Over Calendar Year



# Permit Requirement – Nutrient Monitoring

Permit No. 14-DP-0106 (NPDES MD0020958)

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## II. SPECIAL CONDITIONS

### B(1). Minimum Monitoring Requirements:

The effluent characteristics listed below in Table B(1) shall be monitored at the sampling point (Definition I.R). If the sampling point is other than the outfall 001A, the permittee shall ensure that the effluent samples are representative of the effluent quality being discharged at the outfall 001A.

<u>Effluent Characteristics</u>	<u>Monitoring Period</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
BOD <sub>5</sub> <sup>(9)(18)</sup>	All Year	Two per week	24-hour composite
Total Suspended Solids <sup>(9)(18)</sup>	All Year	Two per week	24-hour composite
Total Ammonia Nitrogen as N <sup>(9)(10)(11)(18)</sup>	All Year	Two per week	24-hour composite
Total Phosphorus as P <sup>(9)(11)(12)(18)</sup>	All Year	Two per week	24-hour composite
Total Nitrogen as N <sup>(9)(11)(12)(18)</sup>	All Year	Two per week	Calculated
(Nitrite + Nitrate) as N <sup>(9)(10)(11)(18)</sup>	All Year	Two per week	24-hour composite
Organic Nitrogen as N <sup>(9)(10)(11)(18)</sup>	All Year	Two per week	24-hour composite
Orthophosphate as P <sup>(9)(10)(18)</sup>	All Year	Two per week	24-hour composite
E. Coli <sup>(9)(18)</sup>	All Year	One per week	Grab
Total Residual Chlorine <sup>(9)(13)(14)</sup>	All Year	Two per day	Grab
Dissolved Oxygen <sup>(9)(14)</sup>	All Year	Two per day	Grab
pH <sup>(9)(14)</sup>	All Year	Two per day	Grab
Flow <sup>(9)(15)(16)</sup>	All Year	Continuous	Recorded <sup>(16)</sup>
Total Monthly Flow <sup>(9)(17)</sup>	All Year	Monthly	Calculated <sup>(17)</sup>

# Permit Requirement – Reporting Annual Total Load & Annual Total Flow

Permit No. 14-DP-0106 (NPDES MD0020958)

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## II. SPECIAL CONDITIONS

### H. Protection of Water Quality

It is a violation of this permit to discharge any substance not otherwise listed under the permit's "Effluent Limitations and Monitoring Requirements" special conditions at a level which would cause or contribute to any exceedance of the numerical water quality standards in COMAR 26.08.02.03 unless the level and the substance were disclosed in writing in the permit application prior to the issuance of the permit. If a discharge regulated by this permit causes or contributes to an exceedance of the water quality standards in COMAR 26.08.02.03, including but not limited to the general water quality standards, or if the discharge includes a pollutant that was not disclosed or addressed in the public record for the permit determination, the Department is authorized to modify, suspend or revoke this permit or take enforcement action to address unlawful discharges of pollutants.

### I. Reapplication for a Permit

No later than 12 months before the expiration date of this permit, unless permission for a later date has been granted by the Department, the permittee shall submit a new application for a permit or notify the Department of the intent to cease discharging by the expiration date. In the event that a timely and complete reapplication has been submitted and the Department is unable, through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit continue and remain fully effective and enforceable. The renewal application is required by that date in accordance with the requirements of MDE's Watershed Permitting Plan under which all discharge permits in a watershed should be issued in the same year.

### J. Reporting Nutrient Total Annual Loads to Comply with Concentration-based Annual Loading Rate Limits

The Permittee shall report the concentration-based (also known as Floating Cap) annual loading requirements for TN and TP on the December DMR designated "001-Z". The Department will generate the pre-printed DMR forms that will include a separate DMR form for the month of December with this designation. For each calendar year, the permittee shall calculate the annual concentration-based loads for TN and TP as per the footnote-6 of the Special Condition II.A. and report these loadings along with the total annual cumulative flow on the December month DMR forms in accordance with the General Condition III.A.2.a of this discharge permit. If the Brunswick WWTP discharges effluent at more than a single outfall, the total annual loads for TN, TP and total annual discharge flow shall be reported as a sum of the individual results from each outfall.



# MDE Worksheet\*: Annual Load, Annual Flow & Floating Cap Calculation

## Calculation Form for TN, TP and TSS Annual Loads

Calculation TABLE for Reporting Annual Waste Load for Total Nitrogen, Total Phosphorus and Total Suspended Solids											
Facility Name: Brunswick Wastewater Treatment Plant				State Permit Number: 14-DP-0106				NPDES Number: MD0020958			
YEAR Reporting:		2015									
Months	Total Monthly Effluent Flow (Million Gallons (MG))	Total Nitrogen (TN) as N			Total Phosphorus (TP) as P			Total Suspended Solids (TSS)			
		Monthly TN Average Concentration (mg/L)	Monthly TN Loading Rate <sup>(1)</sup> (Pounds/month)	Year-to-date Cumulative TN Loading <sup>(2)</sup> (Pounds)	Monthly TP Average Concentration (mg/L)	Monthly TP Loading Rate <sup>(1)</sup> (Pounds/month)	Year-to-date Cumulative TP Loading <sup>(2)</sup> (Pounds)	Monthly TSS Average Concentration (mg/L)	Monthly TSS Loading Rate <sup>(1)</sup> (Pounds/month)	Year-to-date Cumulative TSS Loading <sup>(2)</sup> (Pounds)	
January	16.967	2.5	314	314	0.23	31	31	0.2	27	27	
February	11.628	2.13	207	521	0.10	10	41	5.6	640	667	
March	21.489	2.1	375	897	0.20	36	77	0.7	125	793	
April	14.126	1.88	231	1128	0.30	35	112	0.2	24	816	
May	15.864	2	232	1360	0.31	36	148	0.2	23	840	
June	16.159	2.5	345	1705	0.40	61	208	0.3	45	885	
July	15.711	2.88	306	2014	0.20	23	231	0.2	23	908	
August	12.562	2.62	208	2222	0.20	21	252	0.4	41	949	
September	11.637	2.21	214	2437	0.20	19	271	0.2	19	968	
October	16.006	2.89	399	2836	0.10	13	285	0.2	27	995	
November	12.284	2.54	258	3124	0.10	11	296	0.4	45	1040	
December	18.8	2.24	351	3475	0.10	15	311	0.4	63	1103	
Effluent Total Annual Flow (MG/Year) <sup>(3)</sup>		161.748									
Annual average TN, TP and TSS concentrations, (mg/L) = Total Annual Load / (Total Annual Flow x 8.34)		2.3	<—Meets TN Floating Cap Limit		0.2	<—Meets TP Floating Cap Limit		0.7			
WASTE LOADING		POLLUTANT									
Pollutant's Total Annual Load in Effluent discharged from Facility (Pounds) <sup>(4)</sup>		TN 3475			TP 311			TSS 1103			
Maximum Allowable Annual Loading Rate (Pounds/Year) <sup>(5)</sup>		6063			455			127914			
TMDL/Tributary Strategy Based Annual Maximum Waste Load Allocation (Pounds/Year)		GOAL = LIMIT = 17055			GOAL = LIMIT = 1279			LIMIT = 127914			
Concentration-Based Annual Maximum Loading Rate Limit (Pounds/Year)		C <sub>N</sub> (mg/L) = 4.0	L <sub>N</sub> (Pounds/Year) <sup>(6)</sup> = 6063		C <sub>P</sub> (mg/L) = 0.30	L <sub>P</sub> (Pounds/Year) <sup>(6)</sup> = 455		TSS (mg/L) = N/A	Load Limit (Pounds/Year) = N/A		
<sup>(1)</sup> Monthly Loading Rate (Pounds/Month) = Total Monthly Flow (MG) x Monthly Average Concentration (mg/L) x 8.34 <sup>(2)</sup> Year-to-date Cumulative Load (Pounds) = Sum of Total Monthly Loadings from January to the reporting month <sup>(3)</sup> Total Yearly Effluent Flow = Sum of total monthly flows from January through December <sup>(4)</sup> Total Annual Load (in Pounds) = Year-to-date cumulative load for month of December <sup>(5)</sup> Maximum allowable annual loading rate is equal to the lower of the TMDL/Tributary Strategy-based or Concentration-based annual maximum loading rate limits. <sup>(6)</sup> Concentration based Annual Maximum Load Limit: - FOR TN, L <sub>N</sub> = C <sub>N</sub> x Total Yearly Effluent Flow x 8.34 (Where C <sub>N</sub> is Tributary Strategy based TN concentration of 4.0 mg/l or as specified in the permit. If not applicable, set C <sub>N</sub> = 0.0 & L <sub>N</sub> = N/A) - FOR TP, L <sub>P</sub> = C <sub>P</sub> x Total Yearly Effluent Flow x 8.34 (Where C <sub>P</sub> is Tributary Strategy based TP concentration of 0.3 mg/l or as specified in the permit. If not applicable, set C <sub>P</sub> = 0.0 & L <sub>P</sub> = N/A)											

\* Available to permittee upon permit issuance

# Example – Reporting Annual Total Cumulative Flow



## CITY OF BRUNSWICK

1 W. Potomac Street • Brunswick, Maryland 21716 • (301) 834-7500

March 17, 2016

### Nitrogen and Phosphorus Limitations for 2015

The total cumulative flow for the year 2015 at the City Of Brunswick WWTP (07-DP-0106 NPDES MD0020958): 181.784 mg. Based upon this flow, our limits for 2015 are:

Total Nitrogen Limitations (lbs/yr)	$4.0 \times 181.784 \times 8.34 = $ <u>6064 lbs.</u>
Total Phosphorus Limitation (lbs/yr)	$0.3 \times 181.784 \times 8.34 = $ <u>455 lbs.</u>

Total Annual Cumulative T. Nitrogen Load	3474 <u>lbs.</u>
Total Annual Cumulative T. Phos. Load	314 <u>lbs.</u>

This a revised flow and loading report from what was sent 1/15/2016.

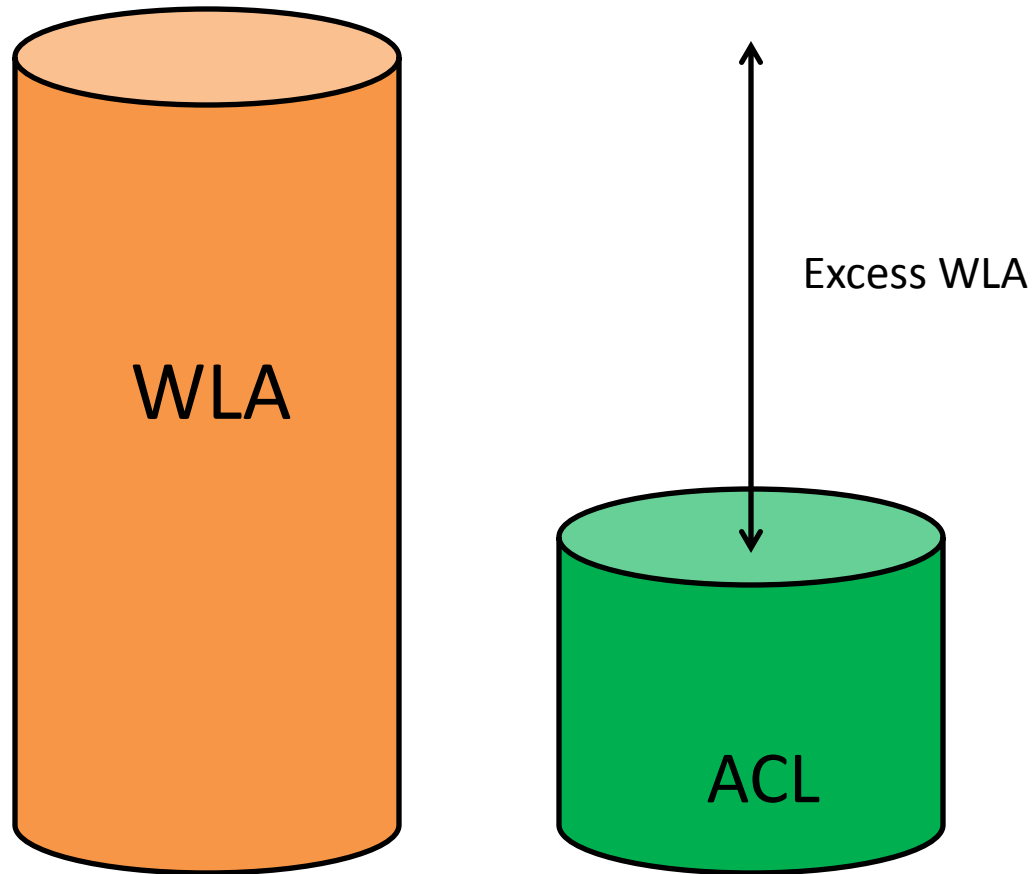
City of Brunswick MD WWTP  
1 West Potomac Street  
Brunswick, MD 21716

Patrick Hoffmaster, Superintendent

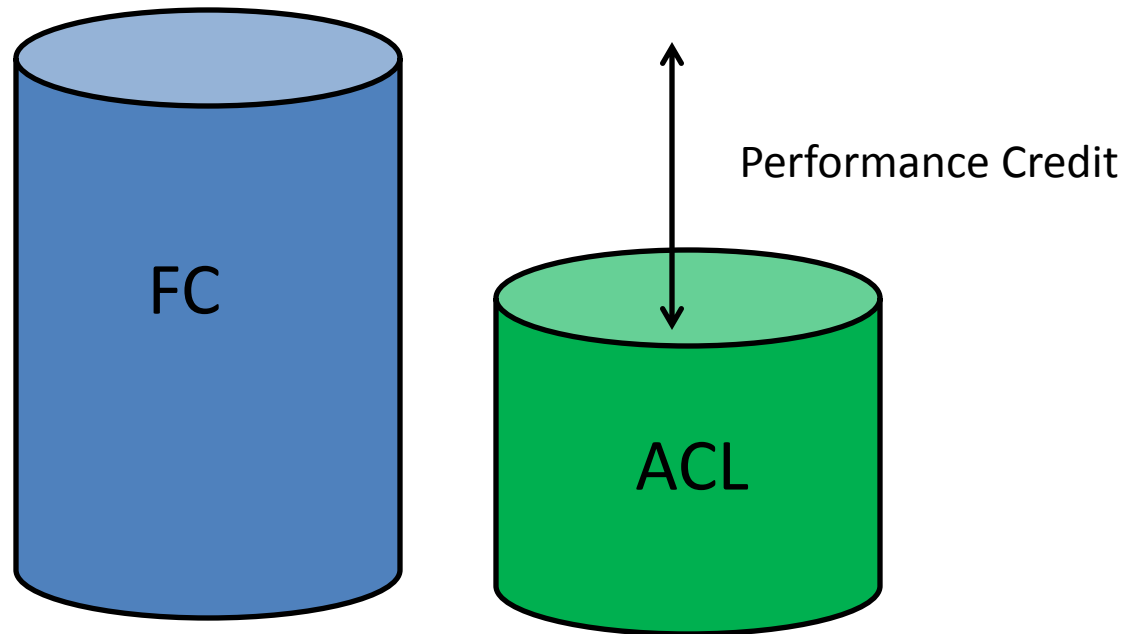
"Home of the Iron Horse" — "Heart of the Potomac Valley"



# Excess WLA –Available for non-MS4 Trade

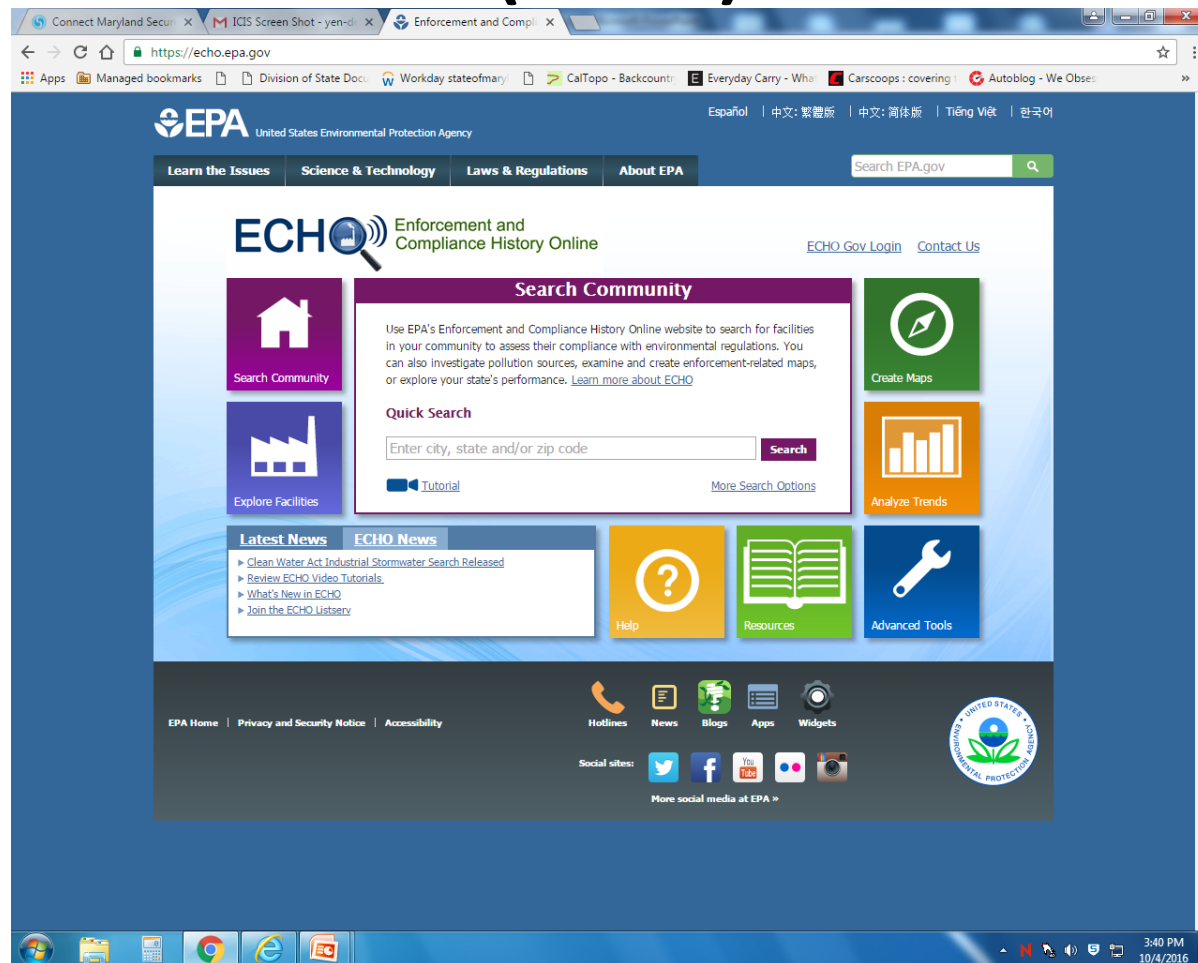


# Performance Credit –MS4 Trade Only



# Tracking Tool (1)

## Enforcement Compliance History Online (ECHO)



**Maryland**  
Department of  
the Environment

# Tracking Tool (2)

## Integrated Compliance Information System (ICIS)

Connect Maryland Sec... X Re: October 5, Section II... X EPA WAM login X

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Apps Managed bookmarks Division of State Doc... Workday stateform... CalTopo - Backcount... Everyday Carry - Whi... Carscoops - covering... Autogloss - We Obs...

**EPA** United States Environmental Protection Agency

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**EPA Web Application Access Login**

**Welcome to ICIS**

A gateway for authorized users to find, request access and manage EPA tools, applications and communities. If you have an EPA LAN account, log in using your LAN username and password. If you do not have an EPA LAN account, you will need to [self-register](#) for an account.

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**ICIS** Integrated Compliance Information System

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- Enforcement Action Q
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**News & Alerts**

**10/04/2016 - ICIS General News and Info**

- » The first unofficial "off" month RNC for FY2016 Q4 (Monitoring P...
- The second unofficial "off" month RNC for FY2016 Q4 (MPED 8...
- » **FOR YOUR INFORMATION**
- ICIS will not process Limit Set and Limit changes if there are un...
- schedules. It is important to timely submit entered DMRs.
- » The ICIS weekend hours are posted in ICIS Reports under **Public Folders/ System Administration/ ICIS Operational Schedule**.

**01/01/2016 - EDT Processing Times**

- » Monday - Thursday: 7 am-8:30 PM, 12:00 AM-3:45 AM
- » Friday: 7 am-5:30 PM, 12:00 AM-3:45 AM
- » Sat.: 11 AM-8:30 PM
- » Sun.: 8 AM-8:30 PM, 12:00 AM-3:45 AM

**08/14/2015 - ADD EA VIA FACILITY EA TAB ISSUE!!**

- » An issue has been identified that affects linking non-ICIS, non-NPDES, non-Air facilities when adding an EA via the EA tab through the facility module.
- » **DO NOT ADD EAs FOR NON-ICIS, NON-NPDES, AND NON-AIR FACILITIES VIA THE FACILITY MODULE!!**
- » **THE WORKAROUND IS TO CREATE NEW EAs VIA THE EA SCREENS UNTIL THE PROBLEM IS FIXED.**

**01/01/2014 - ICIS Helpful Hints**

- » ICIS was designed to support only internet browser **Internet Explorer**. Other internet browsers may work, but are not supported and their

https://icisreports.epa.gov/BOE/BI/login/start.do?isFromLoginPage=true&loggedOnFromICIS=true&isLoginTok...

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# Questions



**Yen-Der Cheng, Chief**

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Wastewater Permits Program

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Voice: 410-537-3363

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