Exchange Compliance Plan
2015 Annual Update

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SECTION 1

Introduction

1.1 Purpose

This Chesapeake Bay Nutrient Credit Exchange Program Compliance Plan 2015 Annual Update ("Exchange Compliance Plan") was prepared by the Virginia Nutrient Credit Exchange Association, Inc. ("The Exchange") in collaboration with participating owners of regulated facilities ("Participants"). This Exchange Compliance Plan updates and supersedes the Exchange Compliance Plan 2014 Annual Update, which was submitted by The Exchange to the Virginia Department of Environmental Quality ("DEQ") on February 1, 2014. The original Exchange Compliance Plan was submitted by The Exchange to DEQ on July 31, 2007 and approved by DEQ by letter dated September 7, 2007. Similarly, the Annual Updates for 2008, 2009, 2010, 2011, 2012, 2013, and 2014 were all submitted to DEQ in a timely manner and were subsequently approved by DEQ. The DEQ approval letters for previous Annual Updates are attached at Appendix A.

This Exchange Compliance Plan continues a "realistically aggressive" program of work to meet the nitrogen and phosphorus waste load allocations of the Participants' facilities. This Exchange Compliance Plan utilizes voluntary, market-based nutrient credit trading as a means of achieving compliance more cost-effectively and more expeditiously than would otherwise be possible.

The initial focus of the Exchange Compliance Plan was on the construction of a large number of nutrient removal technology upgrades at Participants' facilities to achieve compliance with the new Chesapeake Bay nitrogen and phosphorus waste load allocations adopted by the State Water Control Board. Once initial compliance was achieved through this construction program (Compliance Year 2011), the focus shifted to maintaining compliance through an ongoing program of additional facility upgrades over time as is now occurring.

This document serves two primary purposes. First, certain information contained herein is submitted on behalf of the Participants in satisfaction of each Participant's regulatory obligation under Part I.D. of its general permit as provided in the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9 VAC 25-820-70 Part I.D) (the "General Permit"), which states:

> **Annual update of compliance plan.** Every owner or operator of a facility required to submit a registration statement shall either individually or through the Virginia Nutrient Credit Exchange Association submit updated compliance plans to the department no later than February 1 of each year. The compliance plans shall contain sufficient information to document a plan for the facility to achieve and maintain compliance with applicable total nitrogen and phosphorus individual waste load allocations on the registration list and aggregate waste load allocations in Part I C 3. Compliance plans for facilities that were required to submit a registration statement with the department under Part I G 1 a may rely on the

> acquisition of point source credits in accordance with Part I J of this general permit, but not the acquisition of credits through payments into the Water Quality Improvement Fund, to achieve compliance with the individual and combined waste load allocations in each tributary. Compliance plans for expansions or new discharges for facilities that are required to submit a registration statement with the department under Part I G 1 b and c may rely on the acquisition of allocation in accordance with Part II B of this general permit to achieve compliance with the individual and combined waste load allocations in each tributary.

The second purpose of this Exchange Compliance Plan is to serve as a comprehensive document for planning and implementing nutrient credit trading at the basin level through The Exchange. The Exchange is a not-for-profit, voluntary association of owners of regulated facilities that serves as a facilitator of nutrient trading among its members as provided in Virginia Code section 62.1-44.19:17.

1.2 Definitions

The terms used in this Exchange Compliance Plan shall have the same definitions as set forth in The Exchange's Credit Exchange Policy for the Purchase and Sale of Chesapeake Bay Nutrient Credits, which is set forth in Section 8.

Any terms not defined in the Credit Exchange Policy shall have the same definition as provided in 9 VAC 25-820-10, unless a different meaning is intended by the usage herein.

The term "Declared Load", which appears on the river basin graphs, means the maximum delivered load that a facility can discharge and still meet its commitments to either supply or purchase Class A Credits. For a Class A Seller, Declared Load equals Delivered WLA minus Class A Credits supplied. For a Class A Buyer, Declared Load equals Delivered WLA plus Class A Credits purchased.

1.3 Regulatory and Non-Regulatory Information

As mentioned above, the Exchange Compliance Plan serves a dual purpose. Certain information set forth herein is required by the General Permit. This regulatory information is provided (1) in the Compliance Statements for facilities subject to reduced waste load allocations in the York River basin and a portion of the Lower James River basin and (2) in Section 7 of the Exchange Compliance Plan.

Additional information set forth herein is beyond that required by regulation and is not submitted for review and approval as such. This additional information, i.e., non-regulatory information, is presented for the efficiency of gaining multiple uses of a single, more comprehensive document for effective planning by The Exchange and the Participants. Non-regulatory information includes but is not limited to: design flow; projections of actual flow, concentration, load and Credits; future capital projects; preliminary uses of Credits; detailed trading ledgers for projections; The Exchange's Credit Exchange Policy (including its Credit Price Schedule) (Section 8); and a summary and projection of needs for and availability of WQIF grant funding, which is an essential funding source for many of the planned facility upgrades discussed herein (Appendix C).

1.4 Exchange Compliance Plan Content Overview

The Exchange Compliance Plan contains a separate section for each tributary, or basin, as follows:

- Section 2 – Potomac-Shenandoah River Basin
- Section 3 – Rappahannock River Basin
- Section 4 – York River Basin
- Section 5 – James River Basin
- Section 6 – Eastern Shore Basin

The Trading Optimization Model, previously described in The Exchange's written materials and presentations, was used to generate a plan illustrating nutrient removal projects, Credit generation and Credit exchanges in each basin. Schedules and results are based on owner-provided facility-specific data. The organization and description of the Exchange Compliance Plan components is summarized below.

The Exchange Compliance Plan for the James River basin distinguishes between the James "Upper" and James "Lower" basins. This manner of presentation is convenient in that it (1) simplifies the analysis of the James River exchanges and (2) clearly demonstrates that the partial, one-way restriction on James River trading is met (i.e., facilities in the areas previously identified as upper and middle portions of the basin are not proposing to acquire any Credits generated by facilities in the lower basin). Notwithstanding this two-part presentation, facilities in the lower portion may obtain either Class A or Class B Credits from upstream facilities. In the future, Class A Credit exchanges may be specified in a plan update. Similarly, Class B Credits may be exchanged from the Upper James to the Lower James during any Reconciliation Year as needed. Therefore, despite the distinction between the Upper and Lower James herein, the basin continues to be viewed and managed as a single unit consistent with applicable regulations.

Plan Summary

The Plan Summary is a visual synopsis of each basin. Separate summaries are presented for nitrogen and phosphorus.

For Class A Credit management purposes, the Plan Summary compares the "Declared Load" to the Delivered WLA for all Participants for an 8-year period (currently, through the year 2022). The Declared Load illustration represents the Class A Credit trading positions of Participant facilities. Because Declared Load is a Class A Credit concept, it excludes—by definition—forecasted Class B Credits and thereby tends to overstate the forecasted actual load, which is addressed by the "Expected Load" discussed below.

For overall compliance purposes and The Exchange's broader management purposes, the Plan Summary also illustrates Expected Load, which is a forecast of the aggregate load of all Participant facilities. In contrast to the Declared Load line, the Expected Load line intentionally ignores the Class A Credit sales decisions of individual Participants and thereby takes into account all Credits projected to be available (i.e., both Class A and Class B Credits). In this respect, the Expected Load line is not representative of Class A Credit commitments that Participants in The Exchange's voluntary, market-based program are willing to make. However,

it does illustrate projected aggregate performance and more comprehensively reflects the favorable nutrient reduction trends of The Exchange as a whole.

Also for The Exchange's management purposes, green or brown bars at the bottom of the Plan Summary chart are plotted against the secondary Y-axis and represent Class A Credit supplies that exceed Class A Credit requests for a given Compliance Year. Red bars in the same location indicate a Participant's Credits that are held in the WQIF in accordance with 9 VAC 25-820-70 Part I.J.2.e., pending project completion.

Trading Ledger

Each basin's nutrient section presents annual trading ledgers for 2015 through 2019. For each Participant, the Expected Load, Expected Credits, Expected Net Credits, Class A Credit sales, and Class A Credit purchases are presented. The ledger also accounts for projected Class B Credits. Where Class A Credit purchases are not projected to be satisfied using only Class A Credit sales, a portion of each Buyer's demand is anticipated to be satisfied on a pro rata basis using Class B Credits. Aggregate basin information is shown in the blue bar at the top of the ledger.

Based on the number of Credits projected in each market, Class A Credit and Class B Credit sales prices are estimated in accordance with the Credit Exchange Policy. These prices, which include the Class A Buyer price, are displayed at the top of the trading ledger. Since The Exchange "clears the market" by purchasing all Credits generated by Participants as provided in the Credit Exchange Policy, the Class A Seller price reflects the difference between the volume of Credits supplied and the volume of credits purchased in the Class A market.

Where multiple facilities under common ownership or operation have been "bubbled" at the Participant's election pursuant to 9 VAC 25-820-70 Part I.B.2, these facilities are listed in order and highlighted in light blue (and pale yellow, if more than one bubble exists in a consecutive alphabetical listing of Participants/Facilities).

Where a participating facility has provided advance notice of a Private Exchange pursuant to Section 4.9 of the Credit Exchange Policy, an estimate of the amount of Credits to be exchanged is noted as a Preliminary Use of Credits on the applicable Trading Ledger. As of this time, Participants have given notice of the following Private Exchanges factored into this Exchange Compliance Plan:

Potomac

Arlington County WWTP and Arlington County MS4 (Nitrogen/Phosphorus)

Rappahannock

None

York

RockTenn and Bear Island Paper WB (Phosphorus)

James

Honeywell-Hopewell and Hopewell RWTF (Nitrogen)
Chesterfield County and South Central Wastewater Authority (Nitrogen/Phosphorus)
Chesterfield County and Dominion-Chesterfield (Nitrogen/Phosphorus)

Chesterfield County and Tranlin Paper Company (Nitrogen)
Henrico County and South Central Wastewater Authority (Nitrogen/Phosphorus)
RWSA-Moores Creek and Ryder Enterprises (Nitrogen/Phosphorus)

Eastern Shore

None

In certain instances, a listed Private Exchange may include terms that are not readily capable of representation within The Exchange's uniform basis and facility-level formats used herein; notwithstanding that formatting limitation, it is the intent of The Exchange to fully accommodate the terms of such Private Exchanges for which Participants have given proper notice.

Facility Summaries and Compliance Statements

For each basin, facility-specific information is included immediately following the Trading Ledger. This includes Facility Summaries for Nitrogen and for Phosphorus for each facility. For facilities with reduced waste load allocations pursuant to the Chesapeake Bay TMDL, a Compliance Statement is provided with additional information with respect to the timing and manner of achieving compliance.

Development of each Annual Update of the Exchange Compliance Plan requires data collection from Participants on a schedule that provides The Exchange and its advisors adequate time to collect and compile data covering over 100 facilities. The timeline for such data collection is governed by the Nutrient Credit Services Agreement between The Exchange and each Participant. A copy of the agreement is provided as Appendix B hereto. Consequently, the data contained in the Facility Summaries and Compliance Statements was collected approximately five months in advance of submittal of the Annual Update to DEQ and generally would not reflect changed circumstances at the facility level, if any, subsequent to data collection. Data changes subsequent to data collection, if any, would be reflected in the 2016 Annual Update.

SECTION 2

Potomac-Shenandoah River Basin Exchange Compliance Plan

EXHIBIT 2-1
Nitrogen Plan Summary: Potomac-Shenandoah River Basin

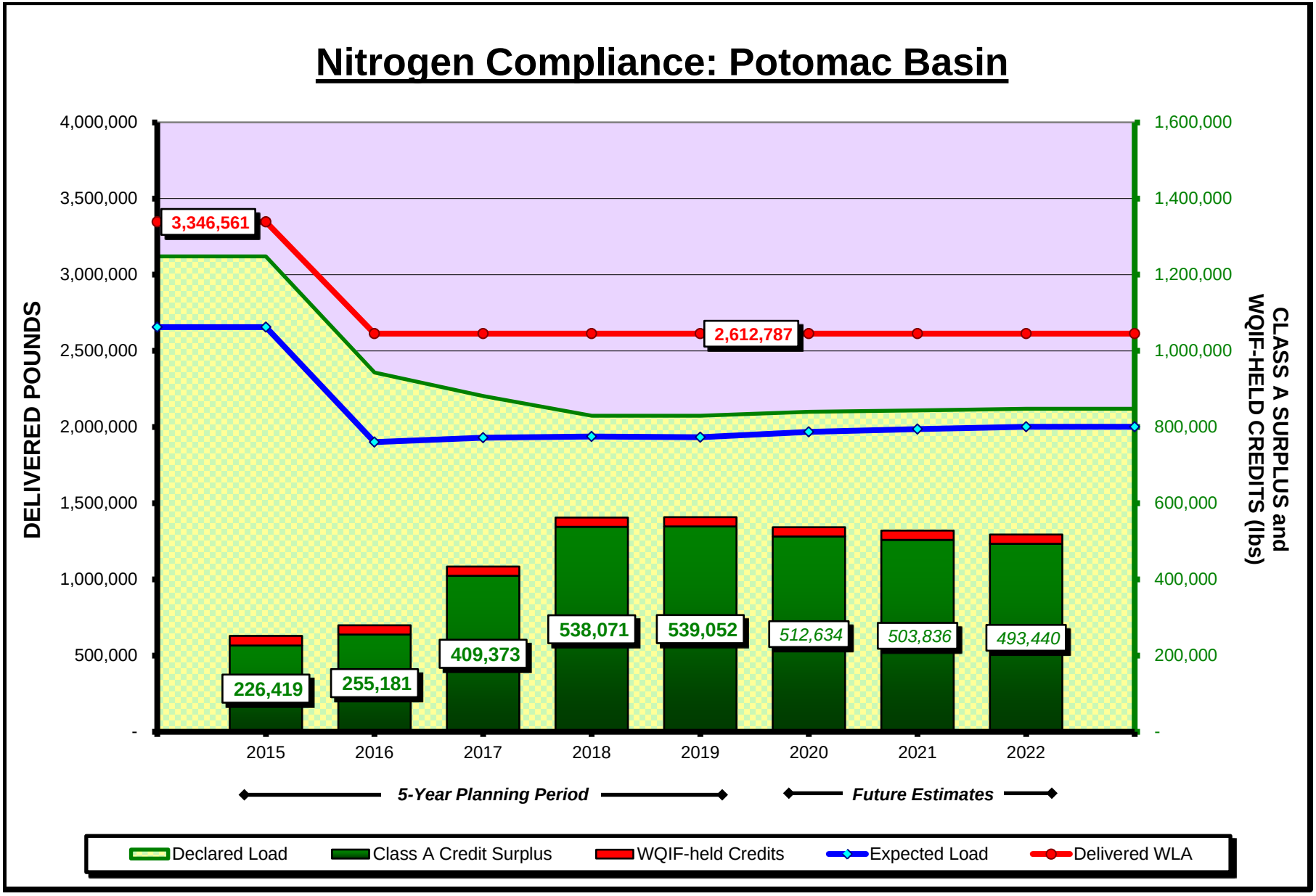


EXHIBIT 2-2
2015 Nitrogen Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Nitrogen Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.44	$ 3.05	$ 0.03
The Exchange (group)	**3,346,561**	**2,656,178**	**690,383**	**-**	**(3,222)**	**(25,278)**	**661,883**		**270,198**	**(43,779)**	**435,464**
ACSA-Fishersville	21,441	5,176	16,265	(888)	-	-	15,377		13,307	-	2,070
ACSA-Greenville	6,265	2,231	4,034	(4,034)	-	-	-		-	-	-
ACSA-Harriston	2,506	403	2,103	(2,103)	-	-	-		-	-	-
ACSA-Middle River	36,449	18,539	17,910	-	-	-	17,910		13,307	-	4,603
ACSA-Mt. Sidney	3,759	5,335	(1,576)	1,576	-	-	-		-	-	-
ACSA-Stuarts Draft	21,441	4,829	16,612	-	-	-	16,612		13,306	-	3,306
ACSA-Vesper View	2,506	1,141	1,365	(1,365)	-	-	-		-	-	-
ACSA-Weyers Cave	2,680	9,494	(6,814)	6,814	-	-	-		-	-	-
Alexandria Renew Ent.	493,381	493,381	-	-	-	-	-		-	-	-
Arlington Co.	365,467	190,271	175,196	-	(816)	-	174,380		-	-	174,380
Berryville	5,713	3,510	2,203	-	-	-	2,203		1,983	-	220
Broadway Regional	19,752	16,685	3,067	-	-	-	3,067		-	-	3,067
Fairfax Co-Noman Cole	612,158	423,942	188,216	-	-	-	188,216		75,286	-	112,930
FCWSA-Vint Hill	6,712	2,120	4,592	-	-	-	4,592		-	-	4,592
Front Royal	32,648	27,547	5,101	-	-	-	5,101		1,530	-	3,571
FWSA-Opequon	90,170	50,032	40,138	-	-	-	40,138		20,000	-	20,138
FWSA-Parkins Mill	45,074	21,185	23,889	-	-	-	23,889		6,000	-	17,889
HRRSA-North River	111,492	74,346	37,146	-	-	-	37,146		37,146	-	-
KGCSA-Dahlgren S.D.	9,137	7,309	1,828	(640)	-	-	1,188		-	-	1,188
KGCSA-Fairview Beach	1,827	822	1,005	(1,005)	-	-	-		-	-	-
KGCSA-Purkins Corner	1,096	2,741	(1,645)	1,645	-	-	-		-	-	-
Leesburg	101,113	55,207	45,906	-	-	(25,278)	20,628		-	-	20,628
Loudoun Water- Broad Run	111,224	80,890	30,334	-	-	-	30,334		27,301	-	3,033
Luray	8,576	3,498	5,078	-	-	-	5,078		4,824	-	254
Massanutten PSC	8,040	10,517	(2,477)	-	-	-	(2,477)		-	(2,477)	-
Merck	6,432	19,297	(12,865)	-	-	-	(12,865)		-	(12,865)	-
MillerCoors LLC	24,121	24,121	-	-	-	-	-		-	-	-
Mt. Jackson	5,713	4,897	816	-	-	-	816		-	-	816
Purcellville	15,167	12,437	2,730	-	-	-	2,730		1,365	-	1,365
PWCSA-HL Mooney	219,280	169,029	50,251	-	-	-	50,251		35,176	-	15,075
Stafford Co-Aquia	73,093	57,196	15,897	-	-	-	15,897		14,307	-	1,590
Stoney Creek	5,534	5,522	12	-	-	-	12		-	(959)	971
Strasburg	7,999	33,071	(25,072)	-	-	-	(25,072)		-	(25,072)	-
UOSA	763,096	726,628	36,468	-	-	-	36,468		-	-	36,468
VA Am. Water PW Sec. 1	42,029	38,374	3,655	-	-	-	3,655		-	-	3,655
VA Am. Water PW Sec. 8	42,029	38,374	3,655	-	-	-	3,655		-	-	3,655
Waynesboro	21,441	16,081	5,360	-	-	-	5,360		5,360	-	-
Purchase by Eastern Shore	-	-	-	-	(2,406)	-	(2,406)		-	(2,406)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-3
2016 Nitrogen Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Nitrogen Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.16	$ 3.50	$ 0.01
The Exchange (group)	**2,612,787**	**1,901,309**	**711,478**	**-**	**(2,595)**	**(24,365)**	**684,518**		**269,180**	**(13,999)**	**429,337**
ACSA-Fishersville	4,873	1,235	3,638	(3,008)	-	-	630		630	-	-
ACSA-Greenville	1,424	532	892	-	-	-	892		892	-	-
ACSA-Harriston	1,025	173	852	(852)	-	-	-		-	-	-
ACSA-Middle River	8,284	4,424	3,860	-	-	-	3,860		2,412	-	1,448
ACSA-Mt. Sidney	854	1,273	(419)	419	-	-	-		-	-	-
ACSA-Stuarts Draft	2,436	576	1,860	-	-	-	1,860		1,860	-	-
ACSA-Vesper View	1,025	490	535	(535)	-	-	-		-	-	-
ACSA-Weyers Cave	1,462	5,438	(3,976)	3,976	-	-	-		-	-	-
Alexandria Renew Ent.	493,381	359,802	133,579	-	-	-	133,579		66,790	-	66,789
Arlington Co.	365,467	191,627	173,840	-	(816)	-	173,024		-	-	173,024
Berryville	5,373	3,300	2,073	-	-	-	2,073		1,969	-	104
Broadway Regional	5,601	4,796	805	-	-	-	805		-	-	805
Fairfax Co-Noman Cole	612,158	426,317	185,841	-	-	-	185,841		74,336	-	111,505
FCWSA-Vint Hill	579	195	384	-	-	-	384		-	-	384
Front Royal	29,725	25,192	4,533	-	-	-	4,533		1,360	-	3,173
FWSA-Opequon	31,681	18,292	13,389	-	-	-	13,389		4,000	-	9,389
FWSA-Parkins Mill	15,837	8,552	7,285	-	-	-	7,285		1,000	-	6,285
HRRSA-North River	55,746	36,664	19,082	-	-	-	19,082		19,082	-	-
KGCSA-Dahlgren S.D.	9,137	7,309	1,828	(549)	-	-	1,279		-	-	1,279
KGCSA-Fairview Beach	1,827	731	1,096	(1,096)	-	-	-		-	-	-
KGCSA-Purkins Corner	1,096	2,741	(1,645)	1,645	-	-	-		-	-	-
Leesburg	97,458	54,732	42,726	-	-	(24,365)	18,361		-	-	18,361
Loudoun Water- Broad Run	119,264	75,895	43,369	-	-	-	43,369		39,032	-	4,337
Luray	8,187	1,669	6,518	-	-	-	6,518		6,518	-	-
Massanutten PSC	6,030	8,107	(2,077)	-	-	-	(2,077)		-	(2,077)	-
Merck	4,824	14,466	(9,642)	-	-	-	(9,642)		-	(9,642)	-
MillerCoors LLC	18,091	18,091	-	-	-	-	-		-	-	-
Mt. Jackson	2,900	2,071	829	-	-	-	829		-	-	829
Purcellville	13,157	9,297	3,860	-	-	-	3,860		1,930	-	1,930
PWCSA-HL Mooney	219,280	171,313	47,967	-	-	-	47,967		33,577	-	14,390
Stafford Co-Aquia	73,093	59,663	13,430	-	-	-	13,430		12,087	-	1,343
Stoney Creek	2,891	2,814	77	-	-	-	77		-	(501)	578
Strasburg	5,134	3,536	1,598	-	-	-	1,598		-	-	1,598
UOSA	302,607	296,303	6,304	-	-	-	6,304		-	-	6,304
VA Am. Water PW Sec. 1	42,029	39,288	2,741	-	-	-	2,741		-	-	2,741
VA Am. Water PW Sec. 8	42,029	39,288	2,741	-	-	-	2,741		-	-	2,741
Waynesboro	6,822	5,117	1,705	-	-	-	1,705		1,705	-	-
Purchase by Eastern Shore	-	-	-	-	(1,779)	-	(1,779)		-	(1,779)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-4
2017 Nitrogen Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Nitrogen Credit Ledger

Compliance Year:	2017	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.10	$ 3.75	$ 0.02
The Exchange (group)	**2,612,787**	**1,929,840**	**682,947**	**-**	**(2,595)**	**(24,365)**	**655,987**	**422,878**	**(13,505)**	**246,614**
ACSA-Fishersville	4,873	2,075	2,798	(2,798)	-	-	-	-	-	-
ACSA-Greenville	1,424	487	937	(865)	-	-	72	72	-	-
ACSA-Harriston	1,025	159	866	-	-	-	866	802	-	64
ACSA-Middle River	8,284	5,309	2,975	-	-	-	2,975	802	-	2,173
ACSA-Mt. Sidney	854	1,295	(441)	441	-	-	-	-	-	-
ACSA-Stuarts Draft	2,436	896	1,540	-	-	-	1,540	802	-	738
ACSA-Vesper View	1,025	527	498	-	-	-	498	498	-	-
ACSA-Weyers Cave	1,462	4,684	(3,222)	3,222	-	-	-	-	-	-
Alexandria Renew Ent.	493,381	363,640	129,741	-	-	-	129,741	65,000	-	64,741
Arlington Co.	365,467	192,891	172,576	-	(816)	-	171,760	171,760	-	-
Berryville	5,373	3,070	2,303	-	-	-	2,303	2,100	-	203
Broadway Regional	5,601	4,860	741	-	-	-	741	-	-	741
Fairfax Co-Noman Cole	612,158	433,079	179,079	-	-	-	179,079	71,632	-	107,447
FCWSA-Vint Hill	579	207	372	-	-	-	372	-	-	372
Front Royal	29,725	25,247	4,478	-	-	-	4,478	1,120	-	3,358
FWSA-Opequon	31,681	19,004	12,677	-	-	-	12,677	3,000	-	9,677
FWSA-Parkins Mill	15,837	9,819	6,018	-	-	-	6,018	1,000	-	5,018
HRRSA-North River	55,746	36,664	19,082	-	-	-	19,082	19,082	-	-
KGCSA-Dahlgren S.D.	9,137	6,091	3,046	-	-	-	3,046	-	-	3,046
KGCSA-Fairview Beach	1,827	731	1,096	(427)	-	-	669	-	-	669
KGCSA-Purkins Corner	1,096	1,523	(427)	427	-	-	-	-	-	-
Leesburg	97,458	57,188	40,270	-	-	(24,365)	15,905	-	-	15,905
Loudoun Water- Broad Run	119,264	86,738	32,526	-	-	-	32,526	32,526	-	-
Luray	8,187	1,688	6,499	-	-	-	6,499	6,499	-	-
Massanutten PSC	6,030	8,107	(2,077)	-	-	-	(2,077)	-	(2,077)	-
Merck	4,824	14,473	(9,649)	-	-	-	(9,649)	-	(9,649)	-
MillerCoors LLC	18,091	18,091	-	-	-	-	-	-	-	-
Mt. Jackson	2,900	2,154	746	-	-	-	746	-	-	746
Purcellville	13,157	7,894	5,263	-	-	-	5,263	2,632	-	2,631
PWCSA-HL Mooney	219,280	173,597	45,683	-	-	-	45,683	31,978	-	13,705
Stafford Co-Aquia	73,093	62,129	10,964	-	-	-	10,964	9,868	-	1,096
Stoney Creek	2,891	2,814	77	-	-	-	77	-	-	77
Strasburg	5,134	3,575	1,559	-	-	-	1,559	-	-	1,559
UOSA	302,607	295,441	7,166	-	-	-	7,166	-	-	7,166
VA Am. Water PW Sec. 1	42,029	39,288	2,741	-	-	-	2,741	-	-	2,741
VA Am. Water PW Sec. 8	42,029	39,288	2,741	-	-	-	2,741	-	-	2,741
Waynesboro	6,822	5,117	1,705	-	-	-	1,705	1,705	-	-
Purchase by Eastern Shore	-	-	-	-	(1,779)	-	(1,779)	-	(1,779)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-5
2018 Nitrogen Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Nitrogen Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.07	$ 3.78	$ 0.04
The Exchange (group)	**2,612,787**	**1,937,655**	**675,132**	**-**	**(6,524)**	**(24,365)**	**644,243**	**549,797**	**(11,726)**	**106,172**
ACSA-Fishersville	4,873	2,075	2,798	(2,798)	-	-	-	-	-	-
ACSA-Greenville	1,424	609	815	-	-	-	815	815	-	-
ACSA-Harriston	1,025	141	884	(865)	-	-	19	19	-	-
ACSA-Middle River	8,284	6,689	1,595	-	-	-	1,595	989	-	606
ACSA-Mt. Sidney	854	1,295	(441)	441	-	-	-	-	-	-
ACSA-Stuarts Draft	2,436	1,218	1,218	-	-	-	1,218	989	-	229
ACSA-Vesper View	1,025	502	523	-	-	-	523	523	-	-
ACSA-Weyers Cave	1,462	4,684	(3,222)	3,222	-	-	-	-	-	-
Alexandria Renew Ent.	493,381	367,386	125,995	-	-	-	125,995	94,496	-	31,499
Arlington Co.	365,467	189,129	176,338	-	(6,524)	-	169,814	169,814	-	-
Berryville	5,373	3,070	2,303	-	-	-	2,303	2,000	-	303
Broadway Regional	5,601	4,924	677	-	-	-	677	-	-	677
Fairfax Co-Noman Cole	612,158	455,738	156,420	-	-	-	156,420	156,420	-	-
FCWSA-Vint Hill	579	219	360	-	-	-	360	-	-	360
Front Royal	29,725	25,303	4,422	-	-	-	4,422	1,056	-	3,366
FWSA-Opequon	31,681	18,402	13,279	-	-	-	13,279	-	-	13,279
FWSA-Parkins Mill	15,837	11,086	4,751	-	-	-	4,751	-	-	4,751
HRRSA-North River	55,746	36,664	19,082	-	-	-	19,082	19,082	-	-
KGCSA-Dahlgren S.D.	9,137	6,700	2,437	-	-	-	2,437	-	-	2,437
KGCSA-Fairview Beach	1,827	731	1,096	(427)	-	-	669	-	-	669
KGCSA-Purkins Corner	1,096	1,523	(427)	427	-	-	-	-	-	-
Leesburg	97,458	61,048	36,410	-	-	(24,365)	12,045	-	-	12,045
Loudoun Water- Broad Run	119,264	59,632	59,632	-	-	-	59,632	56,632	-	3,000
Luray	8,187	1,688	6,499	-	-	-	6,499	6,499	-	-
Massanutten PSC	6,030	8,107	(2,077)	-	-	-	(2,077)	-	(2,077)	-
Merck	4,824	14,473	(9,649)	-	-	-	(9,649)	-	(9,649)	-
MillerCoors LLC	18,091	18,091	-	-	-	-	-	-	-	-
Mt. Jackson	2,900	2,237	663	-	-	-	663	-	-	663
Purcellville	13,157	9,648	3,509	-	-	-	3,509	2,023	-	1,486
PWCSA-HL Mooney	219,280	175,881	43,399	-	-	-	43,399	30,379	-	13,020
Stafford Co-Aquia	73,093	64,596	8,497	-	-	-	8,497	7,647	-	850
Stoney Creek	2,891	2,814	77	-	-	-	77	-	-	77
Strasburg	5,134	3,614	1,520	-	-	-	1,520	-	-	1,520
UOSA	302,607	292,754	9,853	-	-	-	9,853	-	-	9,853
VA Am. Water PW Sec. 1	42,029	39,288	2,741	-	-	-	2,741	-	-	2,741
VA Am. Water PW Sec. 8	42,029	39,288	2,741	-	-	-	2,741	-	-	2,741
Waynesboro	6,822	6,408	414	-	-	-	414	414	-	-
Purchase by Eastern Shore	-	-	-	-	-	-	-	-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-6
2019 Nitrogen Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Nitrogen Credit Ledger

Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.07	$ 3.82	$ 0.04
The Exchange (group)	**2,612,787**	**1,933,423**	**679,364**	**-**	**(6,524)**	**(24,365)**	**648,475**		**550,778**	**(11,726)**	**109,423**
ACSA-Fishersville	4,873	2,153	2,720	(168)	-	-	2,552		2,552	-	-
ACSA-Greenville	1,424	902	522	-	-	-	522		522	-	-
ACSA-Harriston	1,025	160	865	-	-	-	865		865	-	-
ACSA-Middle River	8,284	5,291	2,993	-	-	-	2,993		2,993	-	-
ACSA-Mt. Sidney	854	1,022	(168)	168	-	-	-		-	-	-
ACSA-Stuarts Draft	2,436	928	1,508	-	-	-	1,508		1,508	-	-
ACSA-Vesper View	1,025	613	412	-	-	-	412		412	-	-
ACSA-Weyers Cave	1,462	846	616	-	-	-	616		616	-	-
Alexandria Renew Ent.	493,381	371,223	122,158	-	-	-	122,158		91,620	-	30,538
Arlington Co.	365,467	148,014	217,453	-	(6,524)	-	210,929		210,929	-	-
Berryville	5,373	3,377	1,996	-	-	-	1,996		1,900	-	96
Broadway Regional	5,601	4,719	882	-	-	-	882		-	-	882
Fairfax Co-Noman Cole	612,158	470,904	141,254	-	-	-	141,254		127,128	-	14,126
FCWSA-Vint Hill	579	244	335	-	-	-	335		-	-	335
Front Royal	29,725	25,359	4,366	-	-	-	4,366		4,000	-	366
FWSA-Opequon	31,681	19,289	12,392	-	-	-	12,392		-	-	12,392
FWSA-Parkins Mill	15,837	9,027	6,810	-	-	-	6,810		-	-	6,810
HRRSA-North River	55,746	38,191	17,555	-	-	-	17,555		15,000	-	2,555
KGCSA-Dahlgren S.D.	9,137	5,025	4,112	-	-	-	4,112		-	-	4,112
KGCSA-Fairview Beach	1,827	731	1,096	(427)	-	-	669		-	-	669
KGCSA-Purkins Corner	1,096	1,523	(427)	427	-	-	-		-	-	-
Leesburg	97,458	63,387	34,071	-	-	(24,365)	9,706		-	-	9,706
Loudoun Water- Broad Run	119,264	70,474	48,790	-	-	-	48,790		48,790	-	-
Luray	8,187	2,533	5,654	-	-	-	5,654		5,654	-	-
Massanutten PSC	6,030	8,107	(2,077)	-	-	-	(2,077)		-	(2,077)	-
Merck	4,824	14,473	(9,649)	-	-	-	(9,649)		-	(9,649)	-
MillerCoors LLC	18,091	18,091	-	-	-	-	-		-	-	-
Mt. Jackson	2,900	2,237	663	-	-	-	663		-	-	663
Purcellville	13,157	7,894	5,263	-	-	-	5,263		2,632	-	2,631
PWCSA-HL Mooney	219,280	178,165	41,115	-	-	-	41,115		28,781	-	12,334
Stafford Co-Aquia	73,093	67,063	6,030	-	-	-	6,030		4,462	-	1,568
Stoney Creek	2,891	2,814	77	-	-	-	77		-	-	77
Strasburg	5,134	3,654	1,480	-	-	-	1,480		-	-	1,480
UOSA	302,607	300,006	2,601	-	-	-	2,601		-	-	2,601
VA Am. Water PW Sec. 1	42,029	39,288	2,741	-	-	-	2,741		-	-	2,741
VA Am. Water PW Sec. 8	42,029	39,288	2,741	-	-	-	2,741		-	-	2,741
Waynesboro	6,822	6,408	414	-	-	-	414		414	-	-
Purchase by Eastern Shore	-	-	-	-	-	-	-		-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-7
Phosphorus Plan Summary: Potomac-Shenandoah River Basin

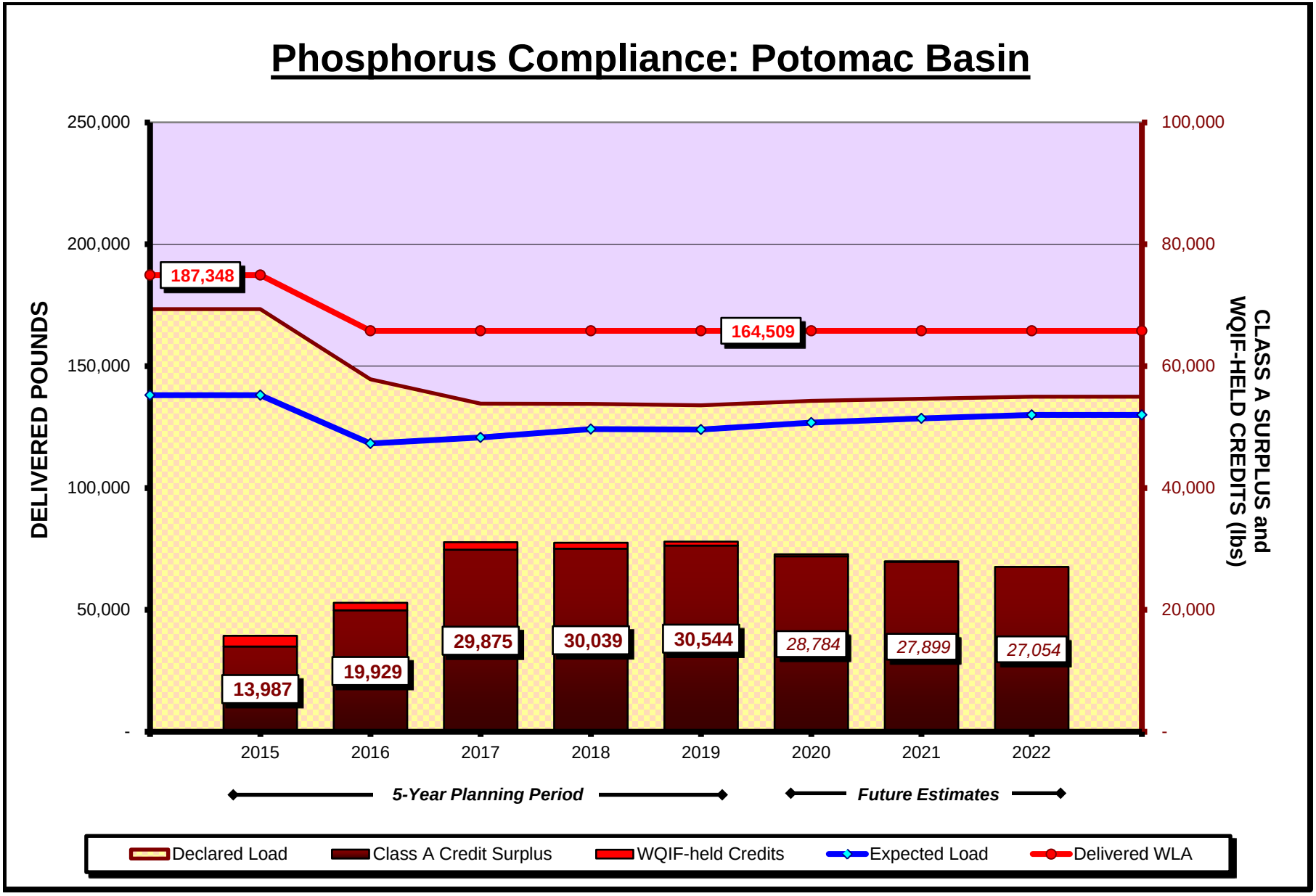


EXHIBIT 2-8
2015 Phosphorus Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Phosphorus Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 2.09	$ 4.93	$ 0.18
The Exchange (group)	**187,348**	**138,085**	**49,263**	**-**	**(361)**	**(1,759)**	**47,143**		**26,459**	**(12,472)**	**33,156**
ACSA-Fishersville	2,814	761	2,053	(250)	-	-	1,803		1,624	-	179
ACSA-Greenville	1,466	687	779	(779)	-	-	-		-	-	-
ACSA-Harriston	586	291	295	(295)	-	-	-		-	-	-
ACSA-Middle River	4,784	2,781	2,003	-	-	-	2,003		1,624	-	379
ACSA-Mt. Sidney	879	1,033	(154)	154	-	-	-		-	-	-
ACSA-Stuarts Draft	2,814	532	2,282	-	-	-	2,282		1,622	-	660
ACSA-Vesper View	586	446	140	(140)	-	-	-		-	-	-
ACSA-Weyers Cave	352	1,662	(1,310)	1,310	-	-	-		-	-	-
Alexandria Renew Ent.	29,603	21,358	8,245	-	-	-	8,245		-	-	8,245
Arlington Co.	21,928	9,319	12,609	-	(105)	-	12,504		-	-	12,504
Berryville	492	303	189	-	-	-	189		170	-	19
Broadway Regional	1,703	1,555	148	-	-	-	148		-	-	148
Fairfax Co-Noman Cole	36,729	25,437	11,292	-	-	-	11,292		11,292	-	-
FCWSA-Vint Hill	382	125	257	-	-	-	257		-	-	257
Front Royal	2,814	3,166	(352)	-	-	-	(352)		-	(352)	-
FWSA-Opequon	8,864	5,206	3,658	-	-	-	3,658		-	-	3,658
FWSA-Parkins Mill	3,518	1,653	1,865	-	-	-	1,865		-	-	1,865
HRRSA-North River	14,633	9,587	5,046	-	-	-	5,046		5,046	-	-
KGCSA-Dahlgren S.D.	914	548	366	(137)	-	-	229		-	-	229
KGCSA-Fairview Beach	183	82	101	-	-	-	101		-	-	101
KGCSA-Purkins Corner	110	247	(137)	137	-	-	-		-	-	-
Leesburg	7,035	4,264	2,771	-	-	(1,759)	1,012		-	-	1,012
Loudoun Water- Broad Run	2,580	1,876	704	-	-	-	704		634	-	70
Luray	1,126	306	820	-	-	-	820		779	-	41
Massanutten PSC	1,055	6,568	(5,513)	-	-	-	(5,513)		-	(5,513)	-
Merck	844	3,377	(2,533)	-	-	-	(2,533)		-	(2,533)	-
MillerCoors LLC	3,166	3,166	-	-	-	-	-		-	-	-
Mt. Jackson	492	422	70	-	-	-	70		-	-	70
Purcellville	1,056	865	191	-	-	-	191		95	-	96
PWCSA-HL Mooney	13,157	10,142	3,015	-	-	-	3,015		2,714	-	301
Stafford Co-Aquia	4,386	3,432	954	-	-	-	954		859	-	95
Stoney Creek	514	774	(260)	-	-	-	(260)		-	(604)	344
Strasburg	689	3,903	(3,214)	-	-	-	(3,214)		-	(3,214)	-
UOSA	7,236	4,793	2,443	-	-	-	2,443		-	-	2,443
VA Am. Water PW Sec. 1	2,522	2,302	220	-	-	-	220		-	-	220
VA Am. Water PW Sec. 8	2,522	2,302	220	-	-	-	220		-	-	220
Waynesboro	2,814	2,814	-	-	-	-	-		-	-	-
Purchase by Eastern Shore	-	-	-	-	(256)	-	(256)		-	(256)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-9
2016 Phosphorus Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Phosphorus Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 1.18	$ 5.27	$ 0.14
The Exchange (group)	**164,509**	**118,280**	**46,229**	**-**	**(351)**	**(1,234)**	**44,644**		**26,541**	**(6,612)**	**24,715**
ACSA-Fishersville	1,974	560	1,414	(300)	-	-	1,114		1,068	-	46
ACSA-Greenville	1,028	506	522	(522)	-	-	-		-	-	-
ACSA-Harriston	411	214	197	(197)	-	-	-		-	-	-
ACSA-Middle River	3,355	2,048	1,307	-	-	-	1,307		1,068	-	239
ACSA-Mt. Sidney	617	760	(143)	143	-	-	-		-	-	-
ACSA-Stuarts Draft	1,974	392	1,582	-	-	-	1,582		1,067	-	515
ACSA-Vesper View	411	328	83	(83)	-	-	-		-	-	-
ACSA-Weyers Cave	242	1,201	(959)	959	-	-	-		-	-	-
Alexandria Renew Ent.	29,603	21,588	8,015	-	-	-	8,015		4,008	-	4,007
Arlington Co.	21,928	9,502	12,426	-	(105)	-	12,321		-	-	12,321
Berryville	339	208	131	-	-	-	131		118	-	13
Broadway Regional	1,172	1,085	87	-	-	-	87		-	-	87
Fairfax Co-Noman Cole	36,729	25,579	11,150	-	-	-	11,150		11,150	-	-
FCWSA-Vint Hill	148	51	97	-	-	-	97		-	-	97
Front Royal	1,974	2,230	(256)	-	-	-	(256)		-	(256)	-
FWSA-Opequon	6,217	3,799	2,418	-	-	-	2,418		-	-	2,418
FWSA-Parkins Mill	2,467	1,332	1,135	-	-	-	1,135		-	-	1,135
HRRSA-North River	10,262	6,631	3,631	-	-	-	3,631		3,631	-	-
KGCSA-Dahlgren S.D.	914	548	366	(131)	-	-	235		-	-	235
KGCSA-Fairview Beach	179	72	107	-	-	-	107		-	-	107
KGCSA-Purkins Corner	106	237	(131)	131	-	-	-		-	-	-
Leesburg	4,934	3,242	1,692	-	-	(1,234)	458		-	-	458
Loudoun Water- Broad Run	1,809	1,151	658	-	-	-	658		592	-	66
Luray	789	372	417	-	-	-	417		417	-	-
Massanutten PSC	727	4,646	(3,919)	-	-	-	(3,919)		-	(3,919)	-
Merck	592	2,367	(1,775)	-	-	-	(1,775)		-	(1,775)	-
MillerCoors LLC	2,220	2,220	-	-	-	-	-		-	-	-
Mt. Jackson	339	161	178	-	-	-	178		-	-	178
Purcellville	727	513	214	-	-	-	214		107	-	107
PWCSA-HL Mooney	13,157	10,279	2,878	-	-	-	2,878		2,590	-	288
Stafford Co-Aquia	4,386	3,580	806	-	-	-	806		725	-	81
Stoney Creek	353	533	(180)	-	-	-	(180)		-	(416)	236
Strasburg	474	436	38	-	-	-	38		-	-	38
UOSA	4,934	3,221	1,713	-	-	-	1,713		-	-	1,713
VA Am. Water PW Sec. 1	2,522	2,357	165	-	-	-	165		-	-	165
VA Am. Water PW Sec. 8	2,522	2,357	165	-	-	-	165		-	-	165
Waynesboro	1,974	1,974	-	-	-	-	-		-	-	-
Purchase by Eastern Shore	-	-	-	-	(246)	-	(246)		-	(246)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-10
2017 Phosphorus Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Phosphorus Credit Ledger

Compliance Year:	2017	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.89	$ 5.65	$ 0.29
The Exchange (group)	**164,509**	**120,765**	**43,744**	**-**	**(334)**	**(1,234)**	**42,176**	**36,240**	**(6,365)**	**12,301**
ACSA-Fishersville	1,974	840	1,134	(1,134)	-	-	-	-	-	-
ACSA-Greenville	1,028	494	534	(83)	-	-	451	451	-	-
ACSA-Harriston	411	273	138	-	-	-	138	138	-	-
ACSA-Middle River	3,355	2,150	1,205	-	-	-	1,205	445	-	760
ACSA-Mt. Sidney	617	828	(211)	211	-	-	-	-	-	-
ACSA-Stuarts Draft	1,974	726	1,248	-	-	-	1,248	444	-	804
ACSA-Vesper View	411	325	86	-	-	-	86	86	-	-
ACSA-Weyers Cave	242	1,248	(1,006)	1,006	-	-	-	-	-	-
Alexandria Renew Ent.	29,603	21,818	7,785	-	-	-	7,785	3,900	-	3,885
Arlington Co.	21,928	9,685	12,243	-	(105)	-	12,138	12,138	-	-
Berryville	339	194	145	-	-	-	145	110	-	35
Broadway Regional	1,172	1,099	73	-	-	-	73	-	-	73
Fairfax Co-Noman Cole	36,729	25,985	10,744	-	-	-	10,744	10,744	-	-
FCWSA-Vint Hill	148	53	95	-	-	-	95	-	-	95
Front Royal	1,974	2,235	(261)	-	-	-	(261)	-	(261)	-
FWSA-Opequon	6,217	3,947	2,270	-	-	-	2,270	-	-	2,270
FWSA-Parkins Mill	2,467	1,529	938	-	-	-	938	-	-	938
HRRSA-North River	10,262	6,631	3,631	-	-	-	3,631	3,631	-	-
KGCSA-Dahlgren S.D.	914	457	457	(40)	-	-	417	-	-	417
KGCSA-Fairview Beach	179	72	107	-	-	-	107	-	-	107
KGCSA-Purkins Corner	106	146	(40)	40	-	-	-	-	-	-
Leesburg	4,934	3,552	1,382	-	-	(1,234)	148	-	-	148
Loudoun Water- Broad Run	1,809	1,316	493	-	-	-	493	493	-	-
Luray	789	333	456	-	-	-	456	456	-	-
Massanutten PSC	727	4,646	(3,919)	-	-	-	(3,919)	-	(3,919)	-
Merck	592	2,368	(1,776)	-	-	-	(1,776)	-	(1,776)	-
MillerCoors LLC	2,220	2,220	-	-	-	-	-	-	-	-
Mt. Jackson	339	168	171	-	-	-	171	-	-	171
Purcellville	727	436	291	-	-	-	291	145	-	146
PWCSA-HL Mooney	13,157	10,416	2,741	-	-	-	2,741	2,467	-	274
Stafford Co-Aquia	4,386	3,728	658	-	-	-	658	592	-	66
Stoney Creek	353	533	(180)	-	-	-	(180)	-	(180)	-
Strasburg	474	441	33	-	-	-	33	-	-	33
UOSA	4,934	3,185	1,749	-	-	-	1,749	-	-	1,749
VA Am. Water PW Sec. 1	2,522	2,357	165	-	-	-	165	-	-	165
VA Am. Water PW Sec. 8	2,522	2,357	165	-	-	-	165	-	-	165
Waynesboro	1,974	1,974	-	-	-	-	-	-	-	-
Purchase by Eastern Shore	-	-	-	-	(229)	-	(229)	-	(229)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-11
2018 Phosphorus Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Phosphorus Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.87	$ 5.70	$ 0.41
The Exchange (group)	**164,509**	**124,125**	**40,384**	**-**	**(862)**	**(976)**	**38,546**		**36,209**	**(6,170)**	**8,507**
ACSA-Fishersville	1,974	840	1,134	(1,134)	-	-	-		-	-	-
ACSA-Greenville	1,028	618	410	(83)	-	-	327		327	-	-
ACSA-Harriston	411	242	169	-	-	-	169		169	-	-
ACSA-Middle River	3,355	2,709	646	-	-	-	646		594	-	52
ACSA-Mt. Sidney	617	828	(211)	211	-	-	-		-	-	-
ACSA-Stuarts Draft	1,974	987	987	-	-	-	987		593	-	394
ACSA-Vesper View	411	310	101	-	-	-	101		101	-	-
ACSA-Weyers Cave	242	1,248	(1,006)	1,006	-	-	-		-	-	-
Alexandria Renew Ent.	29,603	22,043	7,560	-	-	-	7,560		5,670	-	1,890
Arlington Co.	21,928	9,868	12,060	-	(833)	-	11,227		11,227	-	-
Berryville	339	194	145	-	-	-	145		130	-	15
Broadway Regional	1,172	1,114	58	-	-	-	58		-	-	58
Fairfax Co-Noman Cole	36,729	27,344	9,385	-	-	-	9,385		9,385	-	-
FCWSA-Vint Hill	148	56	92	-	-	-	92		-	-	92
Front Royal	1,974	2,240	(266)	-	-	-	(266)		-	(266)	-
FWSA-Opequon	6,217	4,095	2,122	-	-	-	2,122		-	-	2,122
FWSA-Parkins Mill	2,467	1,727	740	-	-	-	740		-	-	740
HRRSA-North River	10,262	6,631	3,631	-	-	-	3,631		3,631	-	-
KGCSA-Dahlgren S.D.	914	503	411	(40)	-	-	371		-	-	371
KGCSA-Fairview Beach	179	72	107	-	-	-	107		-	-	107
KGCSA-Purkins Corner	106	146	(40)	40	-	-	-		-	-	-
Leesburg	4,934	3,958	976	-	-	(976)	-		-	-	-
Loudoun Water- Broad Run	1,809	905	904	-	-	-	904		904	-	-
Luray	789	333	456	-	-	-	456		456	-	-
Massanutten PSC	727	4,646	(3,919)	-	-	-	(3,919)		-	(3,919)	-
Merck	592	2,368	(1,776)	-	-	-	(1,776)		-	(1,776)	-
MillerCoors LLC	2,220	2,220	-	-	-	-	-		-	-	-
Mt. Jackson	339	174	165	-	-	-	165		-	-	165
Purcellville	727	533	194	-	-	-	194		140	-	54
PWCSA-HL Mooney	13,157	10,553	2,604	-	-	-	2,604		2,344	-	260
Stafford Co-Aquia	4,386	3,876	510	-	-	-	510		459	-	51
Stoney Creek	353	533	(180)	-	-	-	(180)		-	(180)	-
Strasburg	474	446	28	-	-	-	28		-	-	28
UOSA	4,934	3,156	1,778	-	-	-	1,778		-	-	1,778
VA Am. Water PW Sec. 1	2,522	2,357	165	-	-	-	165		-	-	165
VA Am. Water PW Sec. 8	2,522	2,357	165	-	-	-	165		-	-	165
Waynesboro	1,974	1,895	79	-	-	-	79		79	-	-
Purchase by Eastern Shore	-	-	-	-	(29)	-	(29)		-	(29)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 2-12
2019 Phosphorus Trading Ledger: Potomac-Shenandoah River Basin

POTOMAC Basin: Phosphorus Credit Ledger

Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.87	$ 5.76	$ 0.42
The Exchange (group)	**164,509**	**123,954**	**40,555**	**-**	**(888)**	**(660)**	**39,007**	**36,745**	**(6,201)**	**8,463**
ACSA-Fishersville	1,974	872	1,102	(8)	-	-	1,094	1,094	-	-
ACSA-Greenville	1,028	833	195	-	-	-	195	195	-	-
ACSA-Harriston	411	260	151	-	-	-	151	151	-	-
ACSA-Middle River	3,355	2,143	1,212	-	-	-	1,212	1,212	-	-
ACSA-Mt. Sidney	617	625	(8)	8	-	-	-	-	-	-
ACSA-Stuarts Draft	1,974	752	1,222	-	-	-	1,222	1,222	-	-
ACSA-Vesper View	411	410	1	-	-	-	1	1	-	-
ACSA-Weyers Cave	242	140	102	-	-	-	102	102	-	-
Alexandria Renew Ent.	29,603	22,273	7,330	-	-	-	7,330	5,500	-	1,830
Arlington Co.	21,928	9,045	12,883	-	(833)	-	12,050	12,050	-	-
Berryville	339	213	126	-	-	-	126	110	-	16
Broadway Regional	1,172	978	194	-	-	-	194	-	-	194
Fairfax Co-Noman Cole	36,729	28,254	8,475	-	-	-	8,475	8,475	-	-
FCWSA-Vint Hill	148	62	86	-	-	-	86	-	-	86
Front Royal	1,974	2,245	(271)	-	-	-	(271)	-	(271)	-
FWSA-Opequon	6,217	4,292	1,925	-	-	-	1,925	-	-	1,925
FWSA-Parkins Mill	2,467	1,875	592	-	-	-	592	-	-	592
HRRSA-North River	10,262	6,907	3,355	-	-	-	3,355	2,800	-	555
KGCSA-Dahlgren S.D.	914	503	411	(40)	-	-	371	-	-	371
KGCSA-Fairview Beach	179	72	107	-	-	-	107	-	-	107
KGCSA-Purkins Corner	106	146	(40)	40	-	-	-	-	-	-
Leesburg	4,934	4,274	660	-	-	(660)	-	-	-	-
Loudoun Water- Broad Run	1,809	1,069	740	-	-	-	740	740	-	-
Luray	789	340	449	-	-	-	449	449	-	-
Massanutten PSC	727	4,646	(3,919)	-	-	-	(3,919)	-	(3,919)	-
Merck	592	2,368	(1,776)	-	-	-	(1,776)	-	(1,776)	-
MillerCoors LLC	2,220	2,220	-	-	-	-	-	-	-	-
Mt. Jackson	339	174	165	-	-	-	165	-	-	165
Purcellville	727	436	291	-	-	-	291	146	-	145
PWCSA-HL Mooney	13,157	10,690	2,467	-	-	-	2,467	2,220	-	247
Stafford Co-Aquia	4,386	4,024	362	-	-	-	362	199	-	163
Stoney Creek	353	533	(180)	-	-	-	(180)	-	(180)	-
Strasburg	474	450	24	-	-	-	24	-	-	24
UOSA	4,934	3,221	1,713	-	-	-	1,713	-	-	1,713
VA Am. Water PW Sec. 1	2,522	2,357	165	-	-	-	165	-	-	165
VA Am. Water PW Sec. 8	2,522	2,357	165	-	-	-	165	-	-	165
Waynesboro	1,974	1,895	79	-	-	-	79	79	-	-
Purchase by Eastern Shore	-	-	-	-	(55)	-	(55)	-	(55)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

Potomac-Shenandoah River Basin

Supplemental Information for Individual Facilities

Owner Bubble: Augusta County Service Authority

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

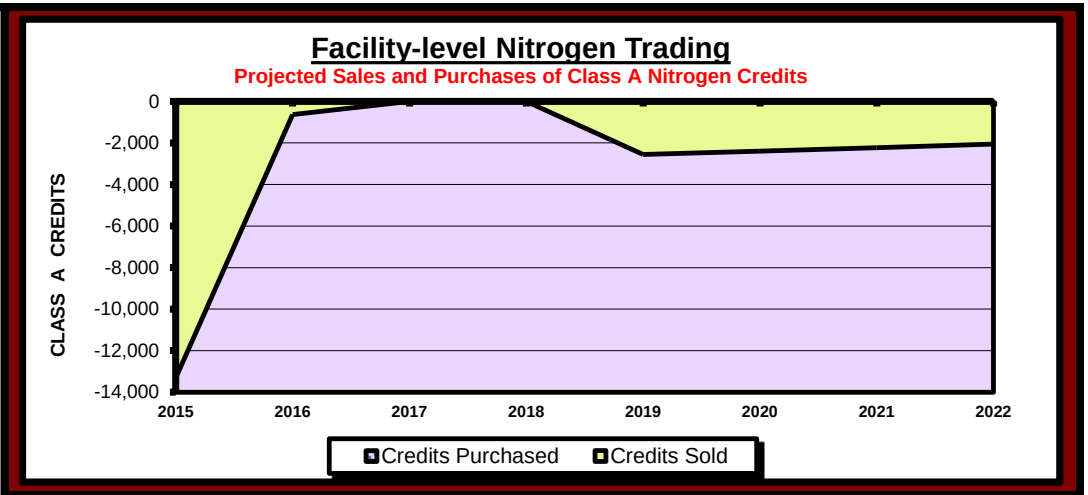
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Fishersville	(888)	(3,008)	(2,798)	(2,798)	(168)	(219)	(272)	(329)
Greenville	(4,034)	-	(865)	-	-	-	-	-
Harriston	(2,103)	(852)	-	(865)	-	-	-	-
Middle River	-	-	-	-	-	-	-	-
Mt. Sidney	1,576	419	441	441	168	219	272	329
Stuarts Draft	-	-	-	-	-	-	-	-
Vesper View	(1,365)	(535)	-	-	-	-	-	-
Weyers Cave	6,814	3,976	3,222	3,222	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Fishersville	15,377	630	-	-	2,552	2,393	2,227	2,051
Greenville	-	892	72	815	522	477	430	380
Harriston	-	-	866	19	865	857	849	840
Middle River	17,910	3,860	2,975	1,595	2,993	2,729	2,451	2,159
Mt. Sidney	-	-	-	-	-	-	-	-
Stuarts Draft	16,612	1,860	1,540	1,218	1,508	1,461	1,413	1,362
Vesper View	-	-	498	523	412	381	349	315
Weyers Cave	-	-	-	-	616	573	529	482
Expected Net Credits	**49,899**	**7,242**	**5,951**	**4,170**	**9,468**	**8,871**	**8,248**	**7,589**
Class A Sales (Purchases)	**39,920**	**5,794**	**2,976**	**3,335**	**9,468**	**8,871**	**8,248**	**7,589**
Expected Class B Credits	*9,979*	*1,448*	*2,975*	*835*	*0*	*0*	*0*	*0*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Fishersville	(250)	(300)	(1,134)	(1,134)	(8)	(58)	(113)	(170)
Greenville	(779)	(522)	(83)	(83)	-	-	-	-
Harriston	(295)	(197)	-	-	-	-	-	-
Middle River	-	-	-	-	-	-	-	-
Mt. Sidney	154	143	211	211	8	39	72	106
Stuarts Draft	-	-	-	-	-	-	-	-
Vesper View	(140)	(83)	-	-	-	19	41	64
Weyers Cave	1,310	959	1,006	1,006	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Fishersville	1,803	1,114	-	-	1,094	1,000	900	794
Greenville	-	-	451	327	195	153	110	64
Harriston	-	-	138	169	151	138	125	110
Middle River	2,003	1,307	1,205	646	1,212	1,105	993	874
Mt. Sidney	-	-	-	-	-	-	-	-
Stuarts Draft	2,282	1,582	1,248	987	1,222	1,185	1,145	1,104
Vesper View	-	-	86	101	1	-	-	-
Weyers Cave	-	-	-	-	102	95	87	80
Expected Net Credits	**6,088**	**4,003**	**3,128**	**2,230**	**3,977**	**3,676**	**3,360**	**3,026**
Class A Sales (Purchases)	**4,870**	**3,203**	**1,564**	**1,784**	**3,977**	**3,676**	**3,360**	**3,026**
Expected Class B Credits	*1,218*	*800*	*1,564*	*446*	*0*	*0*	*0*	*0*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

ACSA-Fishersville

POTOMAC Trading Basin

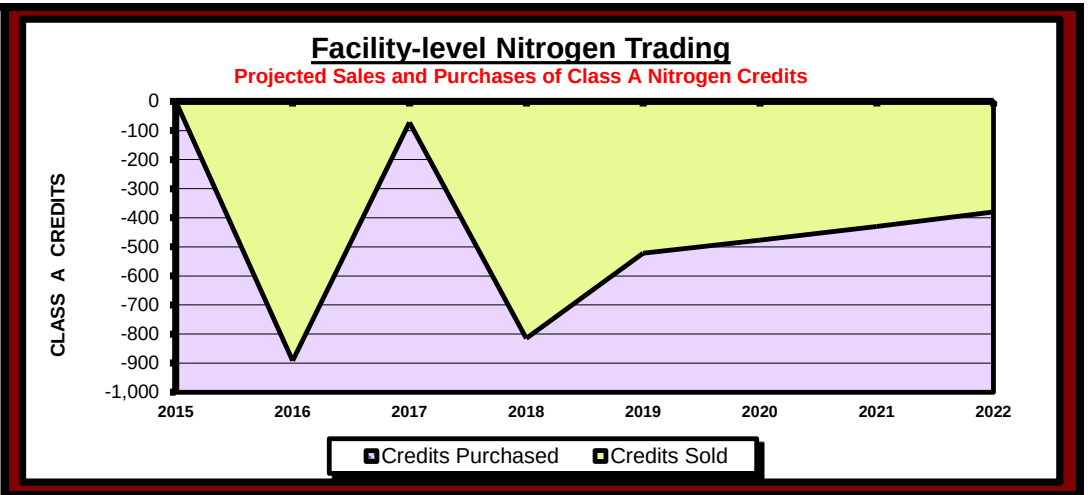


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	1.54	1.62	1.70	1.70	1.77	1.86	1.95	2.05
Projected Avg. Annual Concentration (mg/L)	2.50	2.50	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	11,763	12,351	20,750	20,750	21,533	22,610	23,740	24,927
Delivery Factor	0.44	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Expected Load	5,176	1,235	2,075	2,075	2,153	2,261	2,374	2,493
Delivered WLA	21,441	4,873	4,873	4,873	4,873	4,873	4,873	4,873
Expected Credits (delivered)	16,265	3,638	2,798	2,798	2,720	2,612	2,499	2,380
Transfers In (Out) within Owner Bubble	(888)	(3,008)	(2,798)	(2,798)	(168)	(219)	(272)	(329)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**15,377**	**630**	**0**	**0**	**2,552**	**2,393**	**2,227**	**2,051**
Class A Credit Sales (Purchases)	**13,307**	**630**	**0**	**0**	**2,552**	**2,393**	**2,227**	**2,051**
Expected Class B Credits	**2,070**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

ACSA-Greenville

POTOMAC Trading Basin

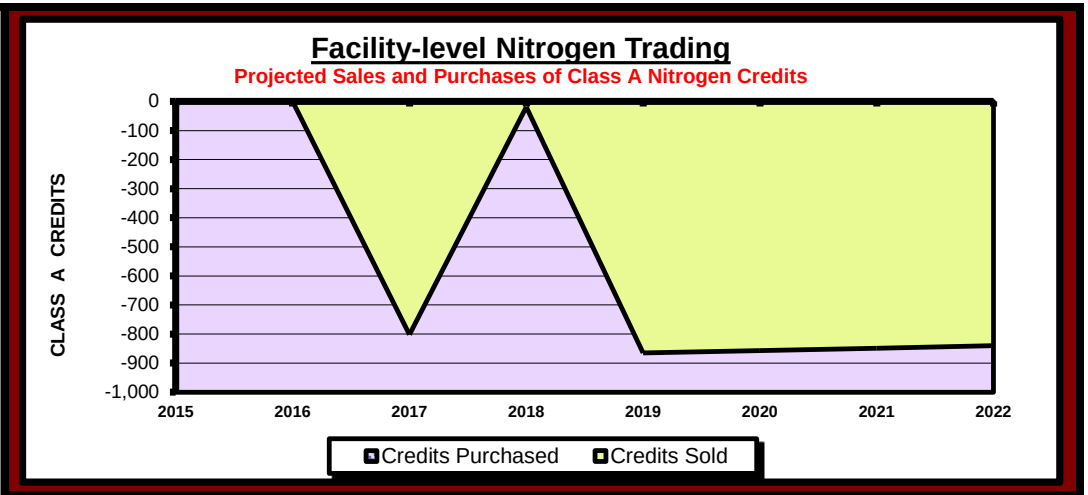


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Projected Flow (mgd)	0.04	0.04	0.04	0.05	0.08	0.08	0.09	0.09
Projected Avg. Annual Concentration (mg/L)	42.30	42.30	36.83	36.83	38.08	38.08	38.08	38.08
Discharged Load (end of pipe)	5,071	5,324	4,867	6,090	9,015	9,466	9,939	10,436
Delivery Factor	0.44	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Expected Load	2,231	532	487	609	902	947	994	1,044
Delivered WLA	6,265	1,424	1,424	1,424	1,424	1,424	1,424	1,424
Expected Credits (delivered)	4,034	892	937	815	522	477	430	380
Transfers In (Out) within Owner Bubble	(4,034)	0	(865)	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**892**	**72**	**815**	**522**	**477**	**430**	**380**
Class A Credit Sales (Purchases)	**0**	**892**	**72**	**815**	**522**	**477**	**430**	**380**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

ACSA-Harriston

POTOMAC Trading Basin

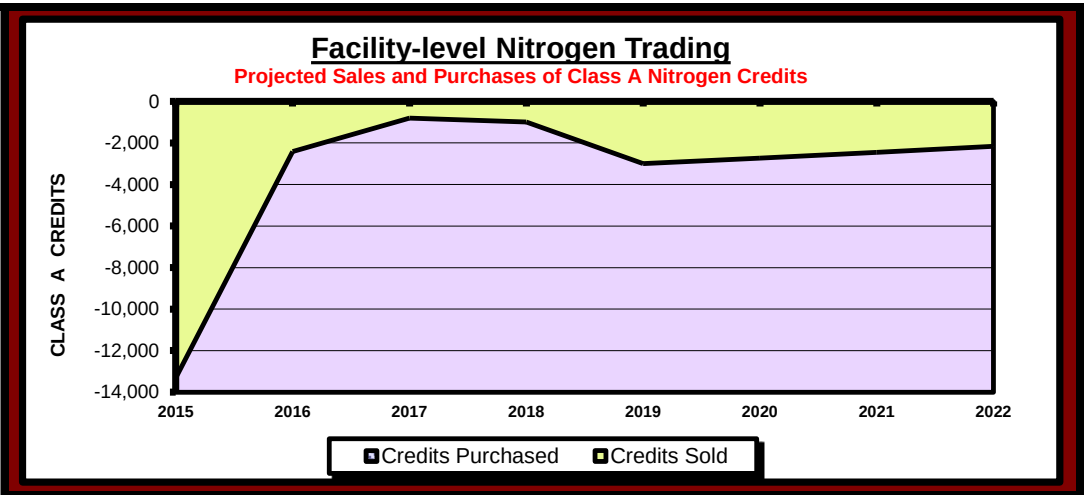


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.04	0.04	0.05	0.04	0.05	0.05	0.05	0.06
Projected Avg. Annual Concentration (mg/L)	7.02	7.02	6.14	6.14	5.87	5.87	5.87	5.87
Discharged Load (end of pipe)	916	962	883	781	886	931	977	1,026
Delivery Factor	0.44	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Expected Load	403	173	159	141	160	168	176	185
Delivered WLA	2,506	1,025	1,025	1,025	1,025	1,025	1,025	1,025
Expected Credits (delivered)	2,103	852	866	884	865	857	849	840
Transfers In (Out) within Owner Bubble	(2,103)	(852)	0	(865)	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**866**	**19**	**865**	**857**	**849**	**840**
Class A Credit Sales (Purchases)	**0**	**0**	**802**	**19**	**865**	**857**	**849**	**840**
Expected Class B Credits	**0**	**0**	**64**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

ACSA-Middle River

POTOMAC Trading Basin

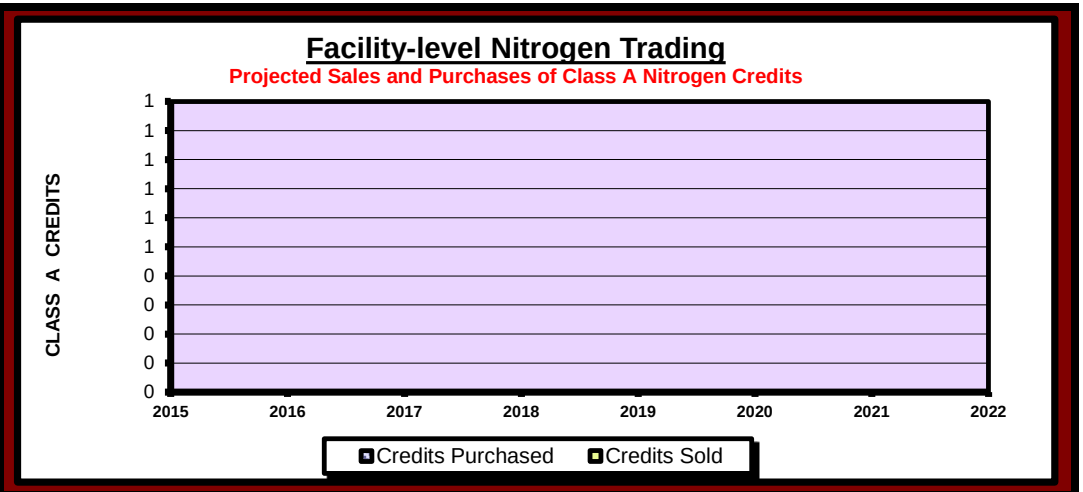


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.80	6.80	6.80	6.80	6.80	6.80	6.80	6.80
Projected Flow (mgd)	3.95	4.15	4.36	5.49	4.34	4.56	4.79	5.03
Projected Avg. Annual Concentration (mg/L)	3.50	3.50	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	42,135	44,242	53,090	66,887	52,908	55,554	58,332	61,248
Delivery Factor	0.44	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Expected Load	18,539	4,424	5,309	6,689	5,291	5,555	5,833	6,125
Delivered WLA	36,449	8,284	8,284	8,284	8,284	8,284	8,284	8,284
Expected Credits (delivered)	17,910	3,860	2,975	1,595	2,993	2,729	2,451	2,159
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**17,910**	**3,860**	**2,975**	**1,595**	**2,993**	**2,729**	**2,451**	**2,159**
Class A Credit Sales (Purchases)	**13,307**	**2,412**	**802**	**989**	**2,993**	**2,729**	**2,451**	**2,159**
Expected Class B Credits	**4,603**	**1,448**	**2,173**	**606**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

ACSA-Mt. Sidney

POTOMAC Trading Basin

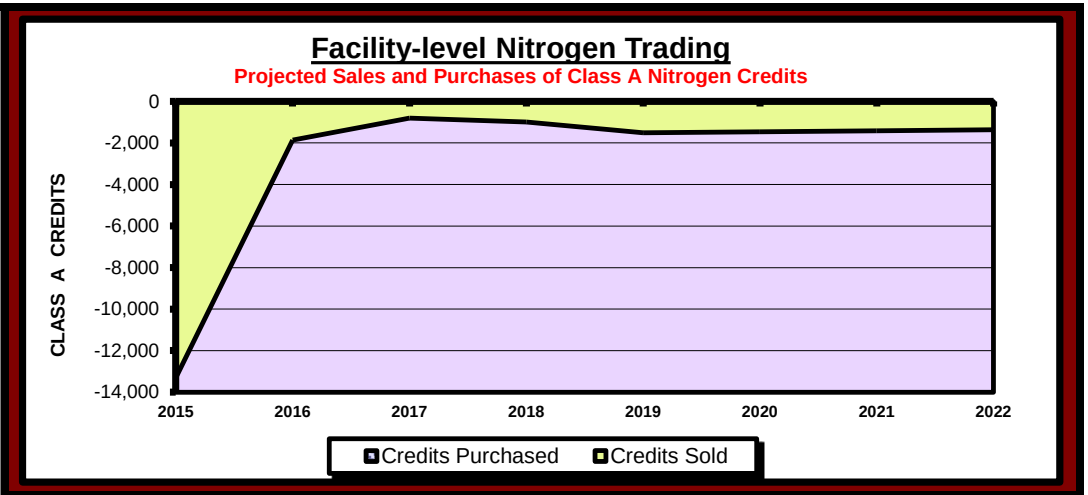


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Projected Flow (mgd)	0.11	0.11	0.12	0.12	0.09	0.10	0.10	0.11
Projected Avg. Annual Concentration (mg/L)	36.80	36.80	35.64	35.64	35.76	35.76	35.76	35.76
Discharged Load (end of pipe)	12,124	12,731	12,946	12,946	10,217	10,728	11,265	11,828
Delivery Factor	0.44	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Expected Load	5,335	1,273	1,295	1,295	1,022	1,073	1,126	1,183
Delivered WLA	3,759	854	854	854	854	854	854	854
Expected Credits (delivered)	(1,576)	(419)	(441)	(441)	(168)	(219)	(272)	(329)
Transfers In (Out) within Owner Bubble	1,576	419	441	441	168	219	272	329
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

ACSA-Stuarts Draft

POTOMAC Trading Basin

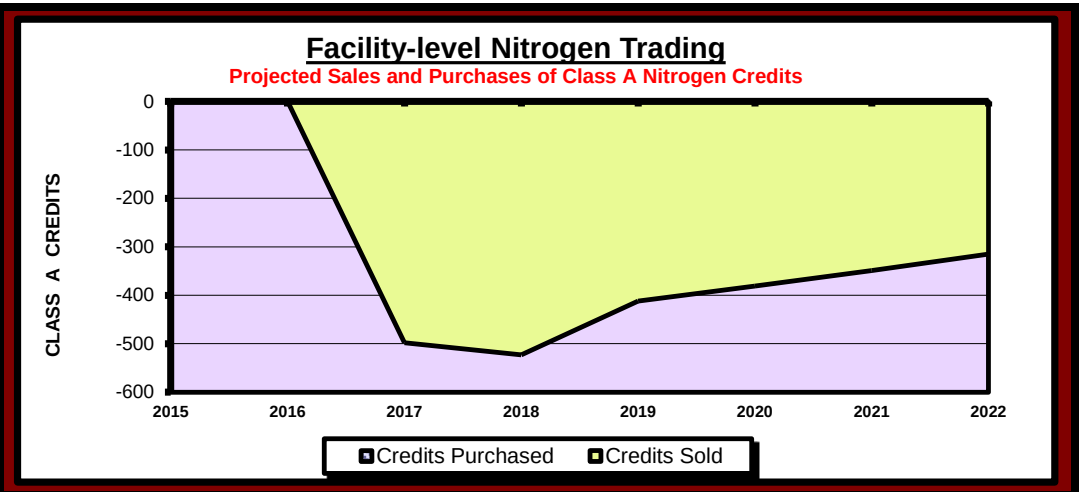


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	1.33	1.40	1.47	2.00	1.52	1.60	1.68	1.76
Projected Avg. Annual Concentration (mg/L)	2.70	2.70	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	10,976	11,524	17,927	24,364	18,562	19,490	20,465	21,488
Delivery Factor	0.44	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Expected Load	4,829	576	896	1,218	928	975	1,023	1,074
Delivered WLA	21,441	2,436	2,436	2,436	2,436	2,436	2,436	2,436
Expected Credits (delivered)	16,612	1,860	1,540	1,218	1,508	1,461	1,413	1,362
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**16,612**	**1,860**	**1,540**	**1,218**	**1,508**	**1,461**	**1,413**	**1,362**
Class A Credit Sales (Purchases)	**13,306**	**1,860**	**802**	**989**	**1,508**	**1,461**	**1,413**	**1,362**
Expected Class B Credits	**3,306**	**0**	**738**	**229**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

ACSA-Vesper View

POTOMAC Trading Basin

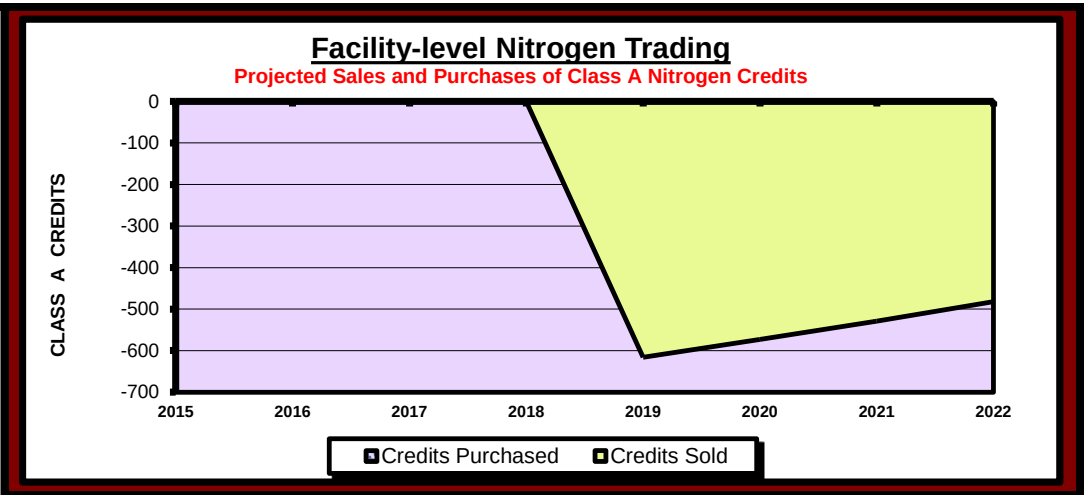


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.07
Projected Avg. Annual Concentration (mg/L)	17.51	17.51	17.92	17.92	18.56	18.56	18.56	18.56
Discharged Load (end of pipe)	2,593	2,722	2,926	2,786	3,408	3,579	3,757	3,945
Delivery Factor	0.44	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Expected Load	1,141	490	527	502	613	644	676	710
Delivered WLA	2,506	1,025	1,025	1,025	1,025	1,025	1,025	1,025
Expected Credits (delivered)	1,365	535	498	523	412	381	349	315
Transfers In (Out) within Owner Bubble	(1,365)	(535)	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**498**	**523**	**412**	**381**	**349**	**315**
Class A Credit Sales (Purchases)	**0**	**0**	**498**	**523**	**412**	**381**	**349**	**315**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

ACSA-Weyers Cave

POTOMAC Trading Basin

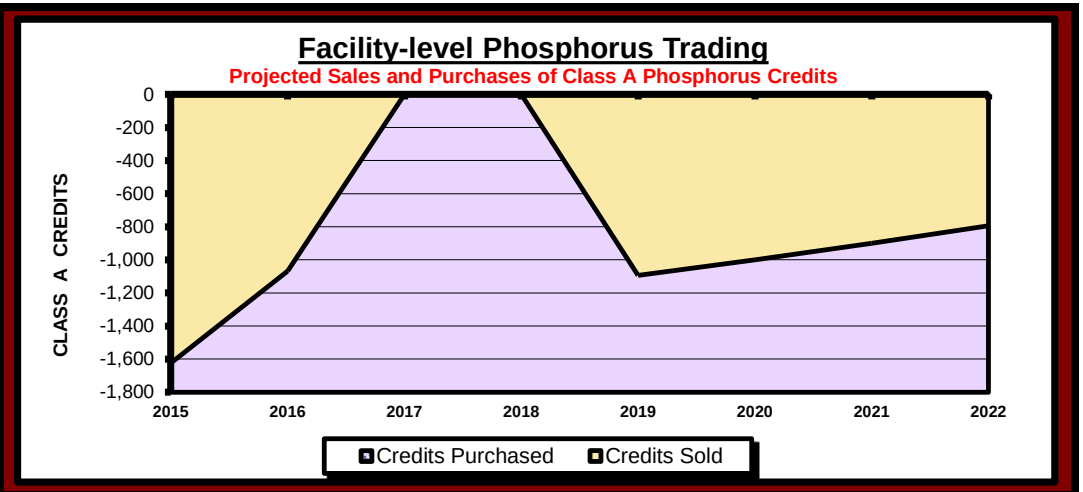


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.24	0.26	0.27	0.27	0.29	0.30	0.32	0.34
Projected Avg. Annual Concentration (mg/L)	29.00	29.00	23.79	23.79	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	21,578	22,657	19,516	19,516	3,526	3,703	3,888	4,082
Delivery Factor	0.44	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Expected Load	9,494	5,438	4,684	4,684	846	889	933	980
Delivered WLA	2,680	1,462	1,462	1,462	1,462	1,462	1,462	1,462
Expected Credits (delivered)	(6,814)	(3,976)	(3,222)	(3,222)	616	573	529	482
Transfers In (Out) within Owner Bubble	6,814	3,976	3,222	3,222	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**616**	**573**	**529**	**482**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**616**	**573**	**529**	**482**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Fishersville

POTOMAC Trading Basin

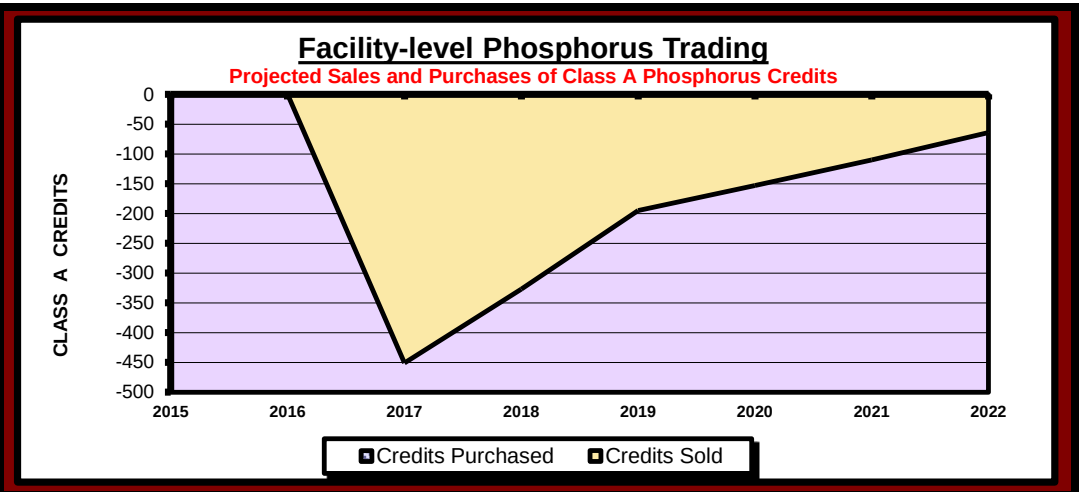


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	1.54	1.62	1.70	1.70	1.77	1.86	1.95	2.05
Projected Avg. Annual Concentration (mg/L)	0.21	0.21	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	988	1,037	1,556	1,556	1,615	1,696	1,781	1,870
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	761	560	840	840	872	916	961	1,010
Delivered WLA	2,814	1,974	1,974	1,974	1,974	1,974	1,974	1,974
Expected Credits (delivered)	2,053	1,414	1,134	1,134	1,102	1,058	1,013	964
Transfers In (Out) within Owner Bubble	(250)	(300)	(1,134)	(1,134)	(8)	(58)	(113)	(170)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,803**	**1,114**	**0**	**0**	**1,094**	**1,000**	**900**	**794**
Class A Credit Sales (Purchases)	**1,624**	**1,068**	**0**	**0**	**1,094**	**1,000**	**900**	**794**
Expected Class B Credits	**179**	**46**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Greenville

POTOMAC Trading Basin

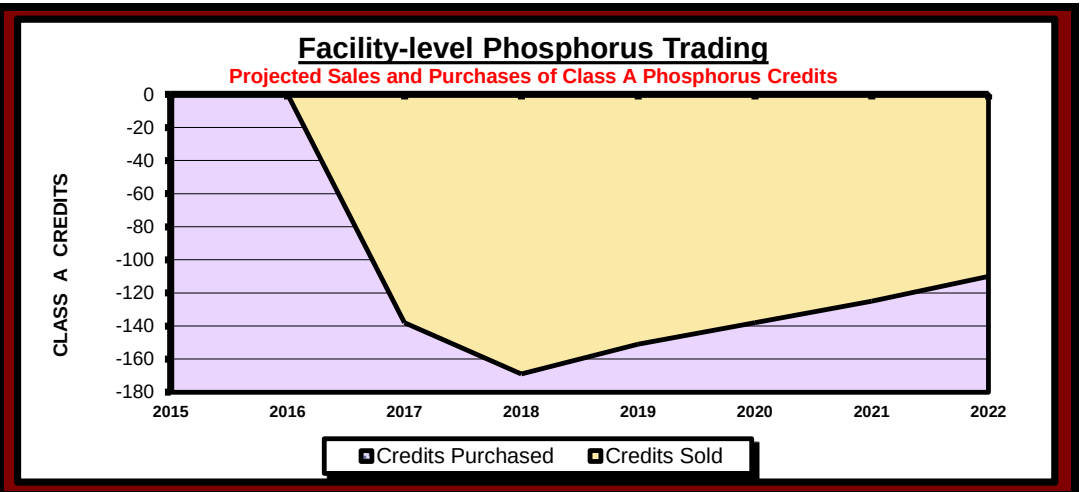


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Projected Flow (mgd)	0.04	0.04	0.04	0.05	0.08	0.08	0.09	0.09
Projected Avg. Annual Concentration (mg/L)	7.44	7.44	6.92	6.92	6.52	6.52	6.52	6.52
Discharged Load (end of pipe)	892	936	915	1,144	1,543	1,620	1,701	1,786
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	687	506	494	618	833	875	918	964
Delivered WLA	1,466	1,028	1,028	1,028	1,028	1,028	1,028	1,028
Expected Credits (delivered)	779	522	534	410	195	153	110	64
Transfers In (Out) within Owner Bubble	(779)	(522)	(83)	(83)	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**451**	**327**	**195**	**153**	**110**	**64**
Class A Credit Sales (Purchases)	**0**	**0**	**451**	**327**	**195**	**153**	**110**	**64**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Harriston

POTOMAC Trading Basin

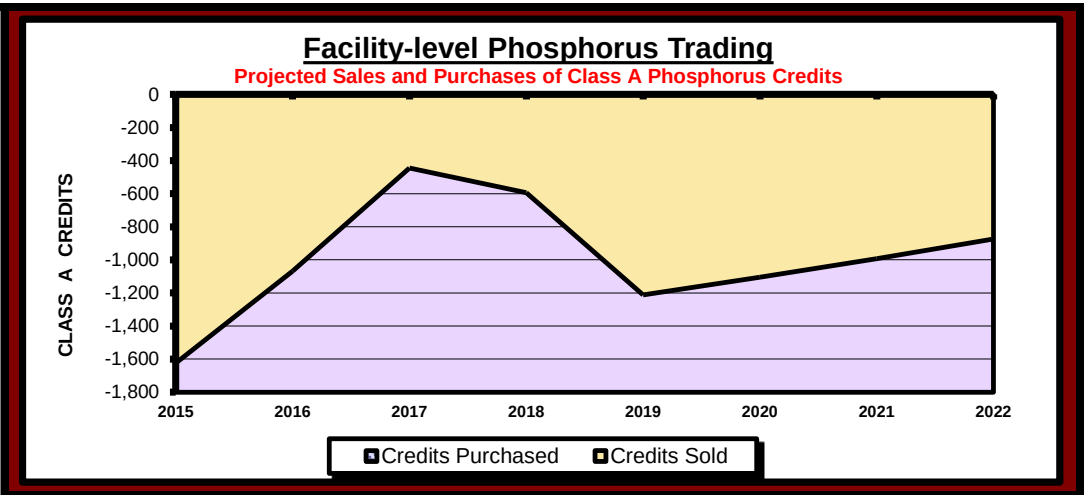


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.04	0.04	0.05	0.04	0.05	0.05	0.05	0.06
Projected Avg. Annual Concentration (mg/L)	2.90	2.90	3.52	3.52	3.19	3.19	3.19	3.19
Discharged Load (end of pipe)	378	397	506	448	481	505	531	557
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	291	214	273	242	260	273	286	301
Delivered WLA	586	411	411	411	411	411	411	411
Expected Credits (delivered)	295	197	138	169	151	138	125	110
Transfers In (Out) within Owner Bubble	(295)	(197)	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**138**	**169**	**151**	**138**	**125**	**110**
Class A Credit Sales (Purchases)	**0**	**0**	**138**	**169**	**151**	**138**	**125**	**110**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Middle River

POTOMAC Trading Basin

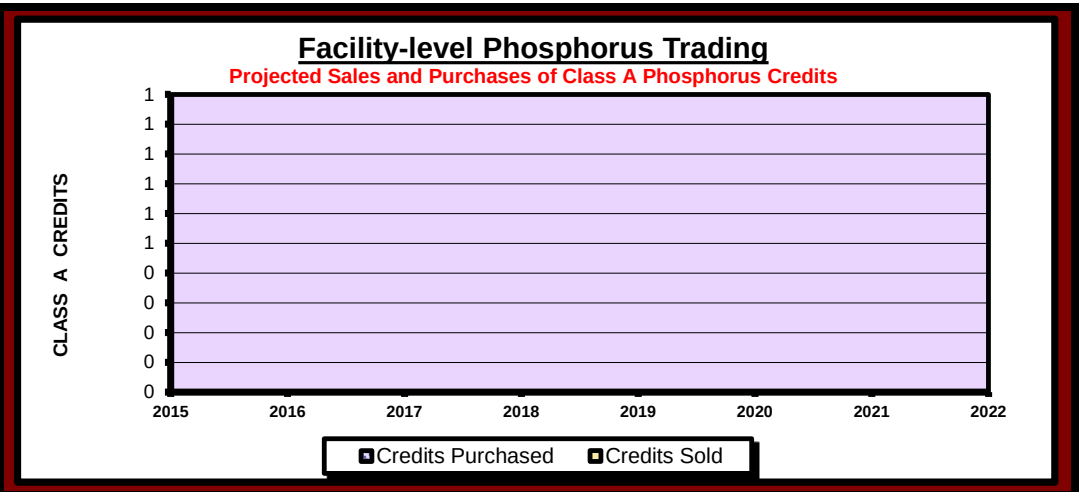


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.80	6.80	6.80	6.80	6.80	6.80	6.80	6.80
Projected Flow (mgd)	3.95	4.15	4.36	5.49	4.34	4.56	4.79	5.03
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	3,612	3,792	3,982	5,017	3,968	4,167	4,375	4,594
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	2,781	2,048	2,150	2,709	2,143	2,250	2,362	2,481
Delivered WLA	4,784	3,355	3,355	3,355	3,355	3,355	3,355	3,355
Expected Credits (delivered)	2,003	1,307	1,205	646	1,212	1,105	993	874
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,003**	**1,307**	**1,205**	**646**	**1,212**	**1,105**	**993**	**874**
Class A Credit Sales (Purchases)	**1,624**	**1,068**	**445**	**594**	**1,212**	**1,105**	**993**	**874**
Expected Class B Credits	**379**	**239**	**760**	**52**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Mt. Sidney

POTOMAC Trading Basin

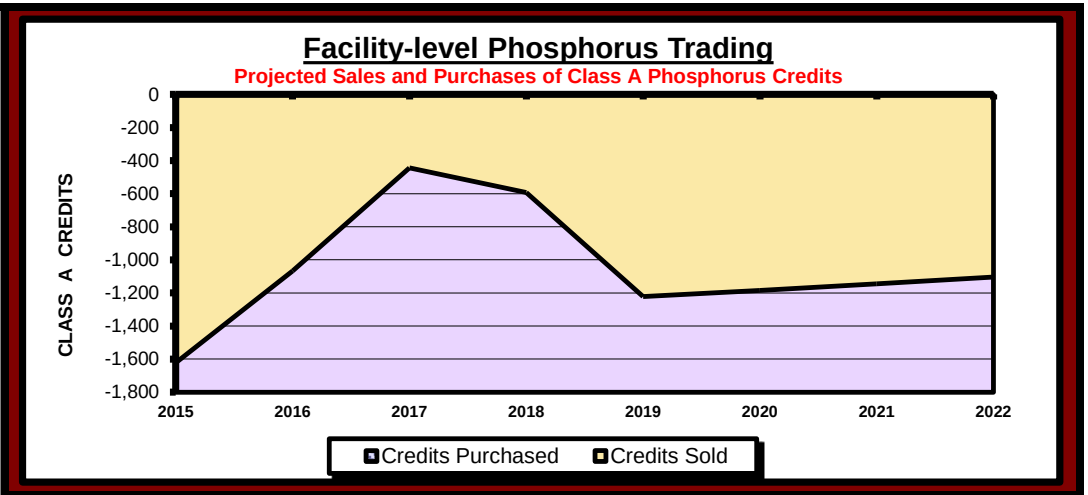


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Projected Flow (mgd)	0.11	0.11	0.12	0.12	0.09	0.10	0.10	0.11
Projected Avg. Annual Concentration (mg/L)	4.07	4.07	4.22	4.22	4.05	4.05	4.05	4.05
Discharged Load (end of pipe)	1,341	1,408	1,533	1,533	1,157	1,215	1,276	1,339
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	1,033	760	828	828	625	656	689	723
Delivered WLA	879	617	617	617	617	617	617	617
Expected Credits (delivered)	(154)	(143)	(211)	(211)	(8)	(39)	(72)	(106)
Transfers In (Out) within Owner Bubble	154	143	211	211	8	39	72	106
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Stuarts Draft

POTOMAC Trading Basin

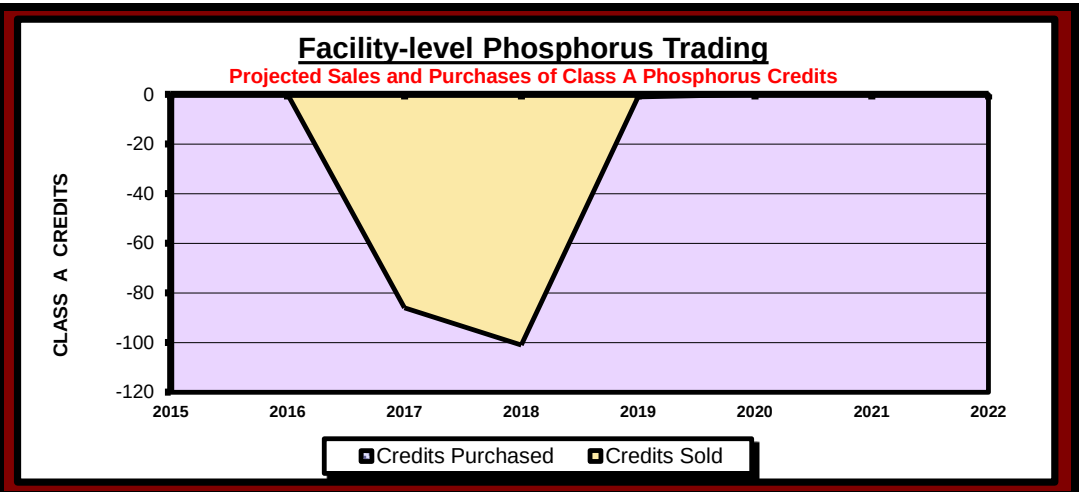


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	1.33	1.40	1.47	2.00	1.52	1.60	1.68	1.76
Projected Avg. Annual Concentration (mg/L)	0.17	0.17	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	691	726	1,345	1,827	1,392	1,462	1,535	1,612
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	532	392	726	987	752	789	829	870
Delivered WLA	2,814	1,974	1,974	1,974	1,974	1,974	1,974	1,974
Expected Credits (delivered)	2,282	1,582	1,248	987	1,222	1,185	1,145	1,104
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,282**	**1,582**	**1,248**	**987**	**1,222**	**1,185**	**1,145**	**1,104**
Class A Credit Sales (Purchases)	**1,622**	**1,067**	**444**	**593**	**1,222**	**1,185**	**1,145**	**1,104**
Expected Class B Credits	**660**	**515**	**804**	**394**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Vesper View

POTOMAC Trading Basin

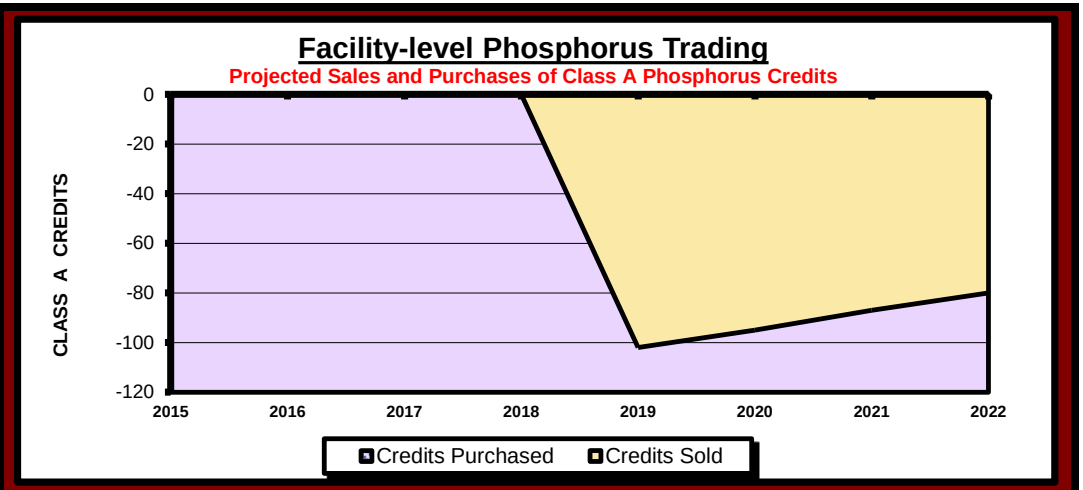


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.07
Projected Avg. Annual Concentration (mg/L)	3.91	3.91	3.69	3.69	4.13	4.13	4.13	4.13
Discharged Load (end of pipe)	579	608	602	574	759	797	837	879
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	446	328	325	310	410	430	452	475
Delivered WLA	586	411	411	411	411	411	411	411
Expected Credits (delivered)	140	83	86	101	1	(19)	(41)	(64)
Transfers In (Out) within Owner Bubble	(140)	(83)	0	0	0	19	41	64
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**86**	**101**	**1**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**86**	**101**	**1**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

ACSA-Weyers Cave

POTOMAC Trading Basin

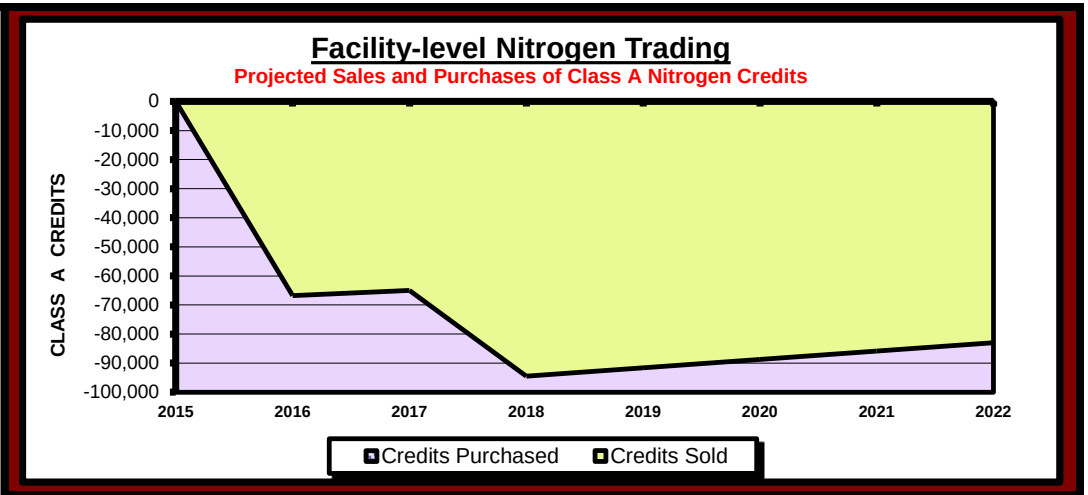


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.24	0.26	0.27	0.27	0.29	0.30	0.32	0.34
Projected Avg. Annual Concentration (mg/L)	2.90	2.90	2.87	2.87	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	2,158	2,266	2,354	2,354	264	278	292	306
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	1,662	1,201	1,248	1,248	140	147	155	162
Delivered WLA	352	242	242	242	242	242	242	242
Expected Credits (delivered)	(1,310)	(959)	(1,006)	(1,006)	102	95	87	80
Transfers In (Out) within Owner Bubble	1,310	959	1,006	1,006	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**102**	**95**	**87**	**80**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**102**	**95**	**87**	**80**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Alexandria Renew Ent.

POTOMAC Trading Basin

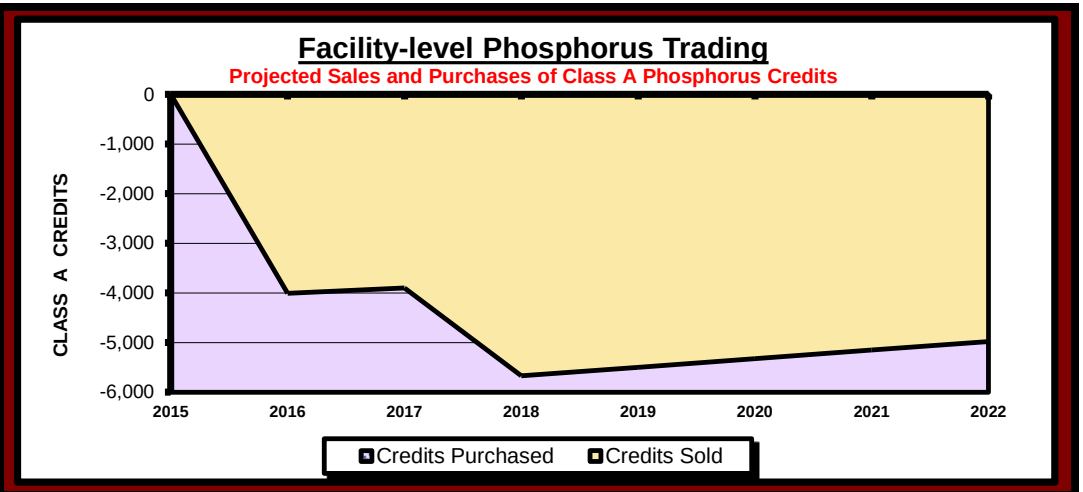


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00
Projected Flow (mgd)	38.96	39.38	39.80	40.21	40.63	41.05	41.47	41.89
Projected Avg. Annual Concentration (mg/L)	4.16	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	493,381	359,802	363,640	367,386	371,223	375,061	378,898	382,736
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	493,381	359,802	363,640	367,386	371,223	375,061	378,898	382,736
Delivered WLA	493,381	493,381	493,381	493,381	493,381	493,381	493,381	493,381
Expected Credits (delivered)	0	133,579	129,741	125,995	122,158	118,320	114,483	110,645
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**133,579**	**129,741**	**125,995**	**122,158**	**118,320**	**114,483**	**110,645**
Class A Credit Sales (Purchases)	**0**	**66,790**	**65,000**	**94,496**	**91,620**	**88,740**	**85,860**	**82,985**
Expected Class B Credits	**0**	**66,789**	**64,741**	**31,499**	**30,538**	**29,580**	**28,623**	**27,660**

PHOSPHORUS FACILITY SUMMARY

Alexandria Renew Ent.

POTOMAC Trading Basin

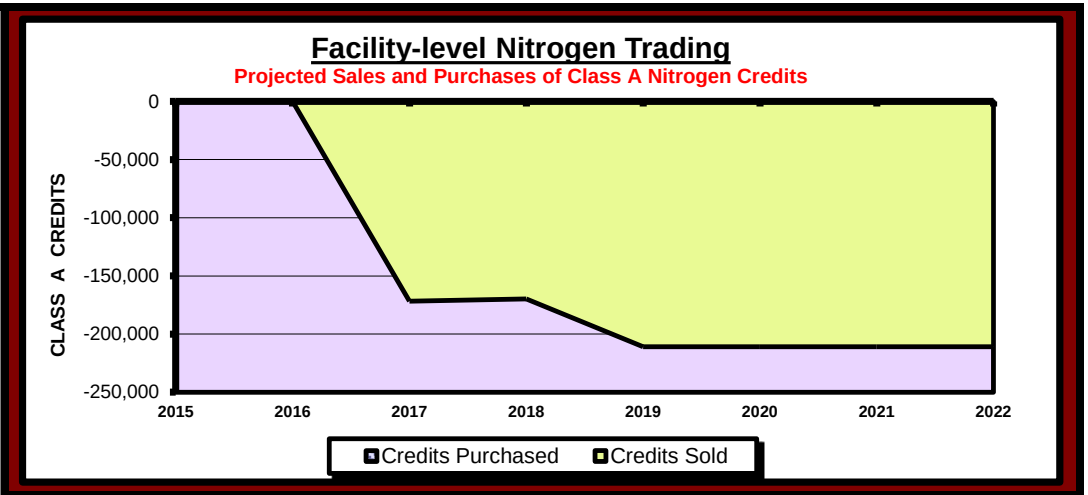


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00
Projected Flow (mgd)	38.96	39.38	39.80	40.21	40.63	41.05	41.47	41.89
Projected Avg. Annual Concentration (mg/L)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Discharged Load (end of pipe)	21,358	21,588	21,818	22,043	22,273	22,504	22,734	22,964
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	21,358	21,588	21,818	22,043	22,273	22,504	22,734	22,964
Delivered WLA	29,603	29,603	29,603	29,603	29,603	29,603	29,603	29,603
Expected Credits (delivered)	8,245	8,015	7,785	7,560	7,330	7,099	6,869	6,639
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**8,245**	**8,015**	**7,785**	**7,560**	**7,330**	**7,099**	**6,869**	**6,639**
Class A Credit Sales (Purchases)	**0**	**4,008**	**3,900**	**5,670**	**5,500**	**5,325**	**5,150**	**4,980**
Expected Class B Credits	**8,245**	**4,007**	**3,885**	**1,890**	**1,830**	**1,774**	**1,719**	**1,659**

NITROGEN FACILITY SUMMARY

Arlington Co.

POTOMAC Trading Basin

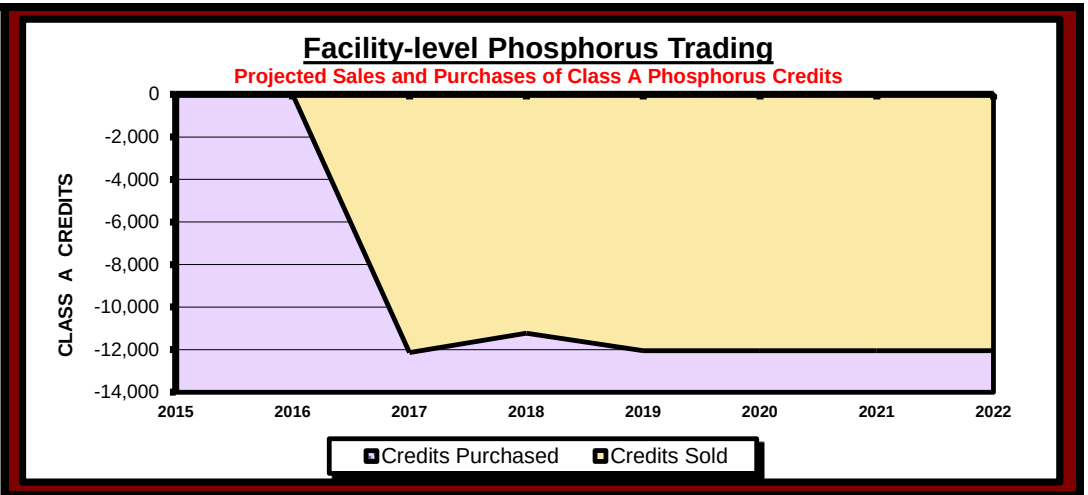


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Projected Flow (mgd)	25.50	26.00	26.50	27.00	27.00	27.00	27.00	27.00
Projected Avg. Annual Concentration (mg/L)	2.45	2.42	2.39	2.30	1.80	1.80	1.80	1.80
Discharged Load (end of pipe)	190,271	191,627	192,891	189,129	148,014	148,014	148,014	148,014
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	190,271	191,627	192,891	189,129	148,014	148,014	148,014	148,014
Delivered WLA	365,467	365,467	365,467	365,467	365,467	365,467	365,467	365,467
Expected Credits (delivered)	175,196	173,840	172,576	176,338	217,453	217,453	217,453	217,453
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	(816)	(816)	(816)	(6,524)	(6,524)	(6,524)	(6,524)	(6,524)
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**174,380**	**173,024**	**171,760**	**169,814**	**210,929**	**210,929**	**210,929**	**210,929**
Class A Credit Sales (Purchases)	**0**	**0**	**171,760**	**169,814**	**210,929**	**210,929**	**210,929**	**210,929**
Expected Class B Credits	**174,380**	**173,024**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Arlington Co.

POTOMAC Trading Basin

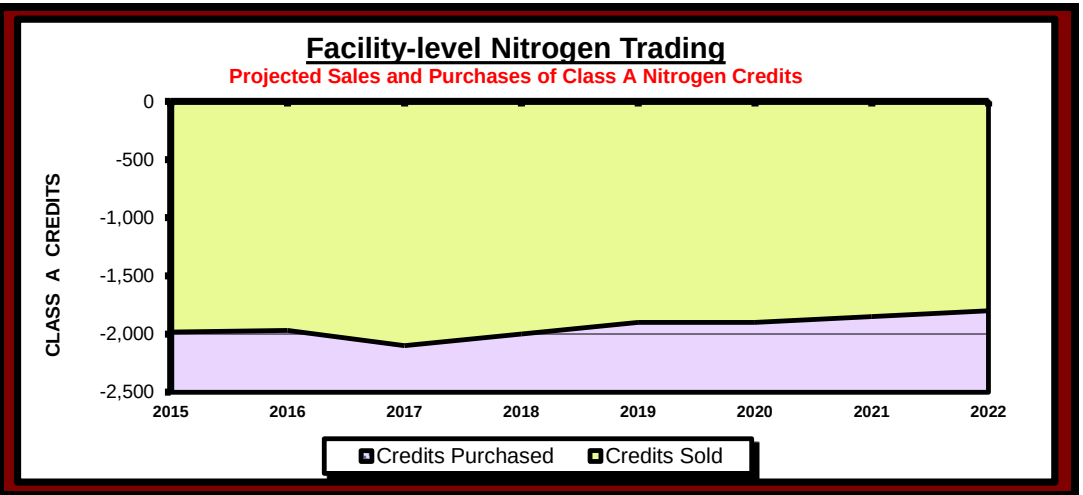


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Projected Flow (mgd)	25.50	26.00	26.50	27.00	27.00	27.00	27.00	27.00
Projected Avg. Annual Concentration (mg/L)	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11
Discharged Load (end of pipe)	9,319	9,502	9,685	9,868	9,045	9,045	9,045	9,045
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	9,319	9,502	9,685	9,868	9,045	9,045	9,045	9,045
Delivered WLA	21,928	21,928	21,928	21,928	21,928	21,928	21,928	21,928
Expected Credits (delivered)	12,609	12,426	12,243	12,060	12,883	12,883	12,883	12,883
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	(105)	(105)	(105)	(833)	(833)	(833)	(833)	(833)
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**12,504**	**12,321**	**12,138**	**11,227**	**12,050**	**12,050**	**12,050**	**12,050**
Class A Credit Sales (Purchases)	**0**	**0**	**12,138**	**11,227**	**12,050**	**12,050**	**12,050**	**12,050**
Expected Class B Credits	**12,504**	**12,321**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Berryville

POTOMAC Trading Basin

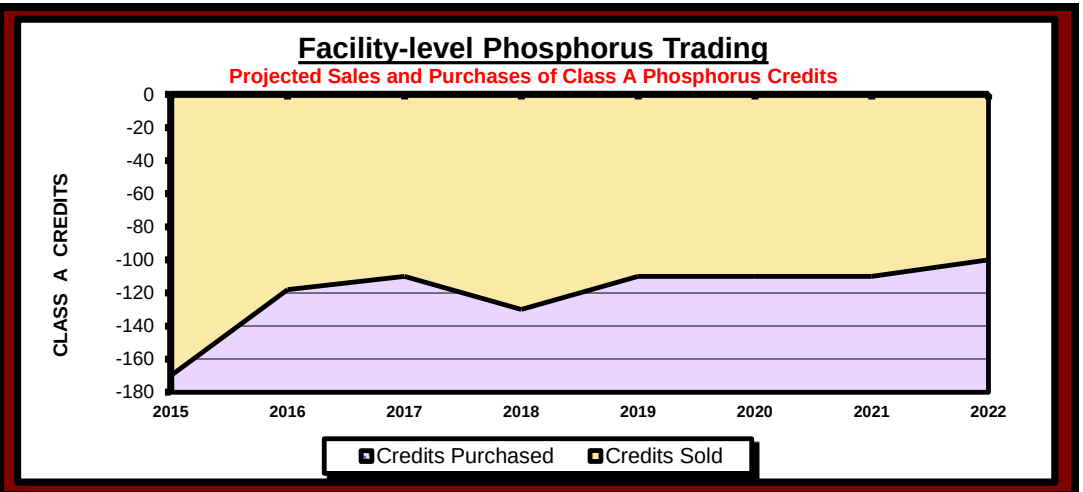


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Projected Flow (mgd)	0.43	0.43	0.40	0.40	0.44	0.44	0.45	0.46
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	5,238	5,238	4,873	4,873	5,360	5,360	5,482	5,604
Delivery Factor	0.67	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Expected Load	3,510	3,300	3,070	3,070	3,377	3,377	3,454	3,530
Delivered WLA	5,713	5,373	5,373	5,373	5,373	5,373	5,373	5,373
Expected Credits (delivered)	2,203	2,073	2,303	2,303	1,996	1,996	1,919	1,843
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,203**	**2,073**	**2,303**	**2,303**	**1,996**	**1,996**	**1,919**	**1,843**
Class A Credit Sales (Purchases)	**1,983**	**1,969**	**2,100**	**2,000**	**1,900**	**1,900**	**1,850**	**1,800**
Expected Class B Credits	**220**	**104**	**203**	**303**	**96**	**96**	**69**	**43**

PHOSPHORUS FACILITY SUMMARY

Berryville

POTOMAC Trading Basin

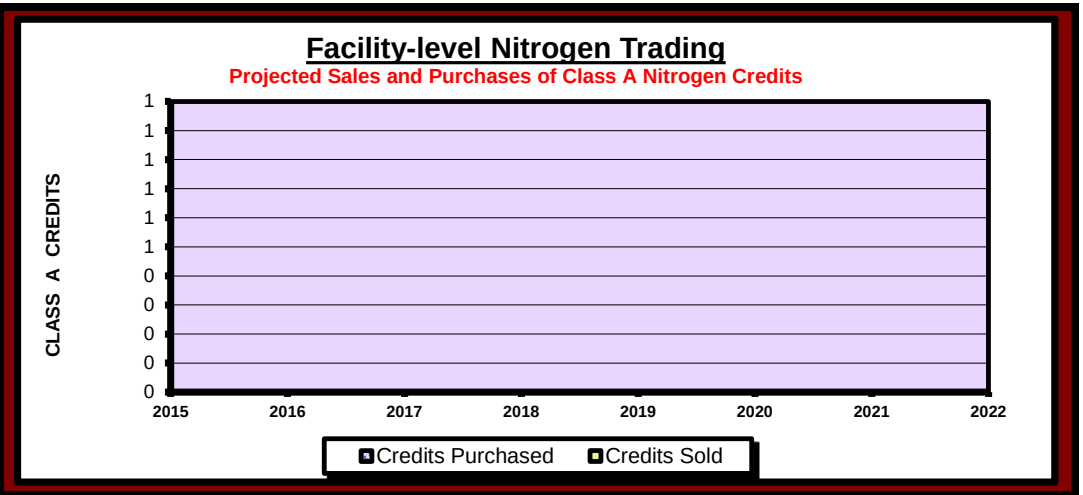


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Projected Flow (mgd)	0.43	0.43	0.40	0.40	0.44	0.44	0.45	0.46
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	393	393	365	365	402	402	411	420
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	303	208	194	194	213	213	218	223
Delivered WLA	492	339	339	339	339	339	339	339
Expected Credits (delivered)	189	131	145	145	126	126	121	116
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**189**	**131**	**145**	**145**	**126**	**126**	**121**	**116**
Class A Credit Sales (Purchases)	**170**	**118**	**110**	**130**	**110**	**110**	**110**	**100**
Expected Class B Credits	**19**	**13**	**35**	**15**	**16**	**16**	**11**	**16**

NITROGEN FACILITY SUMMARY

Broadway Regional

POTOMAC Trading Basin



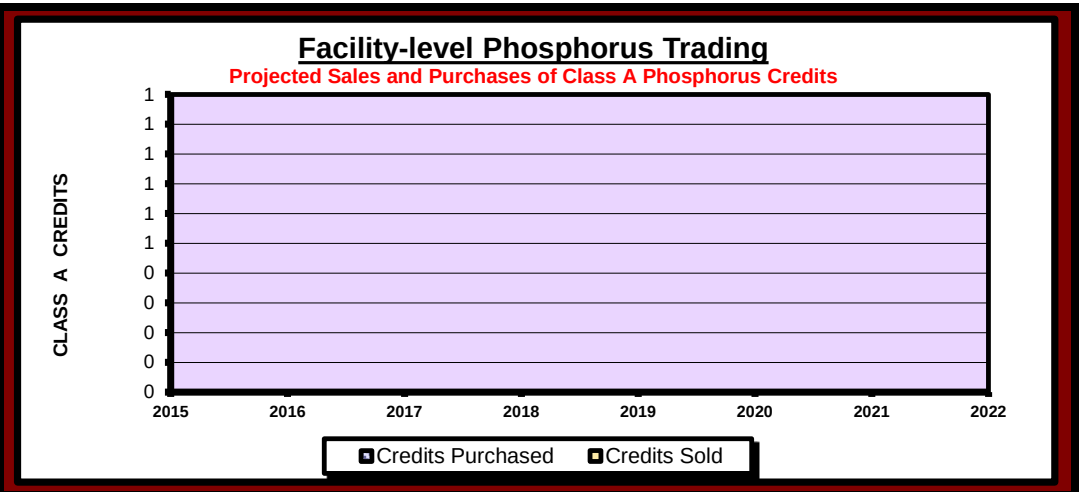
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92
Projected Flow (mgd)	2.21	2.24	2.27	2.30	2.33	2.36	2.39	2.42
Projected Avg. Annual Concentration (mg/L)	3.70	3.70	3.70	3.70	3.50	3.50	3.50	3.50
Discharged Load (end of pipe)	24,904	25,242	25,580	25,918	24,837	25,156	25,476	25,796
Delivery Factor	0.67	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Expected Load	16,685	4,796	4,860	4,924	4,719	4,780	4,840	4,901
Delivered WLA*	19,752	5,601	5,601	5,601	5,601	5,601	5,601	5,601
Expected Credits (delivered)	3,067	805	741	677	882	821	761	700
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,067**	**805**	**741**	**677**	**882**	**821**	**761**	**700**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**3,067**	**805**	**741**	**677**	**882**	**821**	**761**	**700**

** Reflects allocation transfer from the Town of New Market of 6,091 discharged pounds of TN according to agreement dated August 5, 2008*

PHOSPHORUS FACILITY SUMMARY

Broadway Regional

POTOMAC Trading Basin



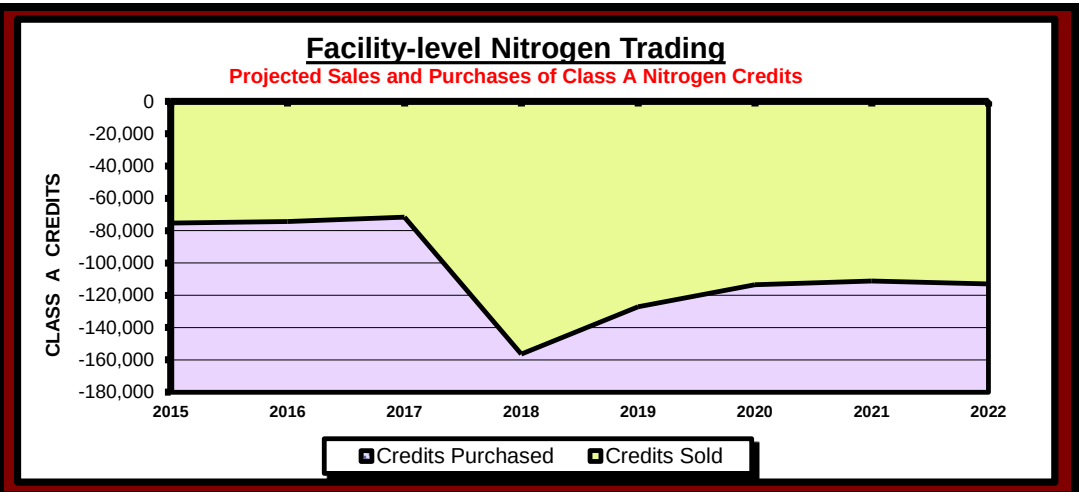
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92
Projected Flow (mgd)	2.21	2.24	2.27	2.30	2.33	2.36	2.39	2.42
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.26	0.26	0.26	0.26
Discharged Load (end of pipe)	2,019	2,047	2,074	2,101	1,845	1,869	1,893	1,916
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	1,555	1,085	1,099	1,114	978	990	1,003	1,016
Delivered WLA*	1,703	1,172	1,172	1,172	1,172	1,172	1,172	1,172
Expected Credits (delivered)	148	87	73	58	194	182	169	156
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**148**	**87**	**73**	**58**	**194**	**182**	**169**	**156**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**148**	**87**	**73**	**58**	**194**	**182**	**169**	**156**

** Reflects allocation transfer from the Town of New Market of 457 discharged pounds of TP according to agreement dated August 5, 2008*

NITROGEN FACILITY SUMMARY

Fairfax Co-Noman Cole

POTOMAC Trading Basin

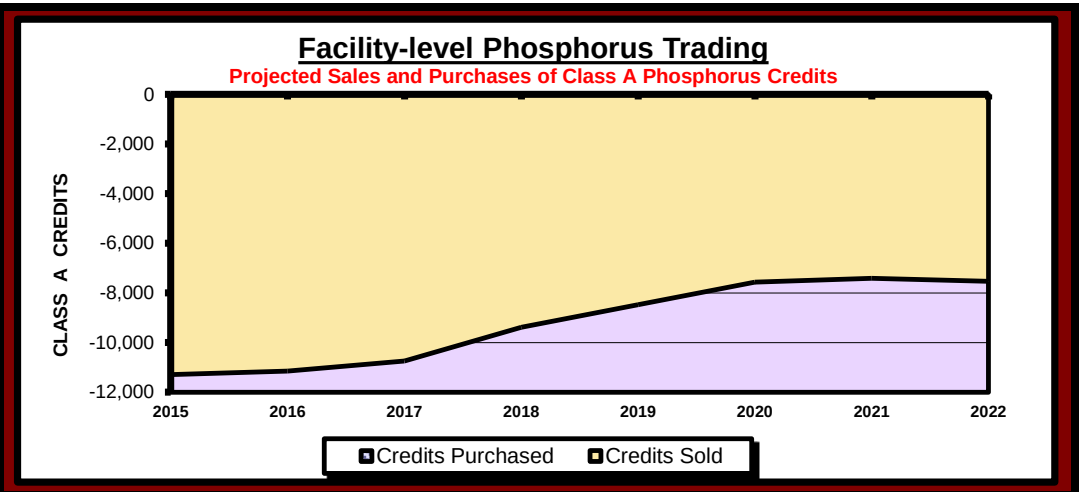


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Projected Flow (mgd)	46.40	46.66	47.40	49.88	51.54	53.20	53.48	53.26
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	423,942	426,317	433,079	455,738	470,904	486,071	488,630	486,620
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	423,942	426,317	433,079	455,738	470,904	486,071	488,630	486,620
Delivered WLA	612,158	612,158	612,158	612,158	612,158	612,158	612,158	612,158
Expected Credits (delivered)	188,216	185,841	179,079	156,420	141,254	126,087	123,528	125,538
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**188,216**	**185,841**	**179,079**	**156,420**	**141,254**	**126,087**	**123,528**	**125,538**
Class A Credit Sales (Purchases)	**75,286**	**74,336**	**71,632**	**156,420**	**127,128**	**113,478**	**111,175**	**112,984**
Expected Class B Credits	**112,930**	**111,505**	**107,447**	**0**	**14,126**	**12,609**	**12,353**	**12,554**

PHOSPHORUS FACILITY SUMMARY

Fairfax Co-Noman Cole

POTOMAC Trading Basin

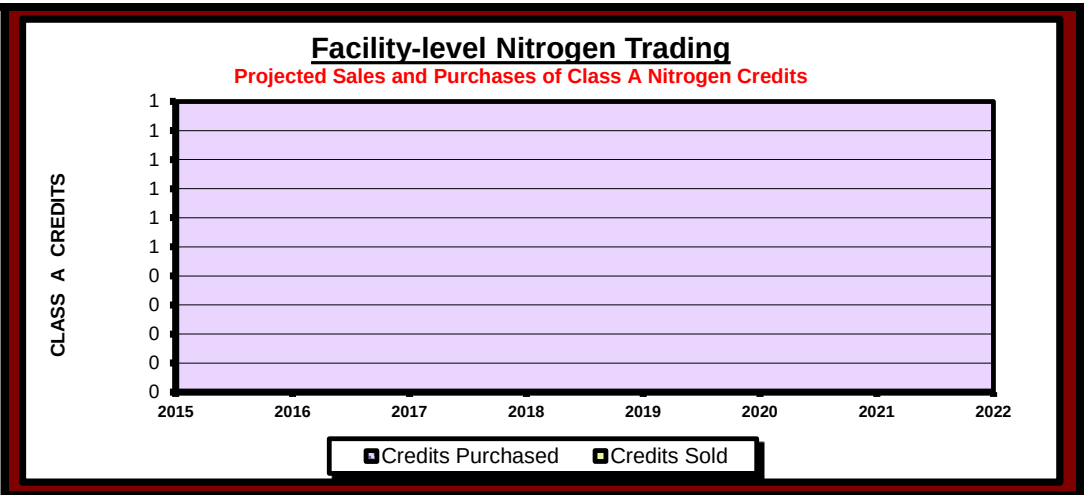


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Projected Flow (mgd)	46.40	46.66	47.40	49.88	51.54	53.20	53.48	53.26
Projected Avg. Annual Concentration (mg/L)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Discharged Load (end of pipe)	25,437	25,579	25,985	27,344	28,254	29,164	29,318	29,197
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	25,437	25,579	25,985	27,344	28,254	29,164	29,318	29,197
Delivered WLA	36,729	36,729	36,729	36,729	36,729	36,729	36,729	36,729
Expected Credits (delivered)	11,292	11,150	10,744	9,385	8,475	7,565	7,411	7,532
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**11,292**	**11,150**	**10,744**	**9,385**	**8,475**	**7,565**	**7,411**	**7,532**
Class A Credit Sales (Purchases)	**11,292**	**11,150**	**10,744**	**9,385**	**8,475**	**7,565**	**7,411**	**7,532**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

FCWSA-Vint Hill

POTOMAC Trading Basin

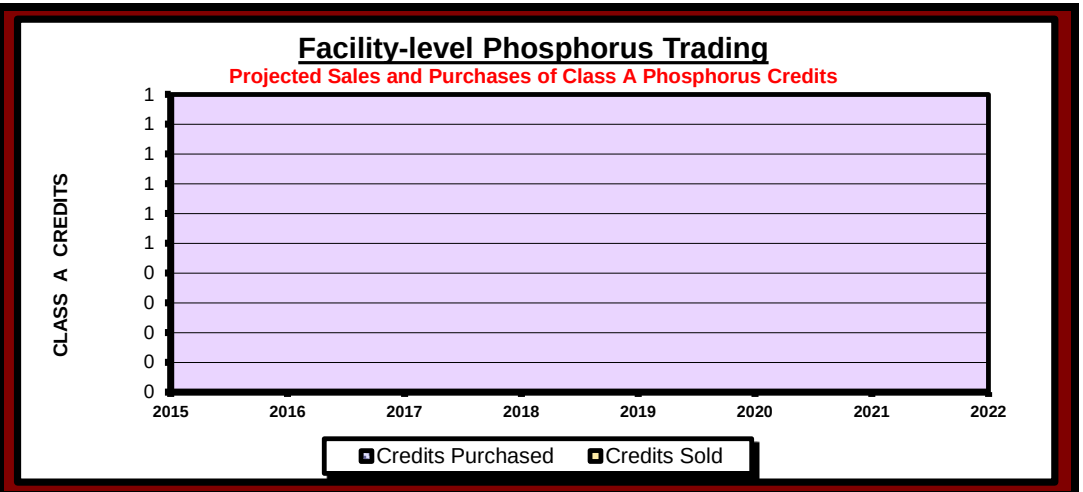


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Projected Flow (mgd)	0.30	0.32	0.34	0.36	0.40	0.42	0.44	0.46
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	3,655	3,898	4,142	4,386	4,873	5,117	5,360	5,604
Delivery Factor	0.58	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Expected Load	2,120	195	207	219	244	256	268	280
Delivered WLA	6,712	579	579	579	579	579	579	579
Expected Credits (delivered)	4,592	384	372	360	335	323	311	299
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**4,592**	**384**	**372**	**360**	**335**	**323**	**311**	**299**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**4,592**	**384**	**372**	**360**	**335**	**323**	**311**	**299**

PHOSPHORUS FACILITY SUMMARY

FCWSA-Vint Hill

POTOMAC Trading Basin

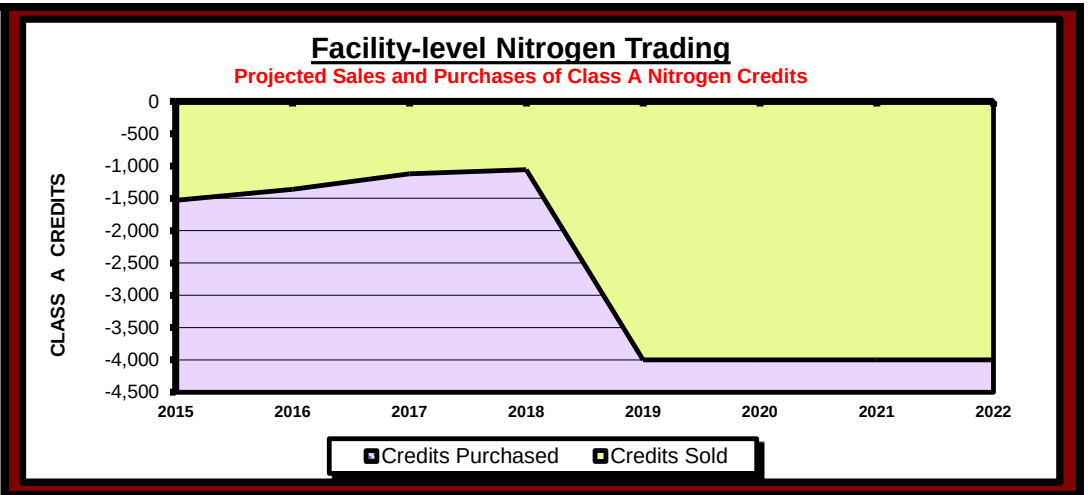


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Projected Flow (mgd)	0.30	0.32	0.34	0.36	0.40	0.42	0.44	0.46
Projected Avg. Annual Concentration (mg/L)	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	283	302	311	329	365	384	402	420
Delivery Factor	0.44	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Expected Load	125	51	53	56	62	65	68	71
Delivered WLA	382	148	148	148	148	148	148	148
Expected Credits (delivered)	257	97	95	92	86	83	80	77
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**257**	**97**	**95**	**92**	**86**	**83**	**80**	**77**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**257**	**97**	**95**	**92**	**86**	**83**	**80**	**77**

NITROGEN FACILITY SUMMARY

Front Royal

POTOMAC Trading Basin

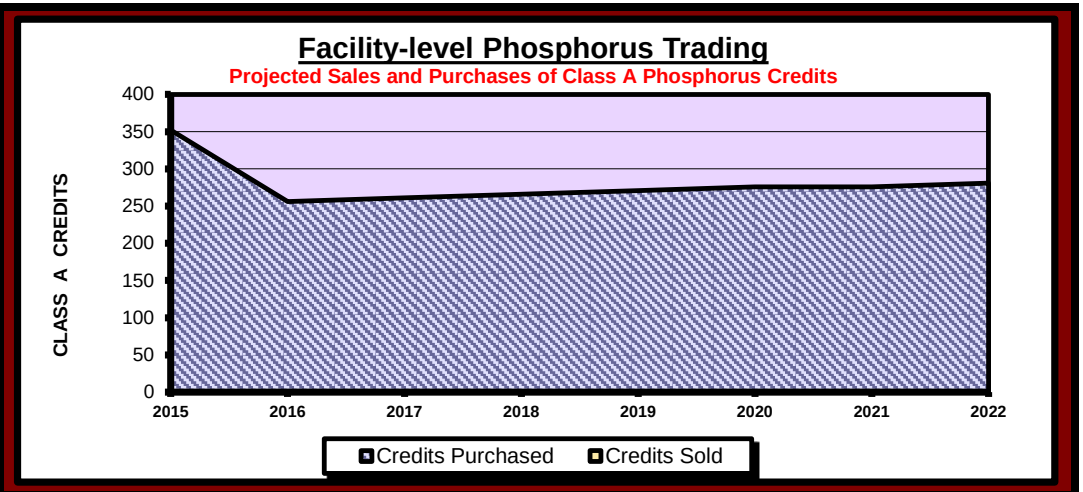


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	4.50	4.52	4.53	4.54	4.55	4.56	4.56	4.57
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	41,115	41,298	41,389	41,481	41,572	41,663	41,663	41,755
Delivery Factor	0.67	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Expected Load	27,547	25,192	25,247	25,303	25,359	25,415	25,415	25,470
Delivered WLA	32,648	29,725	29,725	29,725	29,725	29,725	29,725	29,725
Expected Credits (delivered)	5,101	4,533	4,478	4,422	4,366	4,310	4,310	4,255
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**5,101**	**4,533**	**4,478**	**4,422**	**4,366**	**4,310**	**4,310**	**4,255**
Class A Credit Sales (Purchases)	**1,530**	**1,360**	**1,120**	**1,056**	**4,000**	**4,000**	**4,000**	**4,000**
Expected Class B Credits	**3,571**	**3,173**	**3,358**	**3,366**	**366**	**310**	**310**	**255**

PHOSPHORUS FACILITY SUMMARY

Front Royal

POTOMAC Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	4.50	4.52	4.53	4.54	4.55	4.56	4.56	4.57
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	4,112	4,130	4,139	4,148	4,157	4,166	4,166	4,175
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	3,166	2,230	2,235	2,240	2,245	2,250	2,250	2,255
Delivered WLA	2,814	1,974	1,974	1,974	1,974	1,974	1,974	1,974
Expected Credits (delivered)	(352)	(256)	(261)	(266)	(271)	(276)	(276)	(281)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(352)**	**(256)**	**(261)**	**(266)**	**(271)**	**(276)**	**(276)**	**(281)**
Class A Credit Sales (Purchases)	**(352)**	**(256)**	**(261)**	**(266)**	**(271)**	**(276)**	**(276)**	**(281)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Owner Bubble: Frederick-Winchester Service Authority

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

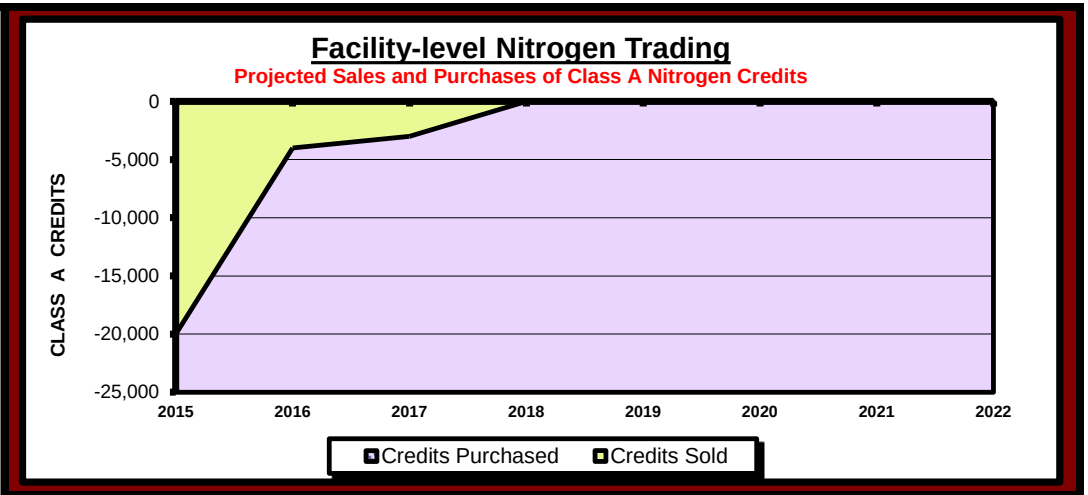
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Opequon	-	-	-	-	-	-	-	-
Parkins Mills	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Opequon	40,138	13,389	12,677	13,279	12,392	11,726	11,061	10,618
Parkins Mills	23,889	7,285	6,018	4,751	6,810	5,979	5,503	5,028
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**64,027**	**20,674**	**18,695**	**18,030**	**19,202**	**17,705**	**16,564**	**15,646**
Class A Sales (Purchases)	**26,000**	**5,000**	**4,000**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*38,027*	*15,674*	*14,695*	*18,030*	*19,202*	*17,705*	*16,564*	*15,646*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Opequon	-	-	-	-	-	-	-	-
Parkins Mills	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Opequon	3,658	2,418	2,270	2,122	1,925	1,777	1,629	1,530
Parkins Mills	1,865	1,135	938	740	592	419	321	222
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**5,523**	**3,553**	**3,208**	**2,862**	**2,517**	**2,196**	**1,950**	**1,752**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*5,523*	*3,553*	*3,208*	*2,862*	*2,517*	*2,196*	*1,950*	*1,752*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

FWSA-Opequon

POTOMAC Trading Basin

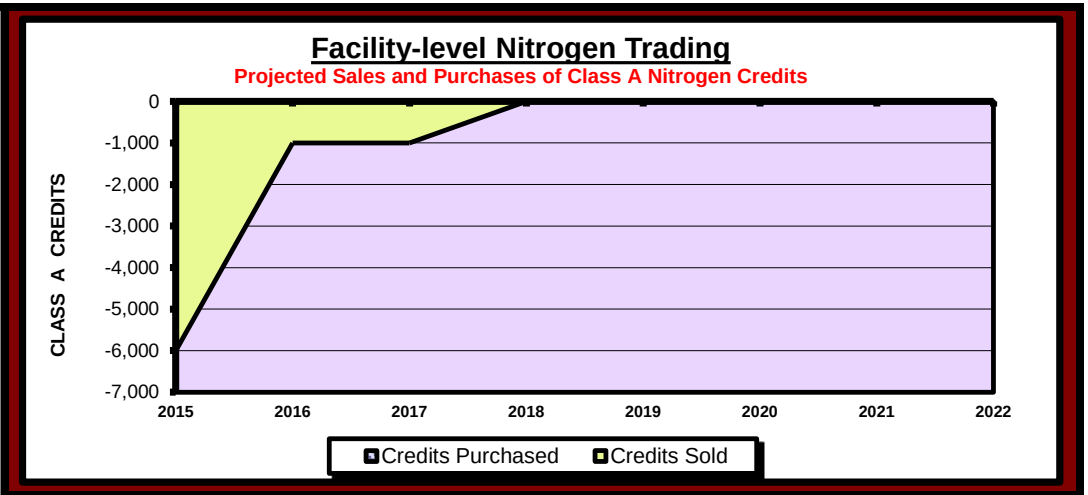


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60
Projected Flow (mgd)	7.40	7.70	8.00	8.30	8.70	9.00	9.30	9.50
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	2.80	2.80	2.80	2.80	2.80
Discharged Load (end of pipe)	67,611	70,352	73,093	70,779	74,190	76,748	79,306	81,012
Delivery Factor	0.74	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Expected Load	50,032	18,292	19,004	18,402	19,289	19,955	20,620	21,063
Delivered WLA	90,170	31,681	31,681	31,681	31,681	31,681	31,681	31,681
Expected Credits (delivered)	40,138	13,389	12,677	13,279	12,392	11,726	11,061	10,618
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**40,138**	**13,389**	**12,677**	**13,279**	**12,392**	**11,726**	**11,061**	**10,618**
Class A Credit Sales (Purchases)	**20,000**	**4,000**	**3,000**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**20,138**	**9,389**	**9,677**	**13,279**	**12,392**	**11,726**	**11,061**	**10,618**

NITROGEN FACILITY SUMMARY

FWSA-Parkins Mill

POTOMAC Trading Basin

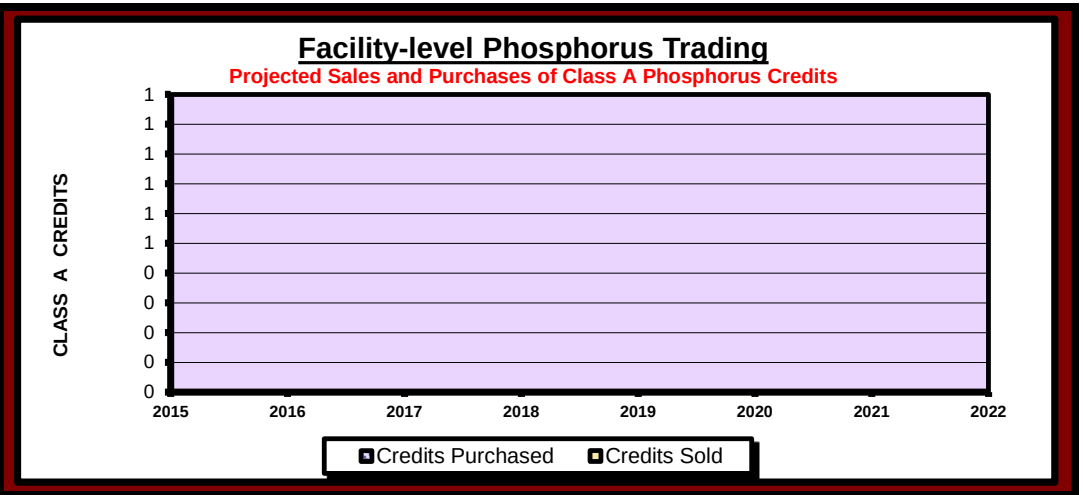


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Projected Flow (mgd)	2.35	2.70	3.10	3.50	3.80	4.15	4.35	4.55
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	28,628	32,892	37,765	42,638	34,719	37,917	39,745	41,572
Delivery Factor	0.74	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Expected Load	21,185	8,552	9,819	11,086	9,027	9,858	10,334	10,809
Delivered WLA	45,074	15,837	15,837	15,837	15,837	15,837	15,837	15,837
Expected Credits (delivered)	23,889	7,285	6,018	4,751	6,810	5,979	5,503	5,028
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**23,889**	**7,285**	**6,018**	**4,751**	**6,810**	**5,979**	**5,503**	**5,028**
Class A Credit Sales (Purchases)	**6,000**	**1,000**	**1,000**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**17,889**	**6,285**	**5,018**	**4,751**	**6,810**	**5,979**	**5,503**	**5,028**

PHOSPHORUS FACILITY SUMMARY

FWSA-Opequon

POTOMAC Trading Basin

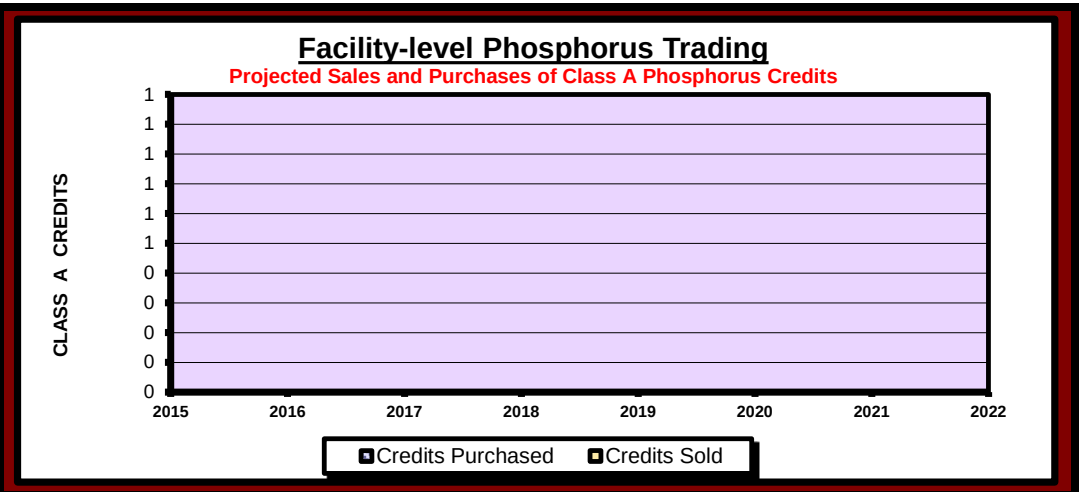


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60
Projected Flow (mgd)	7.40	7.70	8.00	8.30	8.70	9.00	9.30	9.50
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	6,761	7,035	7,309	7,583	7,949	8,223	8,497	8,680
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	5,206	3,799	3,947	4,095	4,292	4,440	4,588	4,687
Delivered WLA	8,864	6,217	6,217	6,217	6,217	6,217	6,217	6,217
Expected Credits (delivered)	3,658	2,418	2,270	2,122	1,925	1,777	1,629	1,530
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,658**	**2,418**	**2,270**	**2,122**	**1,925**	**1,777**	**1,629**	**1,530**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**3,658**	**2,418**	**2,270**	**2,122**	**1,925**	**1,777**	**1,629**	**1,530**

PHOSPHORUS FACILITY SUMMARY

FWSA-Parkins Mill

POTOMAC Trading Basin

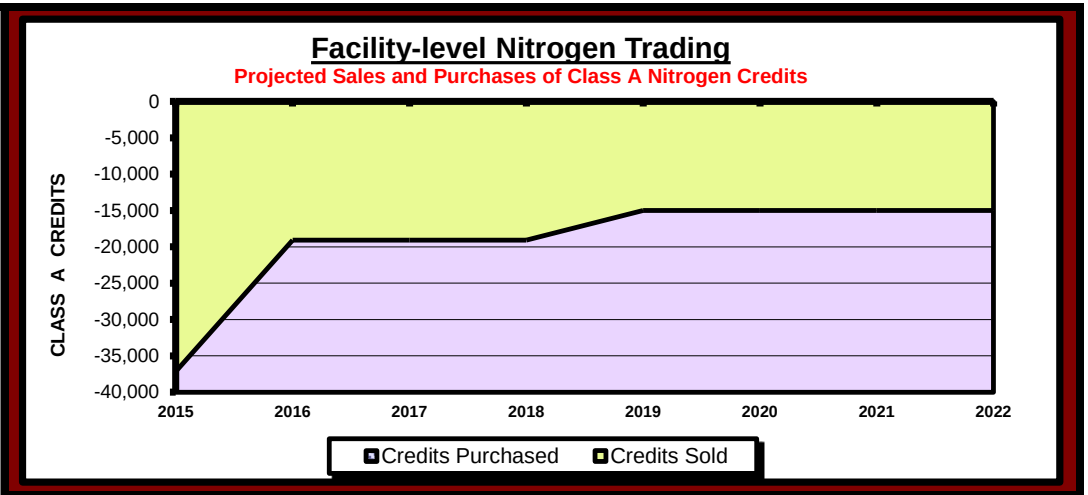


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Projected Flow (mgd)	2.35	2.70	3.10	3.50	3.80	4.15	4.35	4.55
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	2,147	2,467	2,832	3,198	3,472	3,792	3,974	4,157
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	1,653	1,332	1,529	1,727	1,875	2,048	2,146	2,245
Delivered WLA	3,518	2,467	2,467	2,467	2,467	2,467	2,467	2,467
Expected Credits (delivered)	1,865	1,135	938	740	592	419	321	222
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,865**	**1,135**	**938**	**740**	**592**	**419**	**321**	**222**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**1,865**	**1,135**	**938**	**740**	**592**	**419**	**321**	**222**

NITROGEN FACILITY SUMMARY

HRRSA-North River

POTOMAC Trading Basin

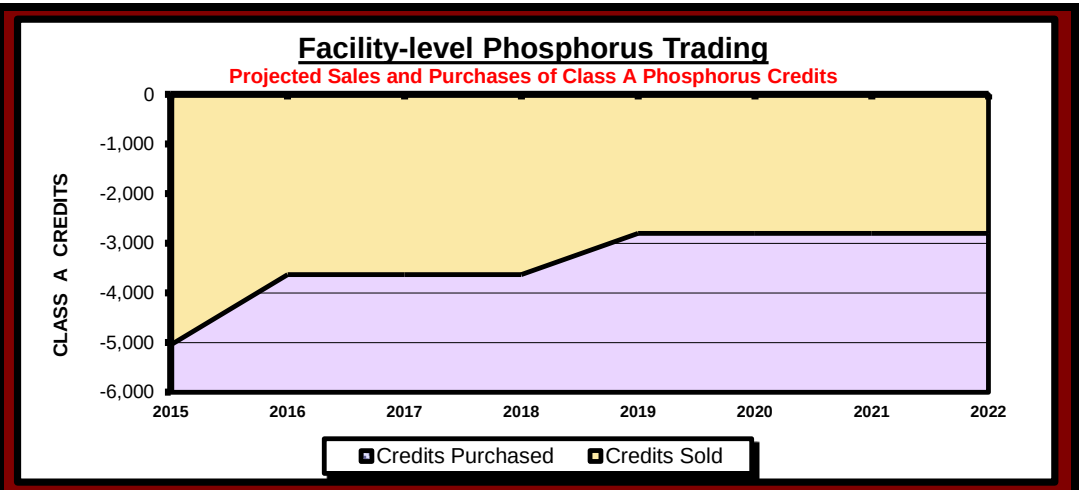


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
Projected Flow (mgd)	14.60	14.40	14.40	14.40	15.00	15.40	15.80	16.00
Projected Avg. Annual Concentration (mg/L)	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80
Discharged Load (end of pipe)	168,968	166,653	166,653	166,653	173,597	178,226	182,855	185,170
Delivery Factor	0.44	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Expected Load	74,346	36,664	36,664	36,664	38,191	39,210	40,228	40,737
Delivered WLA	111,492	55,746	55,746	55,746	55,746	55,746	55,746	55,746
Expected Credits (delivered)	37,146	19,082	19,082	19,082	17,555	16,536	15,518	15,009
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**37,146**	**19,082**	**19,082**	**19,082**	**17,555**	**16,536**	**15,518**	**15,009**
Class A Credit Sales (Purchases)	**37,146**	**19,082**	**19,082**	**19,082**	**15,000**	**15,000**	**15,000**	**15,000**
Expected Class B Credits	**0**	**0**	**0**	**0**	**2,555**	**1,536**	**518**	**9**

PHOSPHORUS FACILITY SUMMARY

HRRSA-North River

POTOMAC Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
Projected Flow (mgd)	14.60	14.40	14.40	14.40	15.00	15.40	15.80	16.00
Projected Avg. Annual Concentration (mg/L)	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Discharged Load (end of pipe)	12,450	12,280	12,280	12,280	12,791	13,132	13,474	13,644
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	9,587	6,631	6,631	6,631	6,907	7,092	7,276	7,368
Delivered WLA	14,633	10,262	10,262	10,262	10,262	10,262	10,262	10,262
Expected Credits (delivered)	5,046	3,631	3,631	3,631	3,355	3,170	2,986	2,894
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**5,046**	**3,631**	**3,631**	**3,631**	**3,355**	**3,170**	**2,986**	**2,894**
Class A Credit Sales (Purchases)	**5,046**	**3,631**	**3,631**	**3,631**	**2,800**	**2,800**	**2,800**	**2,800**
Expected Class B Credits	**0**	**0**	**0**	**0**	**555**	**370**	**186**	**94**

Owner Bubble: King George County Service Authority (Potomac)

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

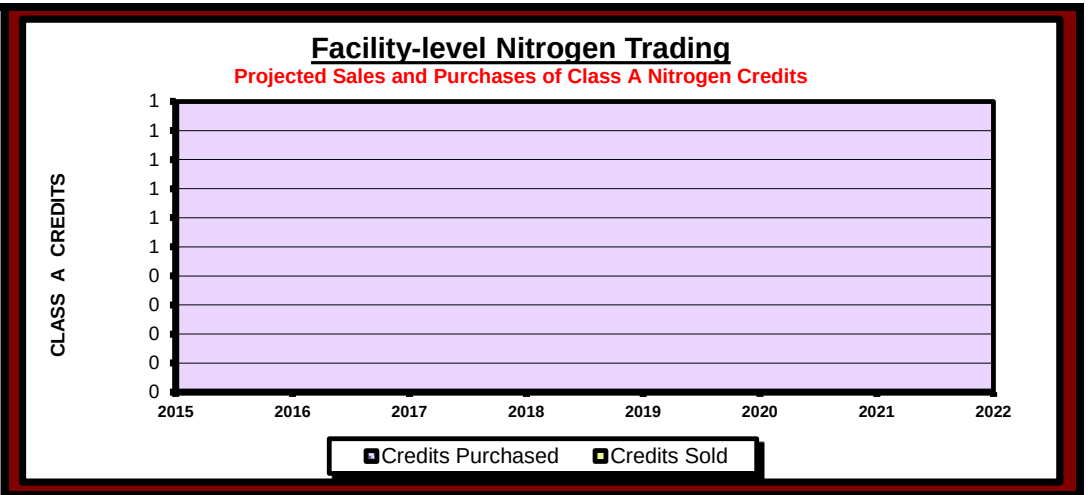
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Dahlgren	(640)	(549)	-	-	-	-	-	-
Fairview Beach	(1,005)	(1,096)	(427)	(427)	(427)	(427)	(579)	(579)
Purkins Corner	1,645	1,645	427	427	427	427	579	579
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Dahlgren	1,188	1,279	3,046	2,437	4,112	3,655	3,198	2,741
Fairview Beach	-	-	669	669	669	578	426	426
Purkins Corner	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**1,188**	**1,279**	**3,715**	**3,106**	**4,781**	**4,233**	**3,624**	**3,167**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*1,188*	*1,279*	*3,715*	*3,106*	*4,781*	*4,233*	*3,624*	*3,167*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Dahlgren	(137)	(131)	(40)	(40)	(40)	(40)	(55)	(55)
Fairview Beach	-	-	-	-	-	-	-	-
Purkins Corner	137	131	40	40	40	40	55	55
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Dahlgren	229	235	417	371	371	326	265	219
Fairview Beach	101	107	107	107	107	98	98	98
Purkins Corner	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**330**	**342**	**524**	**478**	**478**	**424**	**363**	**317**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*330*	*342*	*524*	*478*	*478*	*424*	*363*	*317*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

KGCSA-Dahlgren S.D.

POTOMAC Trading Basin

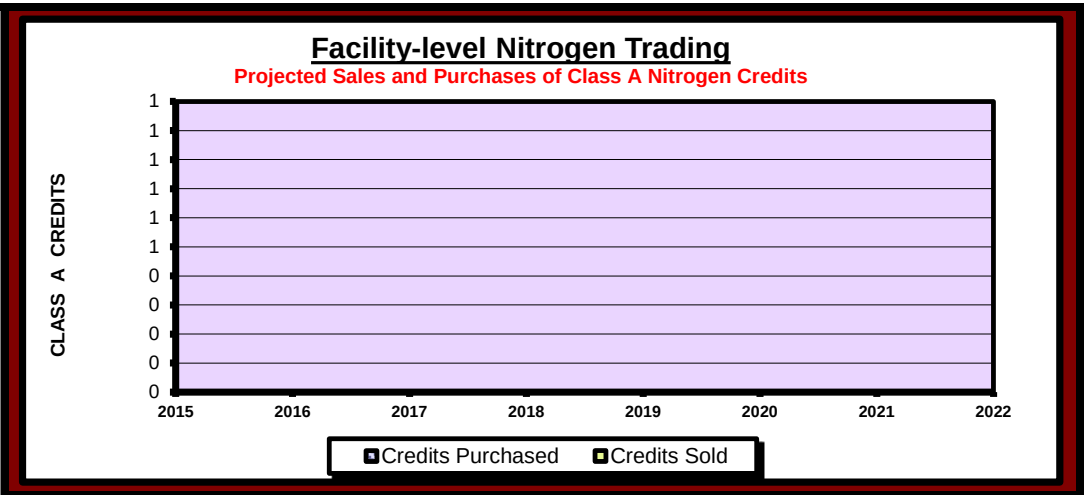


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.60	0.60	0.50	0.55	0.55	0.60	0.65	0.70
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	7,309	7,309	6,091	6,700	5,025	5,482	5,939	6,396
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	7,309	7,309	6,091	6,700	5,025	5,482	5,939	6,396
Delivered WLA	9,137	9,137	9,137	9,137	9,137	9,137	9,137	9,137
Expected Credits (delivered)	1,828	1,828	3,046	2,437	4,112	3,655	3,198	2,741
Transfers In (Out) within Owner Bubble	(640)	(549)	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,188**	**1,279**	**3,046**	**2,437**	**4,112**	**3,655**	**3,198**	**2,741**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**1,188**	**1,279**	**3,046**	**2,437**	**4,112**	**3,655**	**3,198**	**2,741**

NITROGEN FACILITY SUMMARY

KGCSA-Fairview Beach

POTOMAC Trading Basin

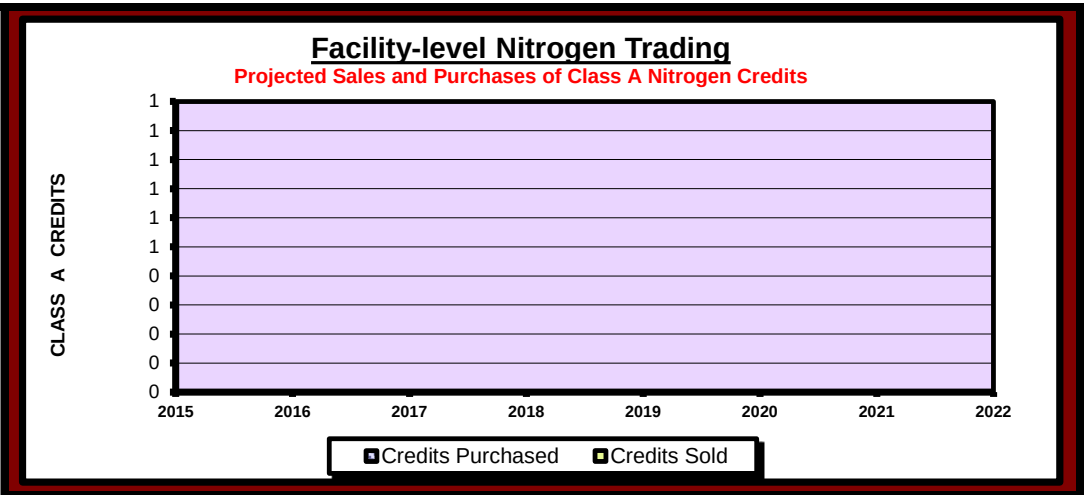


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Projected Flow (mgd)	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.09
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	822	731	731	731	731	822	822	822
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	822	731	731	731	731	822	822	822
Delivered WLA	1,827	1,827	1,827	1,827	1,827	1,827	1,827	1,827
Expected Credits (delivered)	1,005	1,096	1,096	1,096	1,096	1,005	1,005	1,005
Transfers In (Out) within Owner Bubble	(1,005)	(1,096)	(427)	(427)	(427)	(427)	(579)	(579)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**669**	**669**	**669**	**578**	**426**	**426**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**669**	**669**	**669**	**578**	**426**	**426**

NITROGEN FACILITY SUMMARY

KGCSA-Purkins Corner

POTOMAC Trading Basin

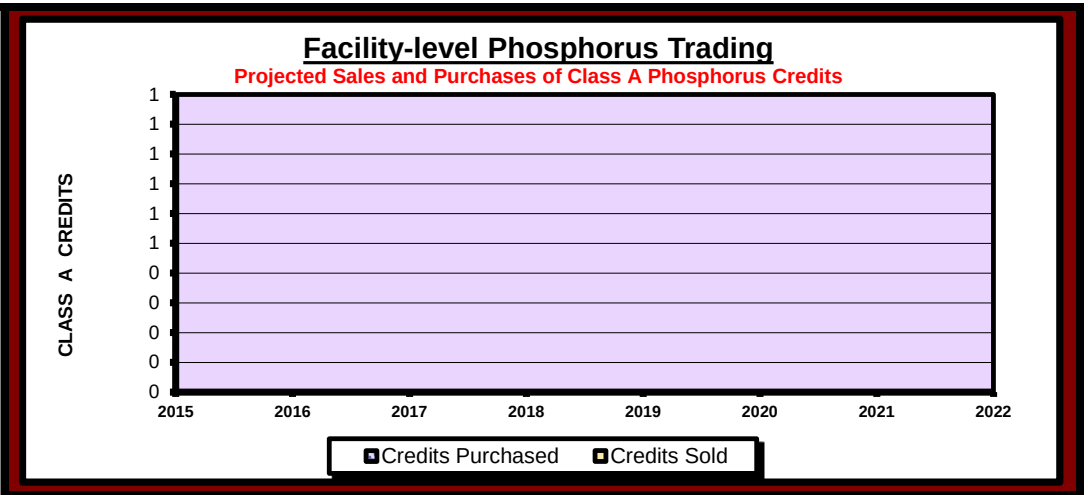


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Projected Flow (mgd)	0.09	0.09	0.10	0.10	0.10	0.10	0.11	0.11
Projected Avg. Annual Concentration (mg/L)	10.00	10.00	5.00	5.00	5.00	5.00	5.00	5.00
Discharged Load (end of pipe)	2,741	2,741	1,523	1,523	1,523	1,523	1,675	1,675
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,741	2,741	1,523	1,523	1,523	1,523	1,675	1,675
Delivered WLA	1,096	1,096	1,096	1,096	1,096	1,096	1,096	1,096
Expected Credits (delivered)	(1,645)	(1,645)	(427)	(427)	(427)	(427)	(579)	(579)
Transfers In (Out) within Owner Bubble	1,645	1,645	427	427	427	427	579	579
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

KGCSA-Dahlgren S.D.

POTOMAC Trading Basin

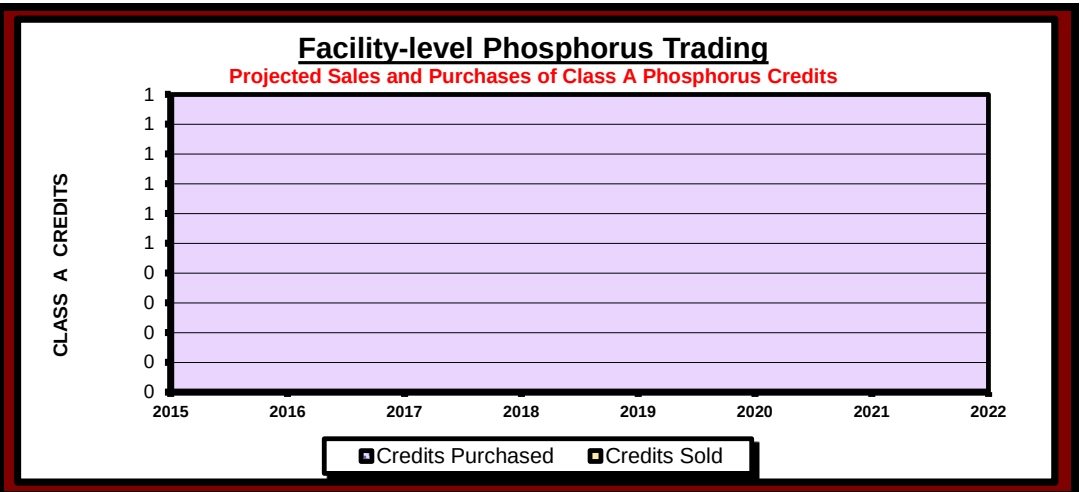


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.60	0.60	0.50	0.55	0.55	0.60	0.65	0.70
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	548	548	457	503	503	548	594	640
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	548	548	457	503	503	548	594	640
Delivered WLA	914	914	914	914	914	914	914	914
Expected Credits (delivered)	366	366	457	411	411	366	320	274
Transfers In (Out) within Owner Bubble	(137)	(131)	(40)	(40)	(40)	(40)	(55)	(55)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**229**	**235**	**417**	**371**	**371**	**326**	**265**	**219**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**229**	**235**	**417**	**371**	**371**	**326**	**265**	**219**

PHOSPHORUS FACILITY SUMMARY

KGCSA-Fairview Beach

POTOMAC Trading Basin

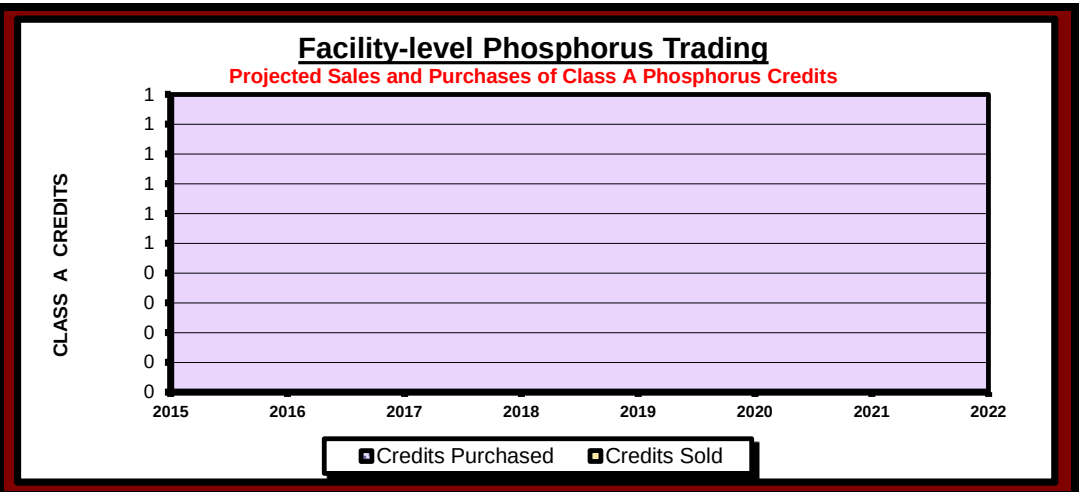


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Projected Flow (mgd)	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.09
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	82	73	73	73	73	82	82	82
Delivery Factor	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Expected Load	82	72	72	72	72	81	81	81
Delivered WLA	183	179	179	179	179	179	179	179
Expected Credits (delivered)	101	107	107	107	107	98	98	98
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**101**	**107**	**107**	**107**	**107**	**98**	**98**	**98**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**101**	**107**	**107**	**107**	**107**	**98**	**98**	**98**

PHOSPHORUS FACILITY SUMMARY

KGCSA-Purkins Corner

POTOMAC Trading Basin

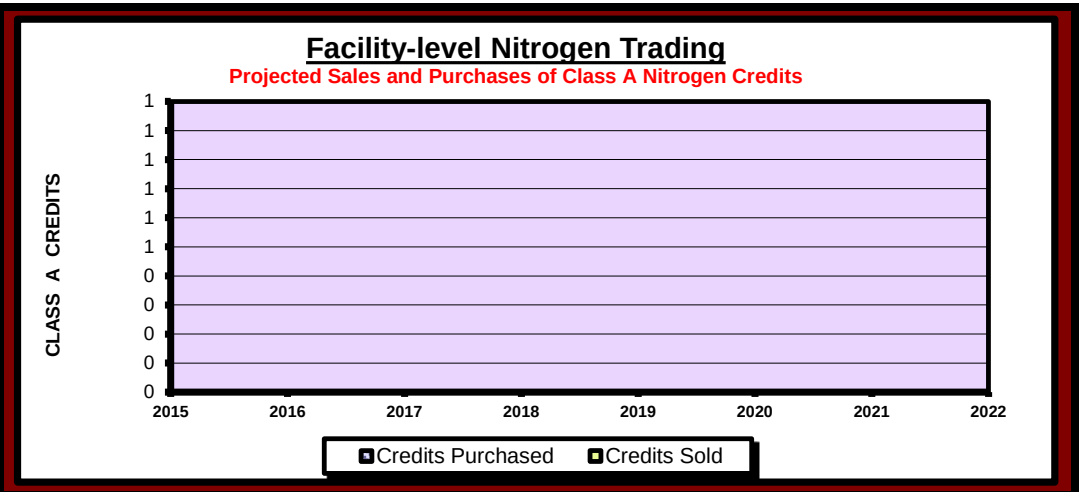


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Projected Flow (mgd)	0.09	0.09	0.10	0.10	0.10	0.10	0.11	0.11
Projected Avg. Annual Concentration (mg/L)	0.90	0.90	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	247	247	152	152	152	152	168	168
Delivery Factor	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Expected Load	247	237	146	146	146	146	161	161
Delivered WLA	110	106	106	106	106	106	106	106
Expected Credits (delivered)	(137)	(131)	(40)	(40)	(40)	(40)	(55)	(55)
Transfers In (Out) within Owner Bubble	137	131	40	40	40	40	55	55
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Leesburg

POTOMAC Trading Basin

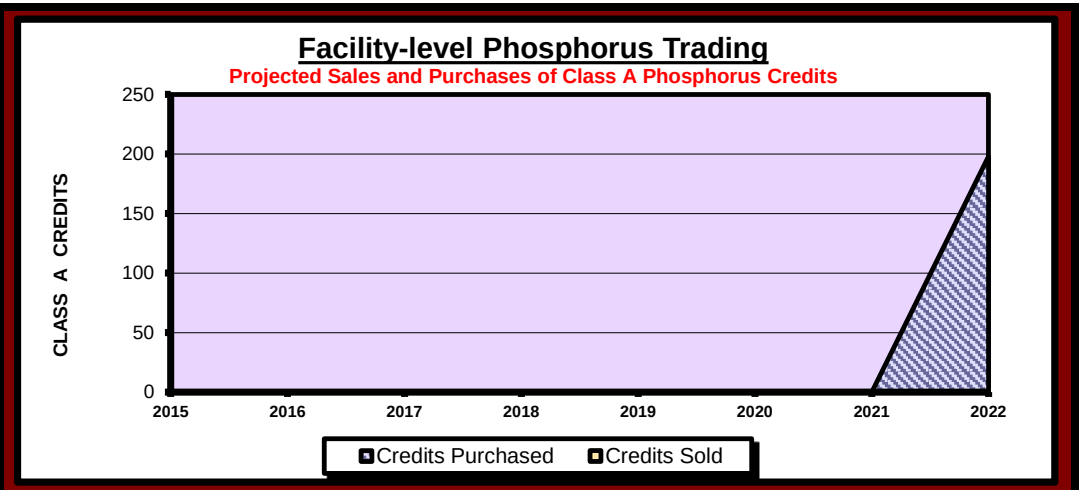


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Projected Flow (mgd)	4.55	4.68	4.89	5.22	5.42	5.59	5.71	5.82
Projected Avg. Annual Concentration (mg/L)	4.80	4.80	4.80	4.80	4.80	4.80	4.90	4.90
Discharged Load (end of pipe)	66,515	68,415	71,485	76,310	79,233	81,777	85,182	86,883
Delivery Factor	0.83	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Expected Load	55,207	54,732	57,188	61,048	63,387	65,422	68,146	69,507
Delivered WLA	101,113	97,458	97,458	97,458	97,458	97,458	97,458	97,458
Expected Credits (delivered)	45,906	42,726	40,270	36,410	34,071	32,036	29,312	27,951
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(25,278)	(24,365)	(24,365)	(24,365)	(24,365)	(24,365)	(24,365)	(24,365)
Expected Net Credits	**20,628**	**18,361**	**15,905**	**12,045**	**9,706**	**7,671**	**4,947**	**3,586**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**20,628**	**18,361**	**15,905**	**12,045**	**9,706**	**7,671**	**4,947**	**3,586**

PHOSPHORUS FACILITY SUMMARY

Leesburg

POTOMAC Trading Basin

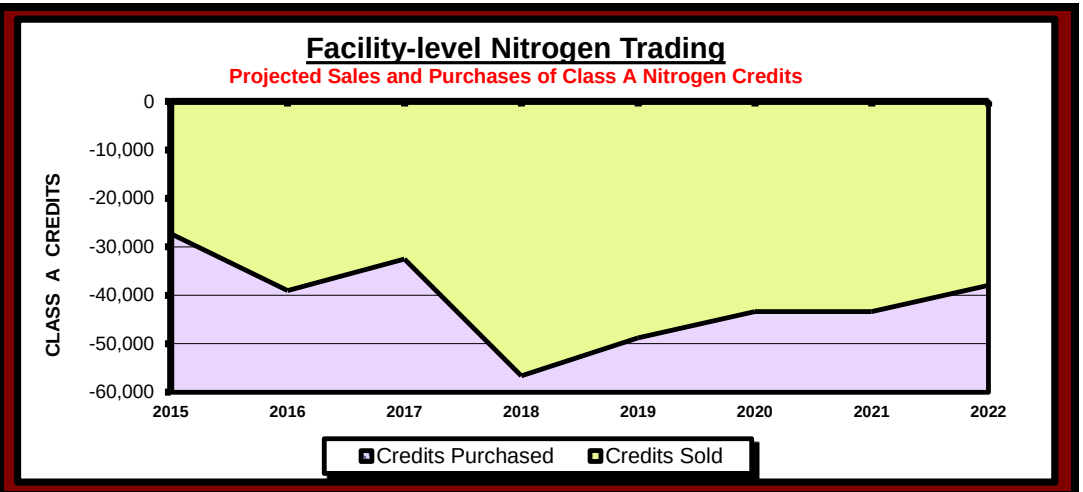


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Projected Flow (mgd)	4.55	4.68	4.89	5.22	5.42	5.59	5.71	5.82
Projected Avg. Annual Concentration (mg/L)	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54
Discharged Load (end of pipe)	5,537	6,003	6,578	7,330	7,915	8,503	9,003	9,504
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	4,264	3,242	3,552	3,958	4,274	4,592	4,862	5,132
Delivered WLA	7,035	4,934	4,934	4,934	4,934	4,934	4,934	4,934
Expected Credits (delivered)	2,771	1,692	1,382	976	660	342	72	(198)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(1,759)	(1,234)	(1,234)	(976)	(660)	(342)	(72)	0
Expected Net Credits	**1,012**	**458**	**148**	**0**	**0**	**0**	**0**	**(198)**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(198)**
Expected Class B Credits	**1,012**	**458**	**148**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Loudoun Water- Broad Run

POTOMAC Trading Basin

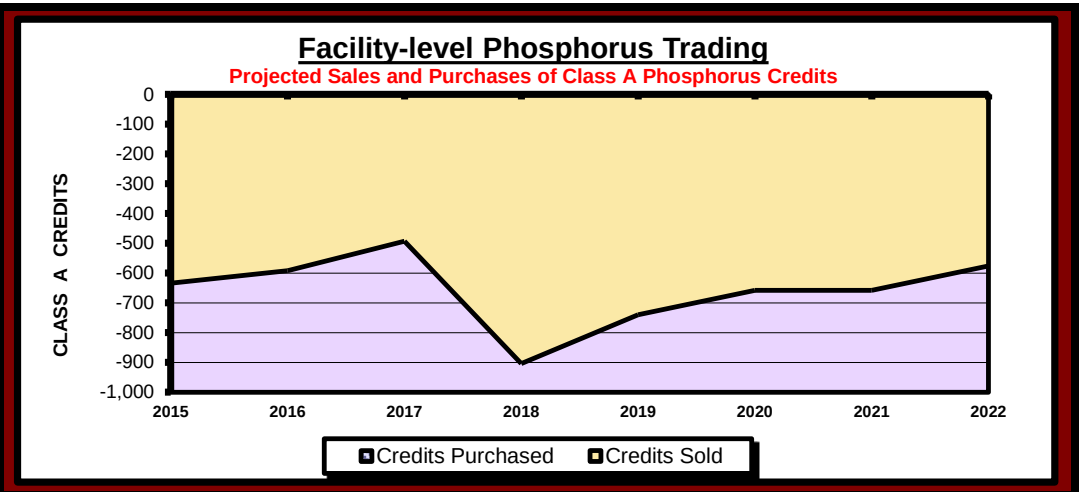


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Projected Flow (mgd)	8.00	7.00	8.00	5.50	6.50	7.00	7.00	7.50
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	97,458	85,276	97,458	67,002	79,185	85,276	85,276	91,367
Delivery Factor	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Expected Load	80,890	75,895	86,738	59,632	70,474	75,895	75,895	81,316
Delivered WLA	111,224	119,264	119,264	119,264	119,264	119,264	119,264	119,264
Expected Credits (delivered)	30,334	43,369	32,526	59,632	48,790	43,369	43,369	37,948
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**30,334**	**43,369**	**32,526**	**59,632**	**48,790**	**43,369**	**43,369**	**37,948**
Class A Credit Sales (Purchases)	**27,301**	**39,032**	**32,526**	**56,632**	**48,790**	**43,369**	**43,369**	**37,948**
Expected Class B Credits	**3,033**	**4,337**	**0**	**3,000**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Loudoun Water- Broad Run

POTOMAC Trading Basin

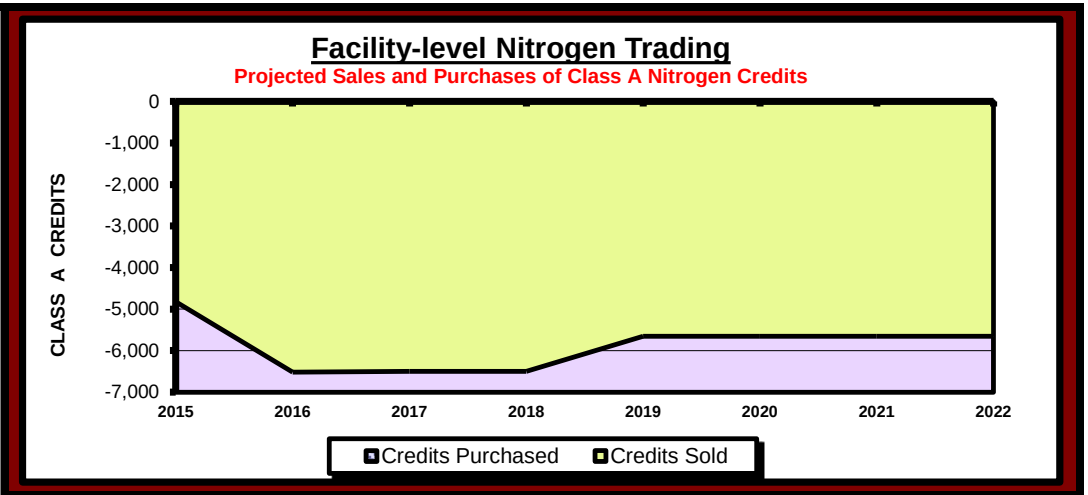


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Projected Flow (mgd)	8.00	7.00	8.00	5.50	6.50	7.00	7.00	7.50
Projected Avg. Annual Concentration (mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Discharged Load (end of pipe)	2,436	2,132	2,436	1,675	1,980	2,132	2,132	2,284
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	1,876	1,151	1,316	905	1,069	1,151	1,151	1,233
Delivered WLA	2,580	1,809	1,809	1,809	1,809	1,809	1,809	1,809
Expected Credits (delivered)	704	658	493	904	740	658	658	576
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**704**	**658**	**493**	**904**	**740**	**658**	**658**	**576**
Class A Credit Sales (Purchases)	**634**	**592**	**493**	**904**	**740**	**658**	**658**	**576**
Expected Class B Credits	**70**	**66**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Luray

POTOMAC Trading Basin

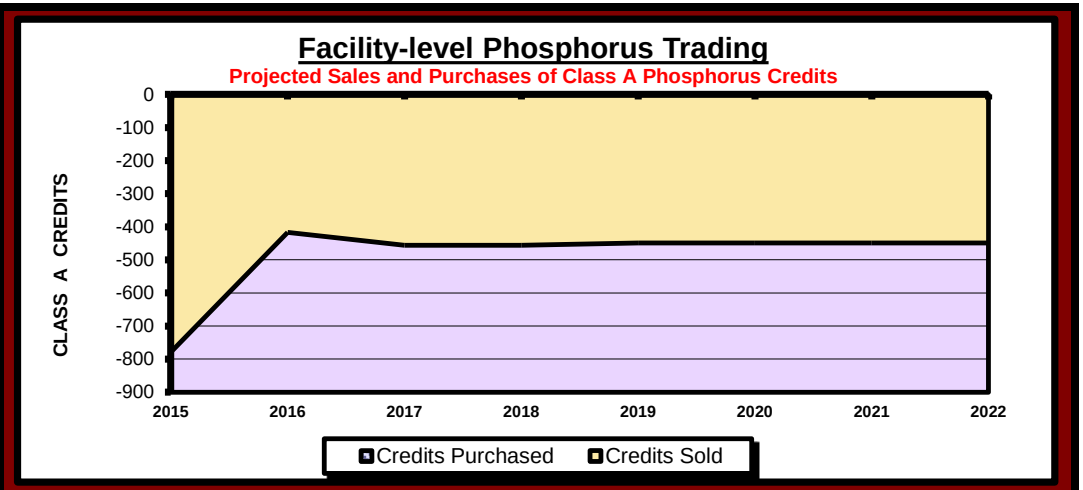


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Projected Flow (mgd)	0.87	0.87	0.88	0.88	0.90	0.90	0.90	0.90
Projected Avg. Annual Concentration (mg/L)	3.00	1.50	1.50	1.50	2.20	2.20	2.20	2.20
Discharged Load (end of pipe)	7,949	3,974	4,020	4,020	6,030	6,030	6,030	6,030
Delivery Factor	0.44	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Expected Load	3,498	1,669	1,688	1,688	2,533	2,533	2,533	2,533
Delivered WLA	8,576	8,187	8,187	8,187	8,187	8,187	8,187	8,187
Expected Credits (delivered)	5,078	6,518	6,499	6,499	5,654	5,654	5,654	5,654
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**5,078**	**6,518**	**6,499**	**6,499**	**5,654**	**5,654**	**5,654**	**5,654**
Class A Credit Sales (Purchases)	**4,824**	**6,518**	**6,499**	**6,499**	**5,654**	**5,654**	**5,654**	**5,654**
Expected Class B Credits	**254**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Luray

POTOMAC Trading Basin

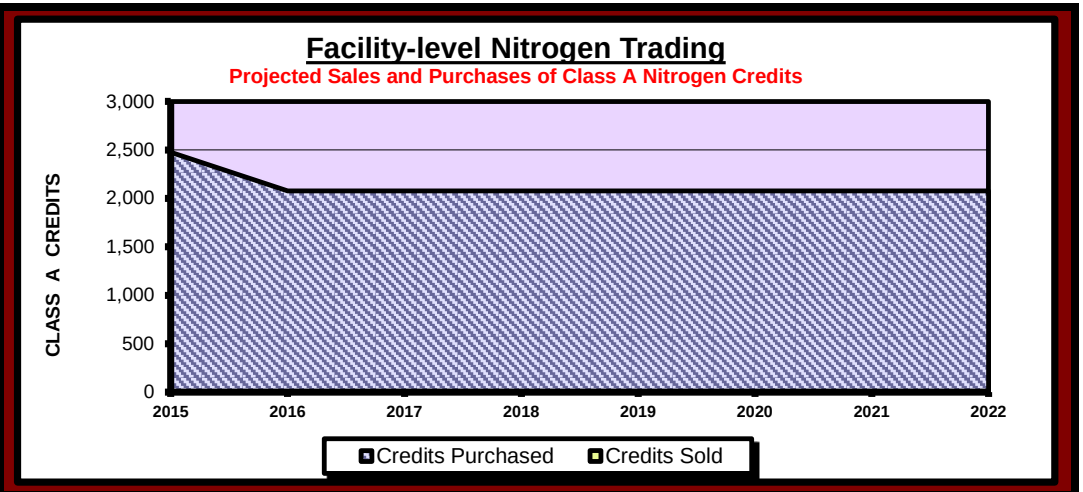


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Projected Flow (mgd)	0.87	0.87	0.88	0.88	0.90	0.90	0.90	0.90
Projected Avg. Annual Concentration (mg/L)	0.15	0.26	0.23	0.23	0.23	0.23	0.23	0.23
Discharged Load (end of pipe)	397	689	616	616	630	630	630	630
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	306	372	333	333	340	340	340	340
Delivered WLA	1,126	789	789	789	789	789	789	789
Expected Credits (delivered)	820	417	456	456	449	449	449	449
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**820**	**417**	**456**	**456**	**449**	**449**	**449**	**449**
Class A Credit Sales (Purchases)	**779**	**417**	**456**	**456**	**449**	**449**	**449**	**449**
Expected Class B Credits	**41**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Massanutten PSC

POTOMAC Trading Basin

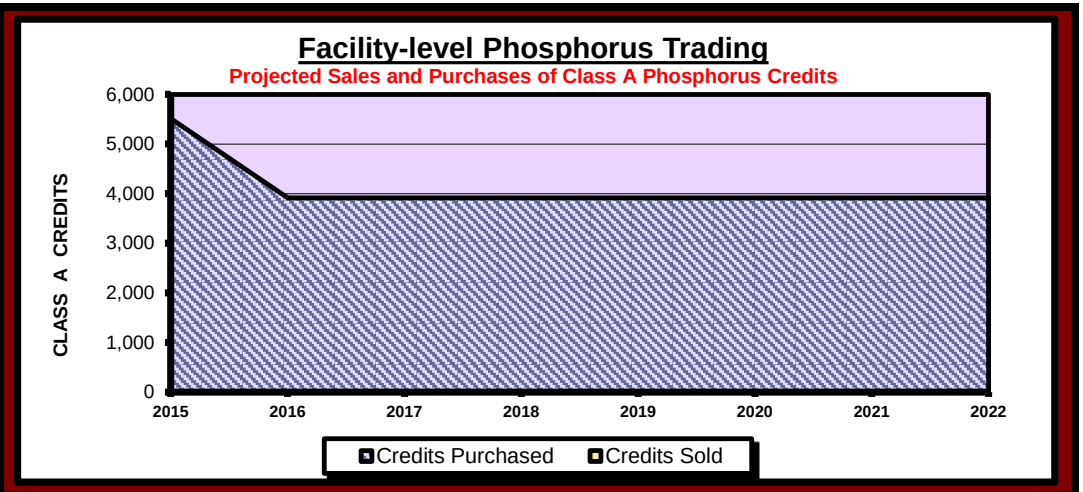


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Projected Flow (mgd)	0.72	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Projected Avg. Annual Concentration (mg/L)	10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90
Discharged Load (end of pipe)	23,902	24,565	24,565	24,565	24,565	24,565	24,565	24,565
Delivery Factor	0.44	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Expected Load	10,517	8,107	8,107	8,107	8,107	8,107	8,107	8,107
Delivered WLA	8,040	6,030	6,030	6,030	6,030	6,030	6,030	6,030
Expected Credits (delivered)	(2,477)	(2,077)	(2,077)	(2,077)	(2,077)	(2,077)	(2,077)	(2,077)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(2,477)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**
Class A Credit Sales (Purchases)	**(2,477)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**	**(2,077)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Massanutten PSC

POTOMAC Trading Basin

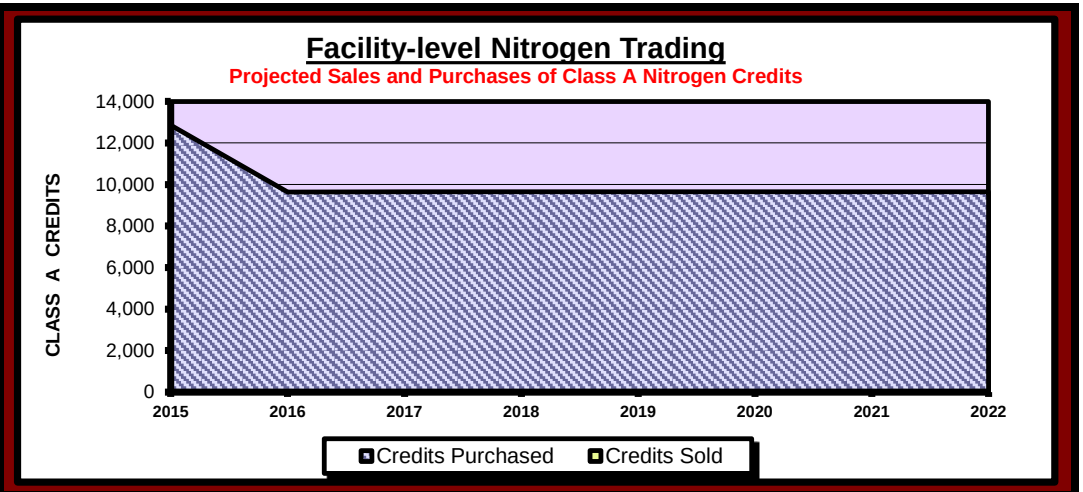


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Projected Flow (mgd)	0.72	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Projected Avg. Annual Concentration (mg/L)	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89
Discharged Load (end of pipe)	8,530	8,767	8,767	8,767	8,767	8,767	8,767	8,767
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	6,568	4,646	4,646	4,646	4,646	4,646	4,646	4,646
Delivered WLA	1,055	727	727	727	727	727	727	727
Expected Credits (delivered)	(5,513)	(3,919)	(3,919)	(3,919)	(3,919)	(3,919)	(3,919)	(3,919)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(5,513)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**
Class A Credit Sales (Purchases)	**(5,513)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**	**(3,919)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Merck

POTOMAC Trading Basin

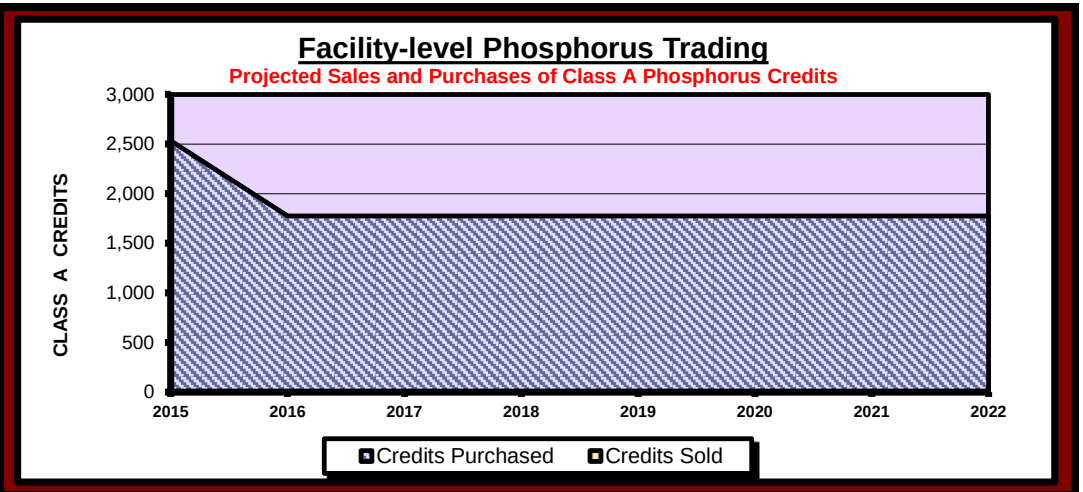


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Projected Flow (mgd)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Projected Avg. Annual Concentration (mg/L)	12.00	11.99	12.00	12.00	12.00	12.00	12.00	12.00
Discharged Load (end of pipe)	43,856	43,835	43,856	43,856	43,856	43,856	43,856	43,856
Delivery Factor	0.44	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Expected Load	19,297	14,466	14,473	14,473	14,473	14,473	14,473	14,473
Delivered WLA	6,432	4,824	4,824	4,824	4,824	4,824	4,824	4,824
Expected Credits (delivered)	(12,865)	(9,642)	(9,649)	(9,649)	(9,649)	(9,649)	(9,649)	(9,649)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(12,865)**	**(9,642)**	**(9,649)**	**(9,649)**	**(9,649)**	**(9,649)**	**(9,649)**	**(9,649)**
Class A Credit Sales (Purchases)	**(12,865)**	**(9,642)**	**(9,649)**	**(9,649)**	**(9,649)**	**(9,649)**	**(9,649)**	**(9,649)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Merck

POTOMAC Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Projected Flow (mgd)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Projected Avg. Annual Concentration (mg/L)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Discharged Load (end of pipe)	4,386	4,384	4,386	4,386	4,386	4,386	4,386	4,386
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	3,377	2,367	2,368	2,368	2,368	2,368	2,368	2,368
Delivered WLA	844	592	592	592	592	592	592	592
Expected Credits (delivered)	(2,533)	(1,775)	(1,776)	(1,776)	(1,776)	(1,776)	(1,776)	(1,776)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(2,533)**	**(1,775)**	**(1,776)**	**(1,776)**	**(1,776)**	**(1,776)**	**(1,776)**	**(1,776)**
Class A Credit Sales (Purchases)	**(2,533)**	**(1,775)**	**(1,776)**	**(1,776)**	**(1,776)**	**(1,776)**	**(1,776)**	**(1,776)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Merck – Additional Information

Description of Merck-Stonewall WQMP Regulation Note (10) as it Applies to the Exchange Compliance Plan:

Under the Water Quality Management Planning Regulation (9VAC 25-720-50.C) and Watershed General Permit Registration List for the Potomac/Shenandoah River Basin, the Merck-Stonewall facility's WLAs are as follows:

Discharged TN WLA: 43,835 lbs/yr
Discharged TP WLA: 4,384 lbs/yr

The Discharged WLAs stated above are subject to the following conditions in the Water Quality Management Planning Regulation (9VAC 25-720-50.C):

> (10) Merck-Stonewall – (a) these waste load allocations will be subject to further consideration, consistent with the Chesapeake Bay TMDL, as it may be amended, and possible reduction upon "full-scale" results showing the optimal treatment capability of the 4-stage Bardenpho technology at this facility consistent with the level of effort by other dischargers in the region. The "full scale" evaluation will be completed by December 31, 2011, and the results submitted to DEQ for review and subsequent board action; (b) in any year when credits are available after all other exchanges within the Shenandoah-Potomac River Basin are completed in accordance with § 62.1-44.19:18 of the Code of Virginia, Merck shall acquire credits for total nitrogen discharged in excess of 14,619 lbs/yr and total phosphorus discharged in excess of 1,096 lbs/yr; and (c) the allocations are not transferable and compliance credits are only generated if discharged loads are less than the loads identified in clause (b).

Note that the WLAs stated in Note (10) are expressed as Discharged WLAs. Consistent with Note (10) clauses (b) and (c), the Watershed General Permit and manner in which the Exchange Trading Model is designed, this Exchange Compliance Plan is prepared and presented based on the following Delivered WLAs derived using the applicable Delivery Factors ("DF"):

Delivered TN WLA: 6,432 lbs/yr (0.44 DF for Compliance Years 2012 to 2015)
Delivered TN WLA: 4,824 lbs/yr (0.33 DF for Compliance Year 2016 and beyond)

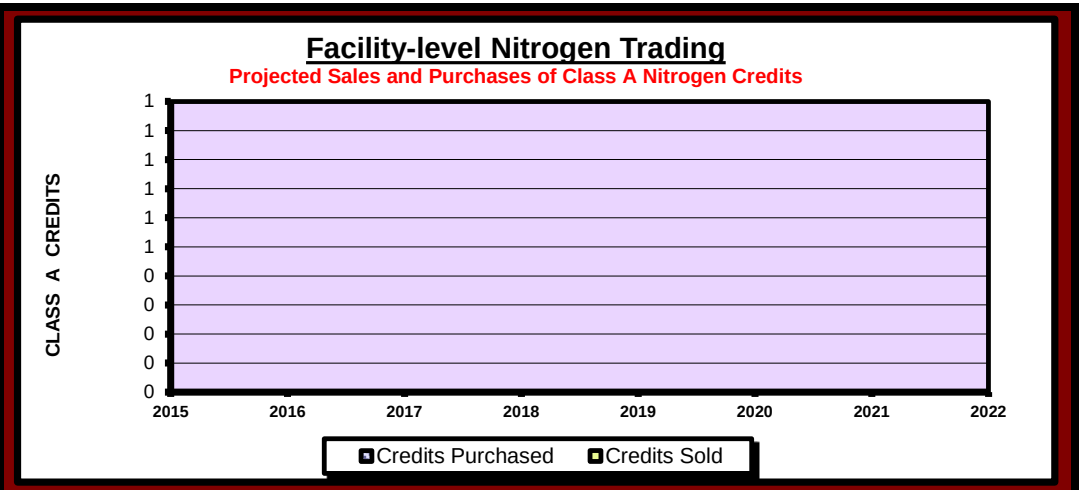
Delivered TP WLA: 844 lbs/yr (0.77 DF for Compliance Years 2012 to 2015)
Delivered TP WLA: 592 lbs/yr (0.54 DF for Compliance Year 2016 and beyond)

This description neither creates nor implies any limitation on Merck's use of its full WLAs in the manner authorized under Note (10).

NITROGEN FACILITY SUMMARY

MillerCoors LLC

POTOMAC Trading Basin

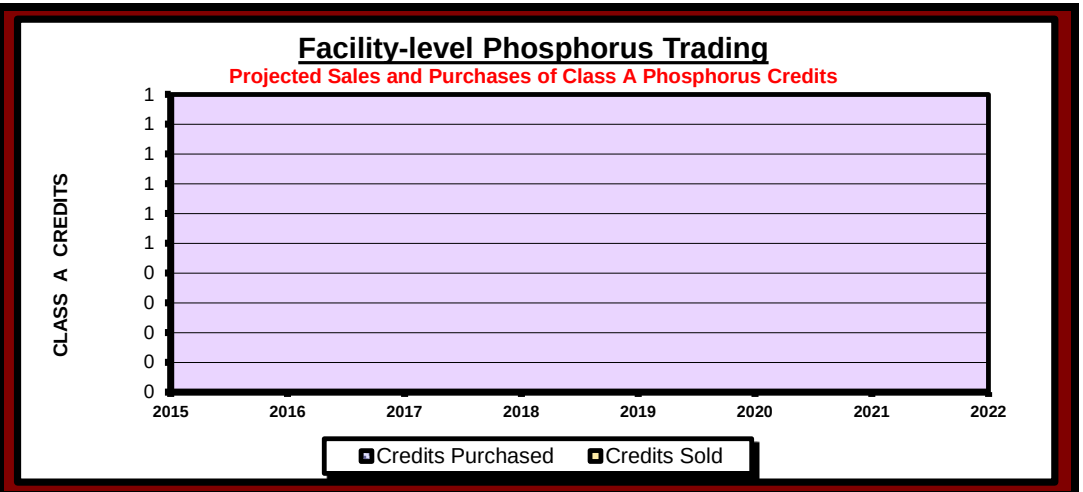


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Projected Flow (mgd)	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	54,820	54,820	54,820	54,820	54,820	54,820	54,820	54,820
Delivery Factor	0.44	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Expected Load	24,121	18,091	18,091	18,091	18,091	18,091	18,091	18,091
Delivered WLA	24,121	18,091	18,091	18,091	18,091	18,091	18,091	18,091
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

MillerCoors LLC

POTOMAC Trading Basin

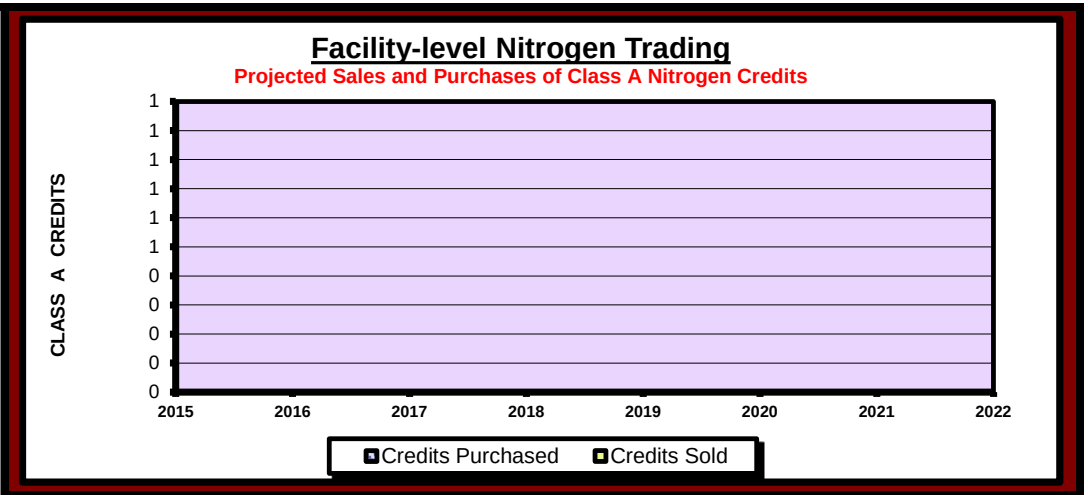


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Projected Flow (mgd)	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	4,112	4,112	4,112	4,112	4,112	4,112	4,112	4,112
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	3,166	2,220	2,220	2,220	2,220	2,220	2,220	2,220
Delivered WLA	3,166	2,220	2,220	2,220	2,220	2,220	2,220	2,220
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Mt. Jackson

POTOMAC Trading Basin

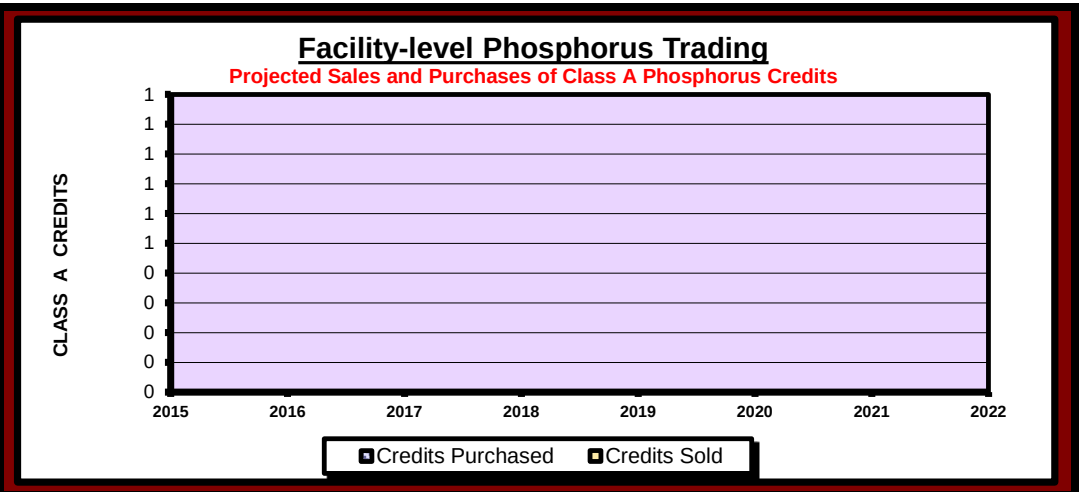


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Projected Flow (mgd)	0.60	0.50	0.52	0.54	0.54	0.55	0.55	0.56
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	7,309	6,091	6,335	6,578	6,578	6,700	6,700	6,822
Delivery Factor	0.67	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Expected Load	4,897	2,071	2,154	2,237	2,237	2,278	2,278	2,319
Delivered WLA	5,713	2,900	2,900	2,900	2,900	2,900	2,900	2,900
Expected Credits (delivered)	816	829	746	663	663	622	622	581
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**816**	**829**	**746**	**663**	**663**	**622**	**622**	**581**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**816**	**829**	**746**	**663**	**663**	**622**	**622**	**581**

PHOSPHORUS FACILITY SUMMARY

Mt. Jackson

POTOMAC Trading Basin

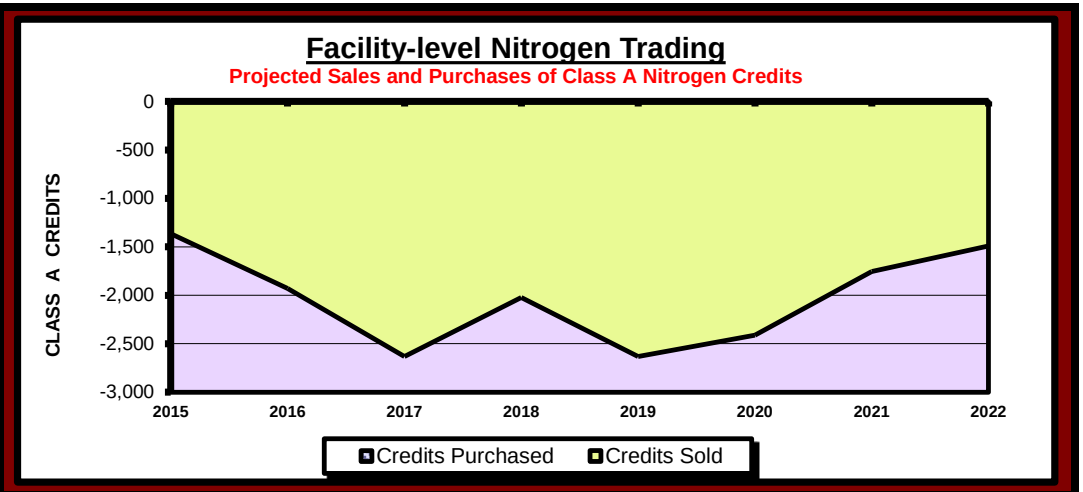


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Projected Flow (mgd)	0.60	0.50	0.52	0.54	0.54	0.55	0.55	0.56
Projected Avg. Annual Concentration (mg/L)	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Discharged Load (end of pipe)	548	305	317	329	329	335	335	341
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	422	161	168	174	174	178	178	181
Delivered WLA	492	339	339	339	339	339	339	339
Expected Credits (delivered)	70	178	171	165	165	161	161	158
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**70**	**178**	**171**	**165**	**165**	**161**	**161**	**158**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**70**	**178**	**171**	**165**	**165**	**161**	**161**	**158**

NITROGEN FACILITY SUMMARY

Purcellville

POTOMAC Trading Basin

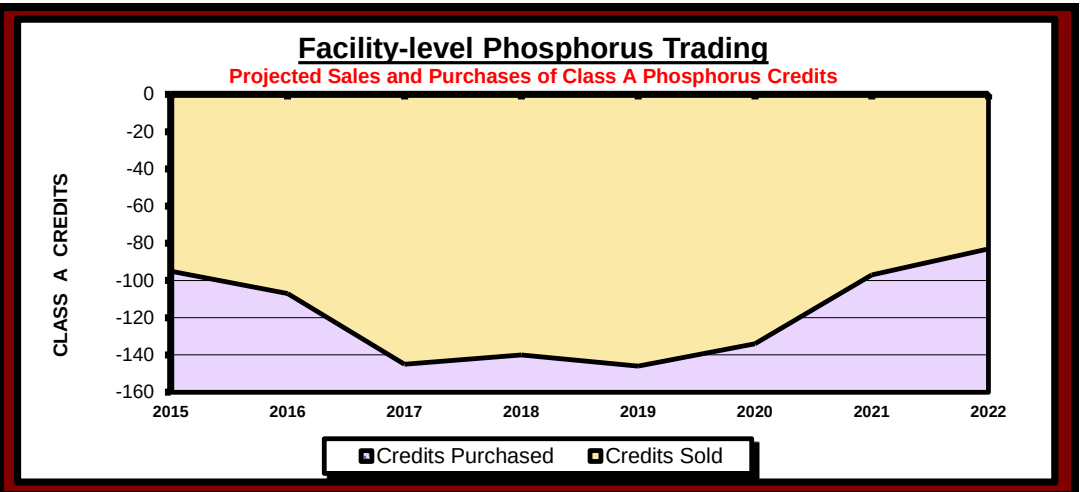


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Projected Flow (mgd)	1.23	1.06	0.90	1.10	0.90	0.95	1.10	1.16
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	14,984	12,913	10,964	13,400	10,964	11,573	13,400	14,131
Delivery Factor	0.83	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Expected Load	12,437	9,297	7,894	9,648	7,894	8,333	9,648	10,175
Delivered WLA	15,167	13,157	13,157	13,157	13,157	13,157	13,157	13,157
Expected Credits (delivered)	2,730	3,860	5,263	3,509	5,263	4,824	3,509	2,982
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,730**	**3,860**	**5,263**	**3,509**	**5,263**	**4,824**	**3,509**	**2,982**
Class A Credit Sales (Purchases)	**1,365**	**1,930**	**2,632**	**2,023**	**2,632**	**2,412**	**1,755**	**1,491**
Expected Class B Credits	**1,365**	**1,930**	**2,631**	**1,486**	**2,631**	**2,412**	**1,754**	**1,491**

PHOSPHORUS FACILITY SUMMARY

Purcellville

POTOMAC Trading Basin

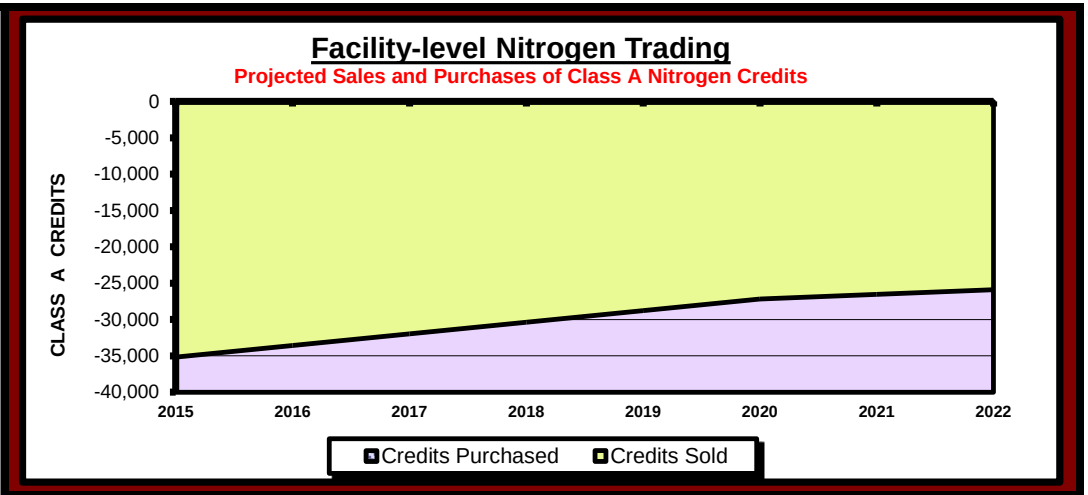


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Projected Flow (mgd)	1.23	1.06	0.90	1.10	0.90	0.95	1.10	1.16
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	1,124	968	822	1,005	822	868	1,005	1,060
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	865	513	436	533	436	460	533	562
Delivered WLA	1,056	727	727	727	727	727	727	727
Expected Credits (delivered)	191	214	291	194	291	267	194	165
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**191**	**214**	**291**	**194**	**291**	**267**	**194**	**165**
Class A Credit Sales (Purchases)	**95**	**107**	**145**	**140**	**146**	**134**	**97**	**83**
Expected Class B Credits	**96**	**107**	**146**	**54**	**145**	**133**	**97**	**82**

NITROGEN FACILITY SUMMARY

PWCSA-HL Mooney

POTOMAC Trading Basin

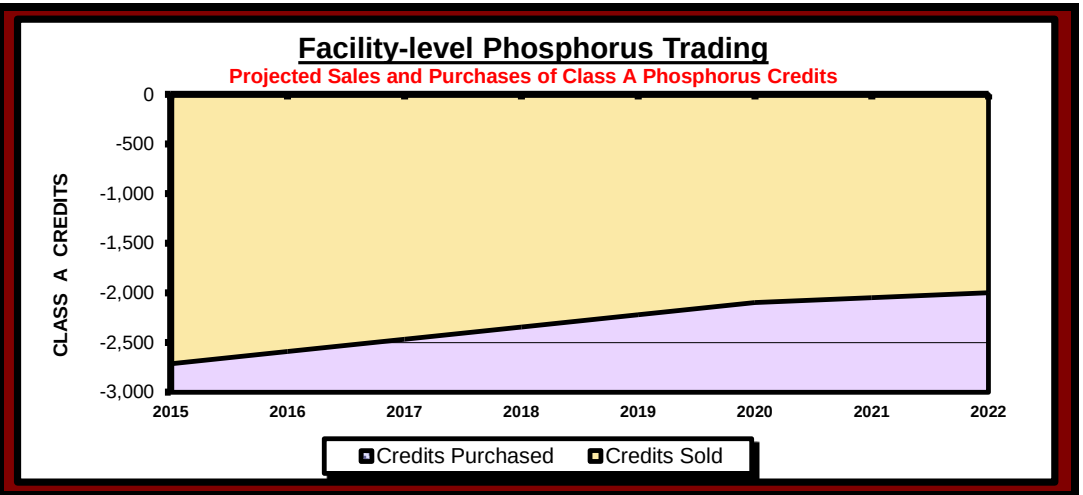


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
Projected Flow (mgd)	18.50	18.75	19.00	19.25	19.50	19.75	19.85	19.95
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	169,029	171,313	173,597	175,881	178,165	180,449	181,363	182,277
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	169,029	171,313	173,597	175,881	178,165	180,449	181,363	182,277
Delivered WLA	219,280	219,280	219,280	219,280	219,280	219,280	219,280	219,280
Expected Credits (delivered)	50,251	47,967	45,683	43,399	41,115	38,831	37,917	37,003
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**50,251**	**47,967**	**45,683**	**43,399**	**41,115**	**38,831**	**37,917**	**37,003**
Class A Credit Sales (Purchases)	**35,176**	**33,577**	**31,978**	**30,379**	**28,781**	**27,182**	**26,542**	**25,902**
Expected Class B Credits	**15,075**	**14,390**	**13,705**	**13,020**	**12,334**	**11,649**	**11,375**	**11,101**

PHOSPHORUS FACILITY SUMMARY

PWCSA-HL Mooney

POTOMAC Trading Basin

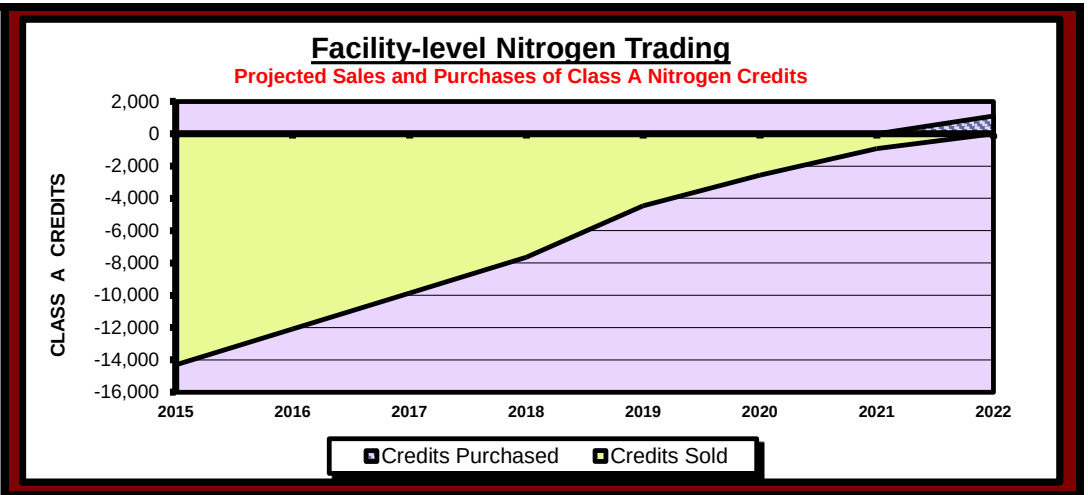


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
Projected Flow (mgd)	18.50	18.75	19.00	19.25	19.50	19.75	19.85	19.95
Projected Avg. Annual Concentration (mg/L)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Discharged Load (end of pipe)	10,142	10,279	10,416	10,553	10,690	10,827	10,882	10,937
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	10,142	10,279	10,416	10,553	10,690	10,827	10,882	10,937
Delivered WLA	13,157	13,157	13,157	13,157	13,157	13,157	13,157	13,157
Expected Credits (delivered)	3,015	2,878	2,741	2,604	2,467	2,330	2,275	2,220
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,015**	**2,878**	**2,741**	**2,604**	**2,467**	**2,330**	**2,275**	**2,220**
Class A Credit Sales (Purchases)	**2,714**	**2,590**	**2,467**	**2,344**	**2,220**	**2,097**	**2,048**	**1,998**
Expected Class B Credits	**301**	**288**	**274**	**260**	**247**	**233**	**227**	**222**

NITROGEN FACILITY SUMMARY

Stafford Co-Aquia

POTOMAC Trading Basin

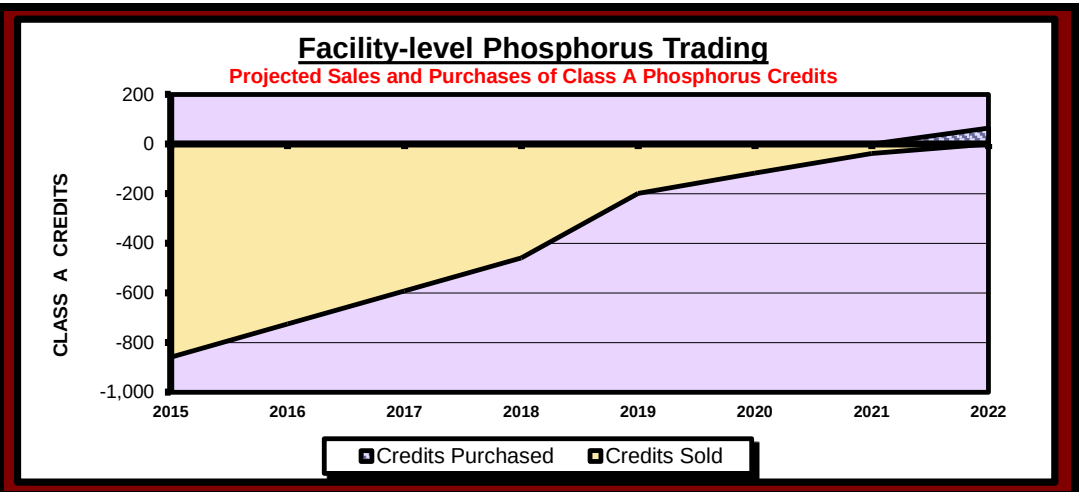


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Projected Flow (mgd)	6.26	6.53	6.80	7.07	7.34	7.61	7.86	8.12
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	57,196	59,663	62,129	64,596	67,063	69,530	71,814	74,190
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	57,196	59,663	62,129	64,596	67,063	69,530	71,814	74,190
Delivered WLA	73,093	73,093	73,093	73,093	73,093	73,093	73,093	73,093
Expected Credits (delivered)	15,897	13,430	10,964	8,497	6,030	3,563	1,279	(1,097)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**15,897**	**13,430**	**10,964**	**8,497**	**6,030**	**3,563**	**1,279**	**(1,097)**
Class A Credit Sales (Purchases)	**14,307**	**12,087**	**9,868**	**7,647**	**4,462**	**2,565**	**920**	**(1,097)**
Expected Class B Credits	**1,590**	**1,343**	**1,096**	**850**	**1,568**	**998**	**359**	**0**

PHOSPHORUS FACILITY SUMMARY

Stafford Co-Aquia

POTOMAC Trading Basin

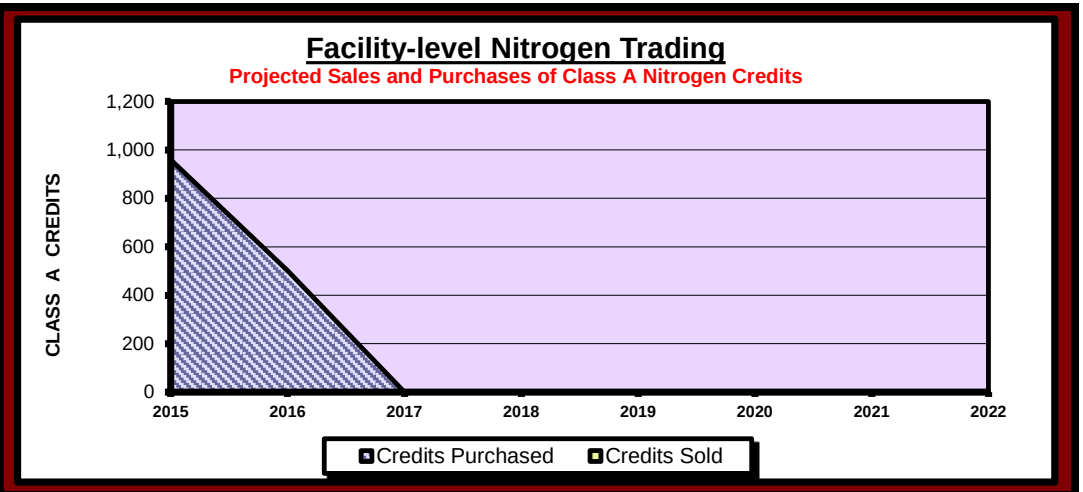


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Projected Flow (mgd)	6.26	6.53	6.80	7.07	7.34	7.61	7.86	8.12
Projected Avg. Annual Concentration (mg/L)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Discharged Load (end of pipe)	3,432	3,580	3,728	3,876	4,024	4,172	4,309	4,451
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	3,432	3,580	3,728	3,876	4,024	4,172	4,309	4,451
Delivered WLA	4,386	4,386	4,386	4,386	4,386	4,386	4,386	4,386
Expected Credits (delivered)	954	806	658	510	362	214	77	(65)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**954**	**806**	**658**	**510**	**362**	**214**	**77**	**(65)**
Class A Credit Sales (Purchases)	**859**	**725**	**592**	**459**	**199**	**117**	**38**	**(65)**
Expected Class B Credits	**95**	**81**	**66**	**51**	**163**	**97**	**39**	**0**

NITROGEN FACILITY SUMMARY

Stoney Creek

POTOMAC Trading Basin



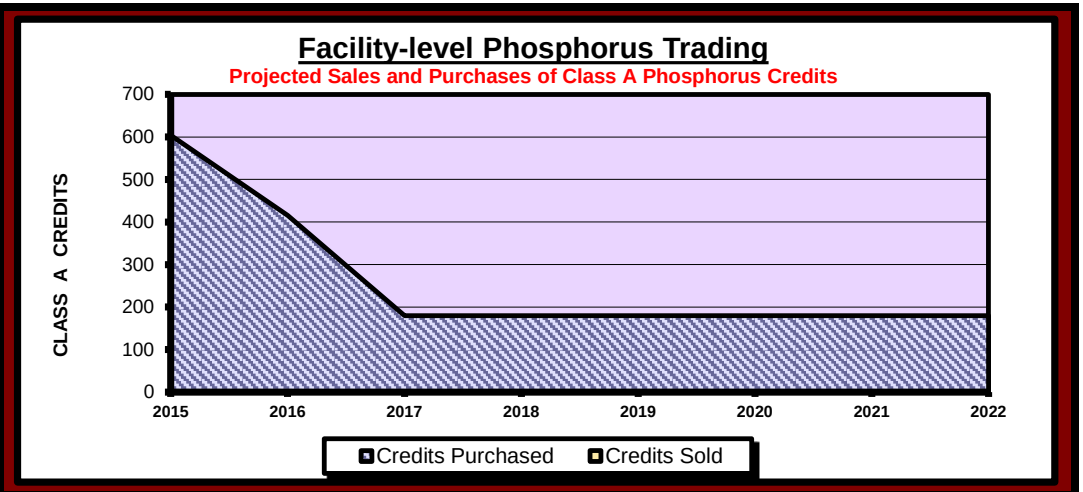
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Projected Avg. Annual Concentration (mg/L)	8.20	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Discharged Load (end of pipe)	8,241	8,040	8,040	8,040	8,040	8,040	8,040	8,040
Delivery Factor	0.67	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Expected Load	5,522	2,814	2,814	2,814	2,814	2,814	2,814	2,814
Delivered WLA*	5,534	2,891	2,891	2,891	2,891	2,891	2,891	2,891
Expected Credits (delivered)	12	77	77	77	77	77	77	77
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**12**	**77**	**77**	**77**	**77**	**77**	**77**	**77**
Class A Credit Sales (Purchases)	**(959)**	**(501)**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**971**	**578**	**77**	**77**	**77**	**77**	**77**	**77**

** Reflects consolidation of the Shrine Mont STP wasteload allocation*

PHOSPHORUS FACILITY SUMMARY

Stoney Creek

POTOMAC Trading Basin



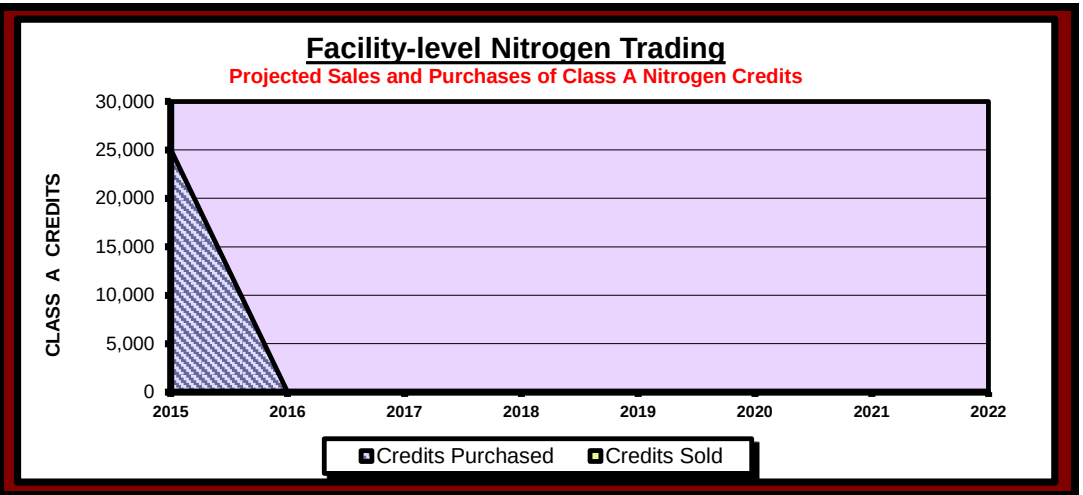
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Projected Avg. Annual Concentration (mg/L)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Discharged Load (end of pipe)	1,005	1,005	1,005	1,005	1,005	1,005	1,005	1,005
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	774	533	533	533	533	533	533	533
Delivered WLA*	514	353	353	353	353	353	353	353
Expected Credits (delivered)	(260)	(180)	(180)	(180)	(180)	(180)	(180)	(180)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(260)**	**(180)**	**(180)**	**(180)**	**(180)**	**(180)**	**(180)**	**(180)**
Class A Credit Sales (Purchases)	**(604)**	**(416)**	**(180)**	**(180)**	**(180)**	**(180)**	**(180)**	**(180)**
Expected Class B Credits	**344**	**236**	**0**	**0**	**0**	**0**	**0**	**0**

** Reflects consolidation of the Shrine Mont STP wasteload allocation*

NITROGEN FACILITY SUMMARY

Strasburg

POTOMAC Trading Basin

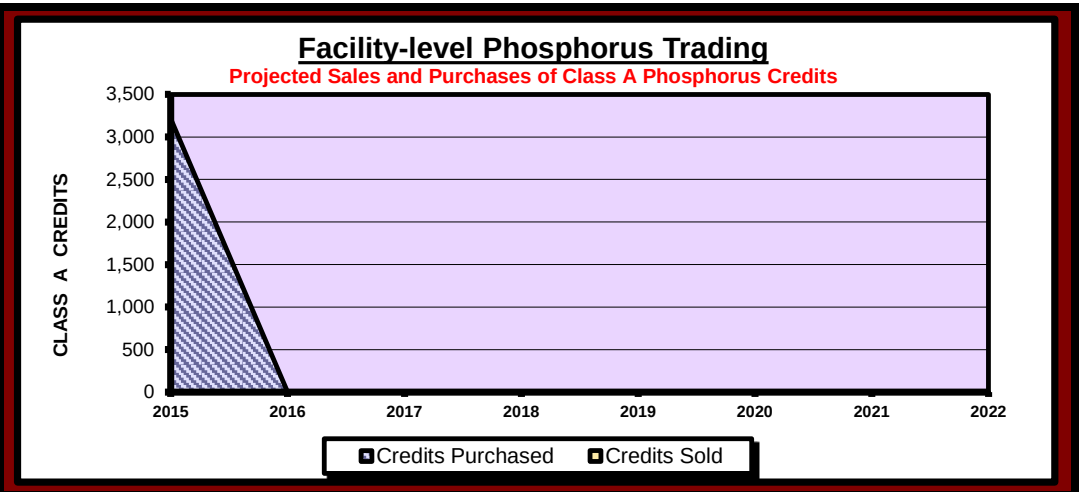


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.98	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96
Projected Avg. Annual Concentration (mg/L)	18.21	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	49,359	8,223	8,314	8,406	8,497	8,588	8,680	8,771
Delivery Factor	0.67	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Expected Load	33,071	3,536	3,575	3,614	3,654	3,693	3,732	3,772
Delivered WLA	7,999	5,134	5,134	5,134	5,134	5,134	5,134	5,134
Expected Credits (delivered)	(25,072)	1,598	1,559	1,520	1,480	1,441	1,402	1,362
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(25,072)**	**1,598**	**1,559**	**1,520**	**1,480**	**1,441**	**1,402**	**1,362**
Class A Credit Sales (Purchases)	**(25,072)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**1,598**	**1,559**	**1,520**	**1,480**	**1,441**	**1,402**	**1,362**

PHOSPHORUS FACILITY SUMMARY

Strasburg

POTOMAC Trading Basin

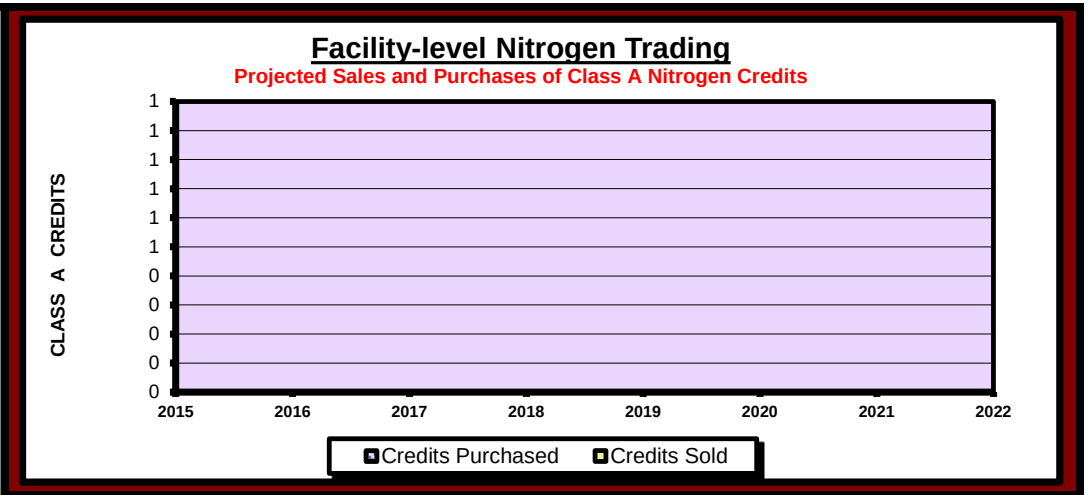


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.98	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96
Projected Avg. Annual Concentration (mg/L)	1.87	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	5,069	822	831	841	850	859	868	877
Delivery Factor	0.77	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Expected Load	3,903	436	441	446	450	455	460	465
Delivered WLA	689	474	474	474	474	474	474	474
Expected Credits (delivered)	(3,214)	38	33	28	24	19	14	9
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(3,214)**	**38**	**33**	**28**	**24**	**19**	**14**	**9**
Class A Credit Sales (Purchases)	**(3,214)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**38**	**33**	**28**	**24**	**19**	**14**	**9**

NITROGEN FACILITY SUMMARY

UOSA

POTOMAC Trading Basin

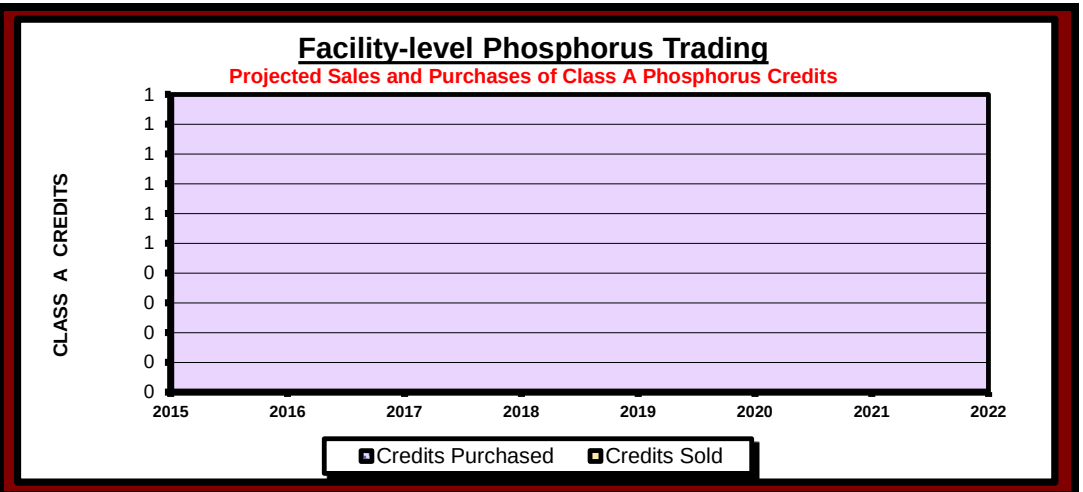


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00
Projected Flow (mgd)	35.77	35.25	34.86	34.54	35.25	35.76	36.27	36.78
Projected Avg. Annual Concentration (mg/L)	11.50	12.00	12.10	12.10	12.15	11.94	11.80	11.65
Discharged Load (end of pipe)	1,252,806	1,288,272	1,284,525	1,272,843	1,304,375	1,300,376	1,303,457	1,304,983
Delivery Factor	0.58	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Expected Load	726,628	296,303	295,441	292,754	300,006	299,087	299,795	300,146
Delivered WLA	763,096	302,607	302,607	302,607	302,607	302,607	302,607	302,607
Expected Credits (delivered)	36,468	6,304	7,166	9,853	2,601	3,520	2,812	2,461
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**36,468**	**6,304**	**7,166**	**9,853**	**2,601**	**3,520**	**2,812**	**2,461**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**36,468**	**6,304**	**7,166**	**9,853**	**2,601**	**3,520**	**2,812**	**2,461**

PHOSPHORUS FACILITY SUMMARY

UOSA

POTOMAC Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00
Projected Flow (mgd)	35.77	35.25	34.86	34.54	35.25	35.76	36.27	36.78
Projected Avg. Annual Concentration (mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Discharged Load (end of pipe)	10,894	10,736	10,616	10,519	10,736	10,891	11,046	11,202
Delivery Factor	0.44	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Expected Load	4,793	3,221	3,185	3,156	3,221	3,267	3,314	3,360
Delivered WLA	7,236	4,934	4,934	4,934	4,934	4,934	4,934	4,934
Expected Credits (delivered)	2,443	1,713	1,749	1,778	1,713	1,667	1,620	1,574
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,443**	**1,713**	**1,749**	**1,778**	**1,713**	**1,667**	**1,620**	**1,574**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**2,443**	**1,713**	**1,749**	**1,778**	**1,713**	**1,667**	**1,620**	**1,574**

Owner Bubble: Virginia American Water, Prince William District

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

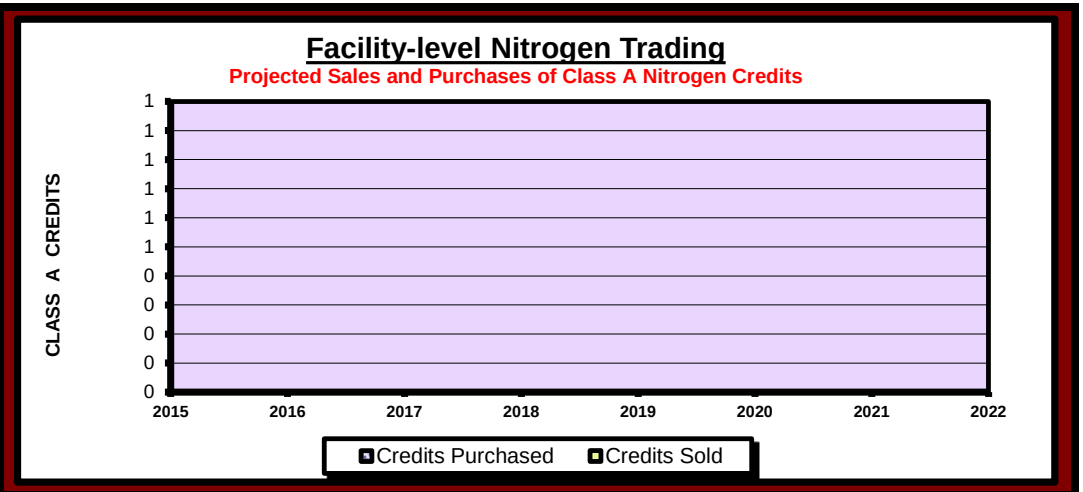
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
VA Am. Water PW Sec. 1	-	-	-	-	-	-	-	-
VA Am. Water PW Sec. 8	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
VA Am. Water PW Sec. 1	3,655	2,741	2,741	2,741	2,741	2,741	2,741	2,741
VA Am. Water PW Sec. 8	3,655	2,741	2,741	2,741	2,741	2,741	2,741	2,741
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**7,310**	**5,482**	**5,482**	**5,482**	**5,482**	**5,482**	**5,482**	**5,482**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*7,310*	*5,482*	*5,482*	*5,482*	*5,482*	*5,482*	*5,482*	*5,482*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
VA Am. Water PW Sec. 1	-	-	-	-	-	-	-	-
VA Am. Water PW Sec. 8	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
VA Am. Water PW Sec. 1	220	165	165	165	165	165	165	165
VA Am. Water PW Sec. 8	220	165	165	165	165	165	165	165
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**440**	**330**	**330**	**330**	**330**	**330**	**330**	**330**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*440*	*330*	*330*	*330*	*330*	*330*	*330*	*330*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

VA Am. Water PW Sec. 1

POTOMAC Trading Basin

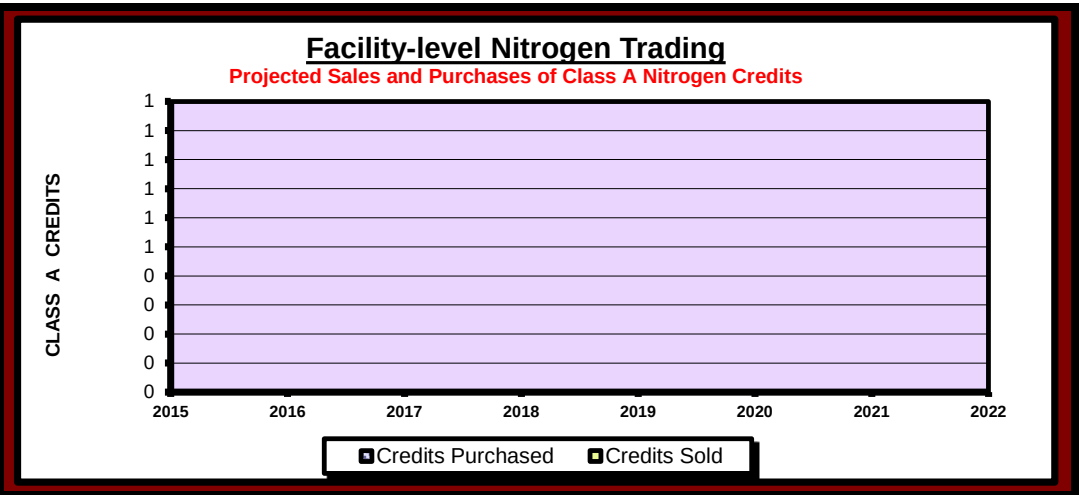


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60
Projected Flow (mgd)	4.20	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	38,374	39,288	39,288	39,288	39,288	39,288	39,288	39,288
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	38,374	39,288	39,288	39,288	39,288	39,288	39,288	39,288
Delivered WLA	42,029	42,029	42,029	42,029	42,029	42,029	42,029	42,029
Expected Credits (delivered)	3,655	2,741	2,741	2,741	2,741	2,741	2,741	2,741
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,655**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**3,655**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**

NITROGEN FACILITY SUMMARY

VA Am. Water PW Sec. 8

POTOMAC Trading Basin

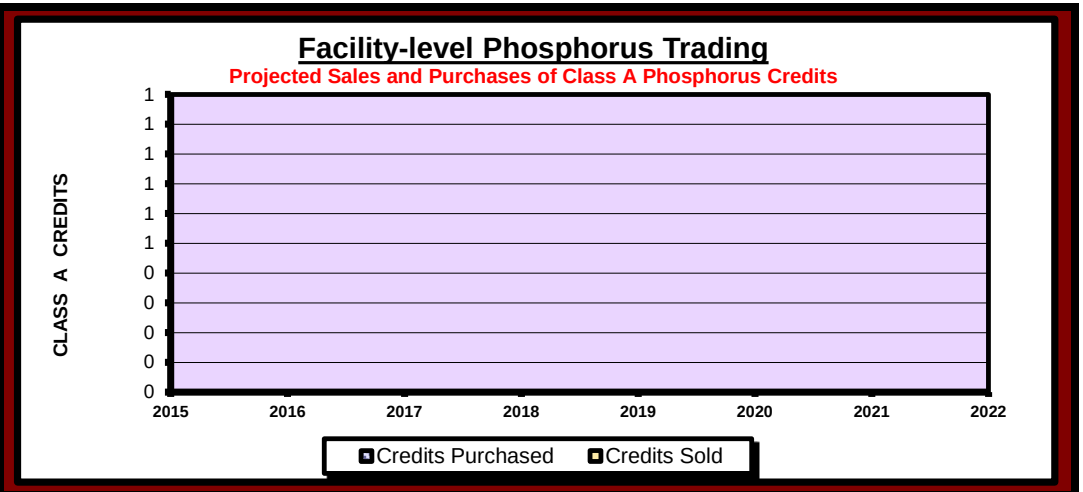


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60
Projected Flow (mgd)	4.20	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	38,374	39,288	39,288	39,288	39,288	39,288	39,288	39,288
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	38,374	39,288	39,288	39,288	39,288	39,288	39,288	39,288
Delivered WLA	42,029	42,029	42,029	42,029	42,029	42,029	42,029	42,029
Expected Credits (delivered)	3,655	2,741	2,741	2,741	2,741	2,741	2,741	2,741
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,655**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**3,655**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**

PHOSPHORUS FACILITY SUMMARY

VA Am. Water PW Sec. 1

POTOMAC Trading Basin

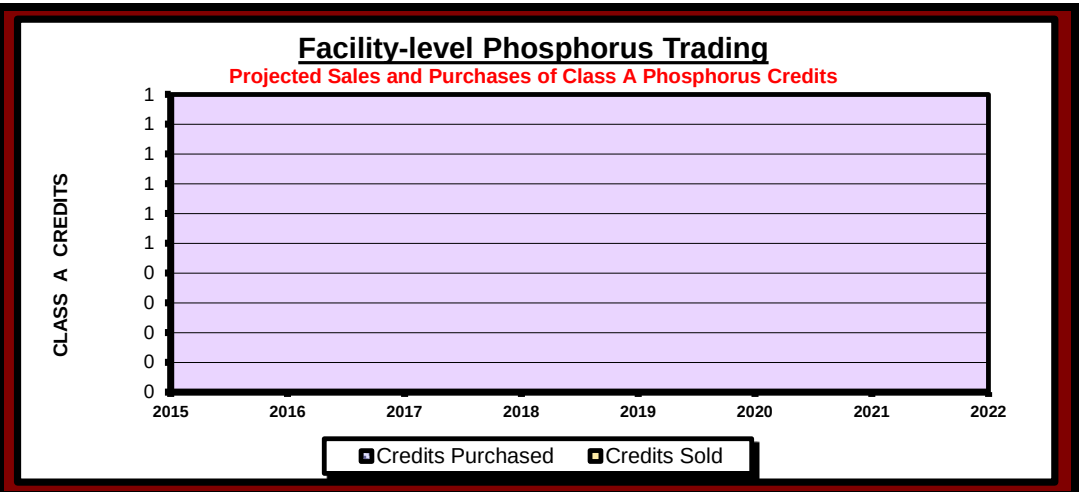


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60
Projected Flow (mgd)	4.20	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Projected Avg. Annual Concentration (mg/L)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Discharged Load (end of pipe)	2,302	2,357	2,357	2,357	2,357	2,357	2,357	2,357
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,302	2,357	2,357	2,357	2,357	2,357	2,357	2,357
Delivered WLA	2,522	2,522	2,522	2,522	2,522	2,522	2,522	2,522
Expected Credits (delivered)	220	165	165	165	165	165	165	165
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**220**	**165**	**165**	**165**	**165**	**165**	**165**	**165**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**220**	**165**	**165**	**165**	**165**	**165**	**165**	**165**

PHOSPHORUS FACILITY SUMMARY

VA Am. Water PW Sec. 8

POTOMAC Trading Basin

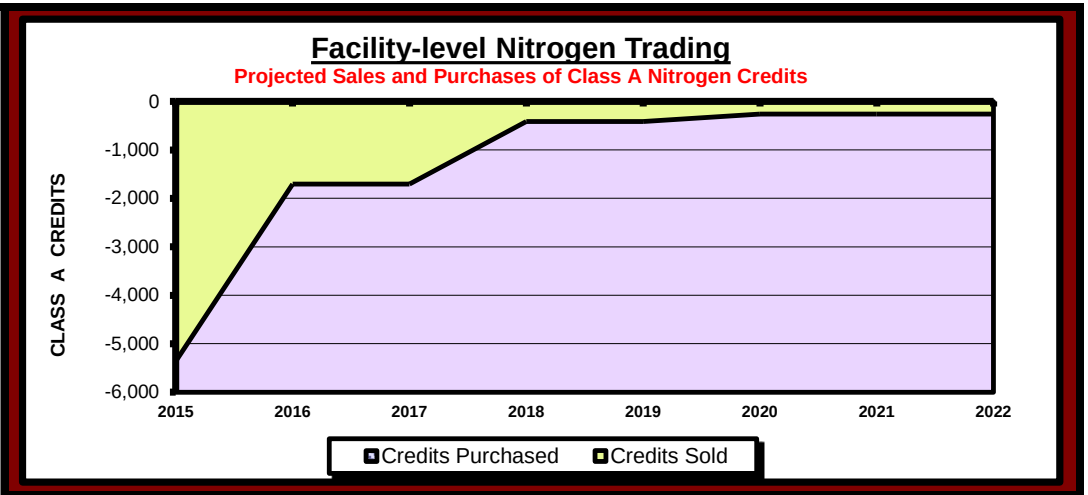


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60
Projected Flow (mgd)	4.20	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Projected Avg. Annual Concentration (mg/L)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Discharged Load (end of pipe)	2,302	2,357	2,357	2,357	2,357	2,357	2,357	2,357
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,302	2,357	2,357	2,357	2,357	2,357	2,357	2,357
Delivered WLA	2,522	2,522	2,522	2,522	2,522	2,522	2,522	2,522
Expected Credits (delivered)	220	165	165	165	165	165	165	165
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**220**	**165**	**165**	**165**	**165**	**165**	**165**	**165**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**220**	**165**	**165**	**165**	**165**	**165**	**165**	**165**

NITROGEN FACILITY SUMMARY

Waynesboro

POTOMAC Trading Basin

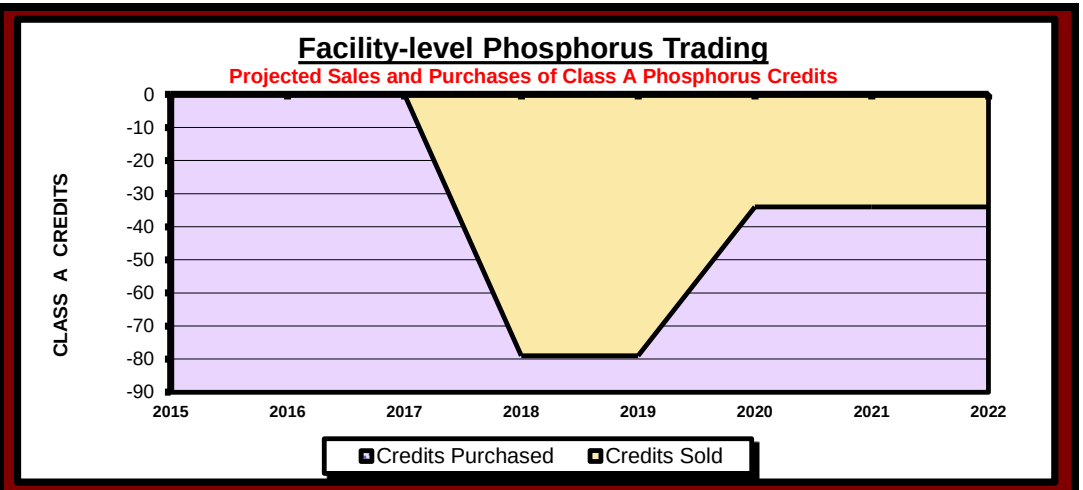


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Projected Flow (mgd)	4.00	4.00	4.00	5.01	5.01	5.13	5.13	5.13
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	36,547	36,547	36,547	45,775	45,775	46,871	46,871	46,871
Delivery Factor	0.44	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Expected Load	16,081	5,117	5,117	6,408	6,408	6,562	6,562	6,562
Delivered WLA	21,441	6,822	6,822	6,822	6,822	6,822	6,822	6,822
Expected Credits (delivered)	5,360	1,705	1,705	414	414	260	260	260
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**5,360**	**1,705**	**1,705**	**414**	**414**	**260**	**260**	**260**
Class A Credit Sales (Purchases)	**5,360**	**1,705**	**1,705**	**414**	**414**	**260**	**260**	**260**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Waynesboro

POTOMAC Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Projected Flow (mgd)	4.00	4.00	4.00	5.01	5.01	5.13	5.13	5.13
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.23	0.23	0.23	0.23	0.23
Discharged Load (end of pipe)	3,655	3,655	3,655	3,509	3,509	3,593	3,593	3,593
Delivery Factor	0.77	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Expected Load	2,814	1,974	1,974	1,895	1,895	1,940	1,940	1,940
Delivered WLA	2,814	1,974	1,974	1,974	1,974	1,974	1,974	1,974
Expected Credits (delivered)	0	0	0	79	79	34	34	34
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**79**	**79**	**34**	**34**	**34**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**79**	**79**	**34**	**34**	**34**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SECTION 3

Rappahannock River Basin Exchange Compliance Plan

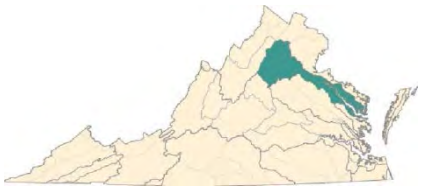


EXHIBIT 3-1
Nitrogen Plan Summary: Rappahannock River Basin

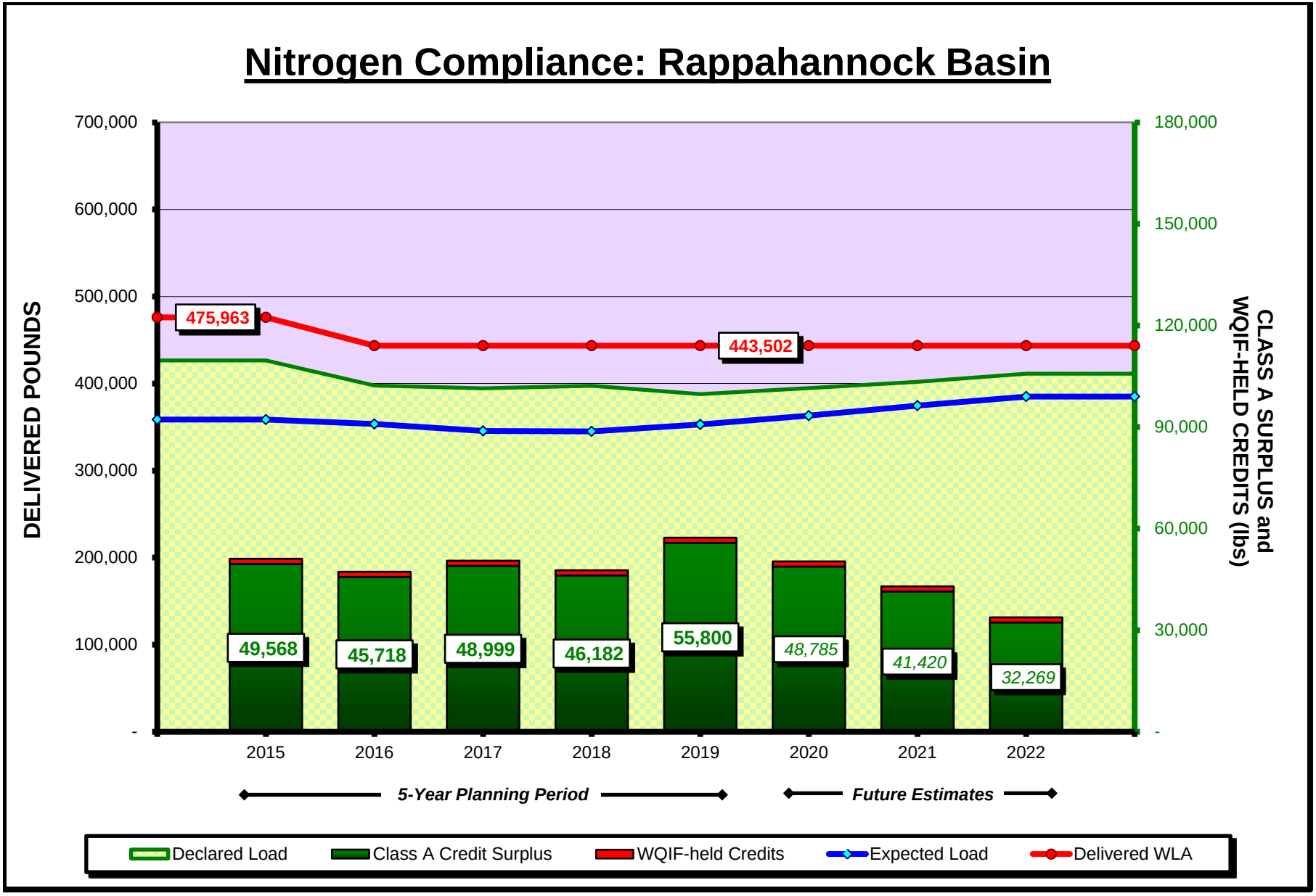


EXHIBIT 3-2
2015 Nitrogen Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Nitrogen Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.65	$ 3.05	$ 0.07
The Exchange (group)	**475,963**	**358,538**	**117,425**	**-**	**-**	**(1,523)**	**115,902**		**64,954**	**(15,386)**	**66,334**
American Water-Fort Hill	6,457	10,233	(3,776)	-	-	-	(3,776)		-	(3,776)	-
Culpeper (Town)	44,587	25,080	19,507	-	-	-	19,507		7,524	-	11,983
FCWSA-Marshall	4,756	4,607	149	-	-	-	149		-	-	149
FCWSA-Remington	14,862	8,174	6,688	-	-	-	6,688		-	-	6,688
Fredericksburg	54,820	60,119	(5,299)	-	-	-	(5,299)		-	(8,771)	3,472
Greene Co-Rapidan	4,459	2,146	2,313	-	-	-	2,313		1,157	-	1,156
HRSD-Urbanna	1,218	3,625	(2,407)	-	-	-	(2,407)		-	(2,839)	432
KGCSA-Hopyard Farms	6,091	1,827	4,264	-	-	(1,523)	2,741		-	-	2,741
KGCSA-Oakland Park	1,706	1,675	31	-	-	-	31		-	-	31
Kilmarnock	6,091	3,898	2,193	-	-	-	2,193		1,974	-	219
Omega Protein	21,213	10,477	10,736	-	-	-	10,736		8,589	-	2,147
Orange (Town)	22,293	9,512	12,781	-	-	-	12,781		6,391	-	6,390
Reedville S.D.	2,436	853	1,583	-	-	-	1,583		-	-	1,583
RSA-Wilderness Shores	9,289	4,737	4,552	-	-	-	4,552		-	-	4,552
Spotsy Co-FMC	48,737	55,551	(6,814)	6,814	-	-	-		-	-	-
Spotsy Co-Massaponax	114,505	84,179	30,326	(6,814)	-	-	23,512		2,620	-	20,892
Stafford Co-L. Falls Run	97,458	60,759	36,699	-	-	-	36,699		36,699	-	-
Tappahannock	9,746	7,309	2,437	-	-	-	2,437		-	-	2,437
Warsaw	3,655	3,046	609	-	-	-	609		-	-	609
Westmoreland Co-Montross	1,584	731	853	-	-	-	853		-	-	853
	-	-	-	-	-	-	-		-	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-3
2016 Nitrogen Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Nitrogen Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.72	$ 3.50	$ 0.11
The Exchange (group)	**443,502**	**353,511**	**89,991**	**-**	**-**	**(1,523)**	**88,468**		**59,434**	**(13,716)**	**42,750**
American Water-Fort Hill	6,457	10,720	(4,263)	-	-	-	(4,263)		-	(4,263)	-
Culpeper (Town)	35,816	20,594	15,222	-	-	-	15,222		13,700	-	1,522
FCWSA-Marshall	1,481	1,528	(47)	47	-	-	-		-	-	-
FCWSA-Remington	11,938	6,924	5,014	(47)	-	-	4,967		-	-	4,967
Fredericksburg	54,820	61,825	(7,005)	-	-	-	(7,005)		-	(7,005)	-
Greene Co-Rapidan	2,120	1,069	1,051	-	-	-	1,051		789	-	262
HRSD-Urbanna	1,218	3,666	(2,448)	-	-	-	(2,448)		-	(2,448)	-
KGCSA-Hopyard Farms	6,091	1,645	4,446	-	-	(1,523)	2,923		-	-	2,923
KGCSA-Oakland Park	1,706	1,371	335	-	-	-	335		-	-	335
Kilmarnock	6,091	3,015	3,076	-	-	-	3,076		2,153	-	923
Omega Protein	21,213	13,096	8,117	-	-	-	8,117		6,494	-	1,623
Orange (Town)	10,599	4,946	5,653	-	-	-	5,653		2,827	-	2,826
Reedville S.D.	2,436	853	1,583	-	-	-	1,583		-	-	1,583
RSA-Wilderness Shores	6,243	3,259	2,984	-	-	-	2,984		-	-	2,984
Spotsy Co-FMC	48,737	57,013	(8,276)	8,276	-	-	-		-	-	-
Spotsy Co-Massaponax	114,505	86,738	27,767	(8,276)	-	-	19,491		122	-	19,369
Stafford Co-L. Falls Run	97,458	64,109	33,349	-	-	-	33,349		33,349	-	-
Tappahannock	9,746	7,553	2,193	-	-	-	2,193		-	-	2,193
Warsaw	3,655	3,046	609	-	-	-	609		-	-	609
Westmoreland Co-Montross	1,172	541	631	-	-	-	631		-	-	631
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-4
2017 Nitrogen Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Nitrogen Credit Ledger

Compliance Year:	*2017*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	$ 0.54	$ 3.75	$ 0.07
The Exchange (group)	**443,502**	**345,477**	**98,025**	**-**	**-**	**(1,523)**	**96,502**		**58,474**	**(9,475)**	**47,503**
American Water-Fort Hill	6,457	5,025	1,432	-	-	-	1,432		716	-	716
Culpeper (Town)	35,816	20,594	15,222	-	-	-	15,222		15,222	-	-
FCWSA-Marshall	1,481	1,620	(139)	139	-	-	-		-	-	-
FCWSA-Remington	11,938	7,283	4,655	(139)	-	-	4,516		-	-	4,516
Fredericksburg	54,820	61,825	(7,005)	-	-	-	(7,005)		-	(7,005)	-
Greene Co-Rapidan	2,120	1,166	954	-	-	-	954		716	-	238
HRSD-Urbanna	1,218	3,688	(2,470)	-	-	-	(2,470)		-	(2,470)	-
KGCSA-Hopyard Farms	6,091	1,462	4,629	-	-	(1,523)	3,106		-	-	3,106
KGCSA-Oakland Park	1,706	1,371	335	-	-	-	335		-	-	335
Kilmarnock	6,091	3,198	2,893	-	-	-	2,893		2,000	-	893
Omega Protein	21,213	13,705	7,508	-	-	-	7,508		7,508	-	-
Orange (Town)	10,599	5,123	5,476	-	-	-	5,476		2,738	-	2,738
Reedville S.D.	2,436	853	1,583	-	-	-	1,583		-	-	1,583
RSA-Wilderness Shores	6,243	3,371	2,872	-	-	-	2,872		-	-	2,872
Spotsy Co-FMC	48,737	60,668	(11,931)	11,931	-	-	-		-	-	-
Spotsy Co-Massaponax	114,505	89,296	25,209	(11,931)	-	-	13,278		-	-	13,278
Stafford Co-L. Falls Run	97,458	53,967	43,491	-	-	-	43,491		29,574	-	13,917
Tappahannock	9,746	7,675	2,071	-	-	-	2,071		-	-	2,071
Warsaw	3,655	3,046	609	-	-	-	609		-	-	609
Westmoreland Co-Montross	1,172	541	631	-	-	-	631		-	-	631
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-5
2018 Nitrogen Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Nitrogen Credit Ledger

Compliance Year:	*2018*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	$ 0.53	$ 3.78	$ 0.06
The Exchange (group)	**443,502**	**344,898**	**98,604**	**-**	**-**	**(1,523)**	**97,081**		**54,863**	**(8,681)**	**50,899**
American Water-Fort Hill	6,457	5,025	1,432	-	-	-	1,432		716	-	716
Culpeper (Town)	35,816	21,489	14,327	-	-	-	14,327		14,327	-	-
FCWSA-Marshall	1,481	1,667	(186)	186	-	-	-		-	-	-
FCWSA-Remington	11,938	7,641	4,297	(186)	-	-	4,111		-	-	4,111
Fredericksburg	54,820	61,094	(6,274)	-	-	-	(6,274)		-	(6,274)	-
Greene Co-Rapidan	2,120	1,263	857	-	-	-	857		643	-	214
HRSD-Urbanna	1,218	3,625	(2,407)	-	-	-	(2,407)		-	(2,407)	-
KGCSA-Hopyard Farms	6,091	1,553	4,538	-	-	(1,523)	3,015		-	-	3,015
KGCSA-Oakland Park	1,706	1,371	335	-	-	-	335		-	-	335
Kilmarnock	6,091	3,198	2,893	-	-	-	2,893		2,000	-	893
Omega Protein	21,213	12,182	9,031	-	-	-	9,031		8,000	-	1,031
Orange (Town)	10,599	5,299	5,300	-	-	-	5,300		2,650	-	2,650
Reedville S.D.	2,436	853	1,583	-	-	-	1,583		-	-	1,583
RSA-Wilderness Shores	6,243	3,446	2,797	-	-	-	2,797		-	-	2,797
Spotsy Co-FMC	48,737	62,373	(13,636)	13,636	-	-	-		-	-	-
Spotsy Co-Massaponax	114,505	84,788	29,717	(13,636)	-	-	16,081		-	-	16,081
Stafford Co-L. Falls Run	97,458	56,647	40,811	-	-	-	40,811		26,527	-	14,284
Tappahannock	9,746	7,797	1,949	-	-	-	1,949		-	-	1,949
Warsaw	3,655	3,046	609	-	-	-	609		-	-	609
Westmoreland Co-Montross	1,172	541	631	-	-	-	631		-	-	631
	-	-	-	-	-	-	-		-	-	-
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For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-6
2019 Nitrogen Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Nitrogen Credit Ledger

Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.37	$ 3.82	$ 0.07
The Exchange (group)	**443,502**	**353,101**	**90,401**	**-**	**-**	**(1,523)**	**88,878**		**62,713**	**(6,913)**	**33,078**
American Water-Fort Hill	6,457	6,365	92	-	-	-	92		-	-	92
Culpeper (Town)	35,816	22,385	13,431	-	-	-	13,431		13,431	-	-
FCWSA-Marshall	1,481	1,759	(278)	278	-	-	-		-	-	-
FCWSA-Remington	11,938	7,999	3,939	(278)	-	-	3,661		-	-	3,661
Fredericksburg	54,820	58,292	(3,472)	-	-	-	(3,472)		-	(3,472)	-
Greene Co-Rapidan	2,120	1,360	760	-	-	-	760		760	-	-
HRSD-Urbanna	1,218	4,659	(3,441)	-	-	-	(3,441)		-	(3,441)	-
KGCSA-Hopyard Farms	6,091	1,553	4,538	-	-	(1,523)	3,015		-	-	3,015
KGCSA-Oakland Park	1,706	1,371	335	-	-	-	335		-	-	335
Kilmarnock	6,091	3,198	2,893	-	-	-	2,893		1,500	-	1,393
Omega Protein	21,213	12,182	9,031	-	-	-	9,031		9,031	-	-
Orange (Town)	10,599	5,299	5,300	-	-	-	5,300		3,975	-	1,325
Reedville S.D.	2,436	853	1,583	-	-	-	1,583		-	-	1,583
RSA-Wilderness Shores	6,243	3,446	2,797	-	-	-	2,797		-	-	2,797
Spotsy Co-FMC	48,737	64,322	(15,585)	15,585	-	-	-		-	-	-
Spotsy Co-Massaponax	114,505	87,225	27,280	(15,585)	-	-	11,695		5,800	-	5,895
Stafford Co-L. Falls Run	97,458	59,328	38,130	-	-	-	38,130		28,216	-	9,914
Tappahannock	9,746	7,918	1,828	-	-	-	1,828		-	-	1,828
Warsaw	3,655	3,046	609	-	-	-	609		-	-	609
Westmoreland Co-Montross	1,172	541	631	-	-	-	631		-	-	631
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
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	-	-	-	-	-	-	-		-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-7
Phosphorus Plan Summary: Rappahannock River Basin

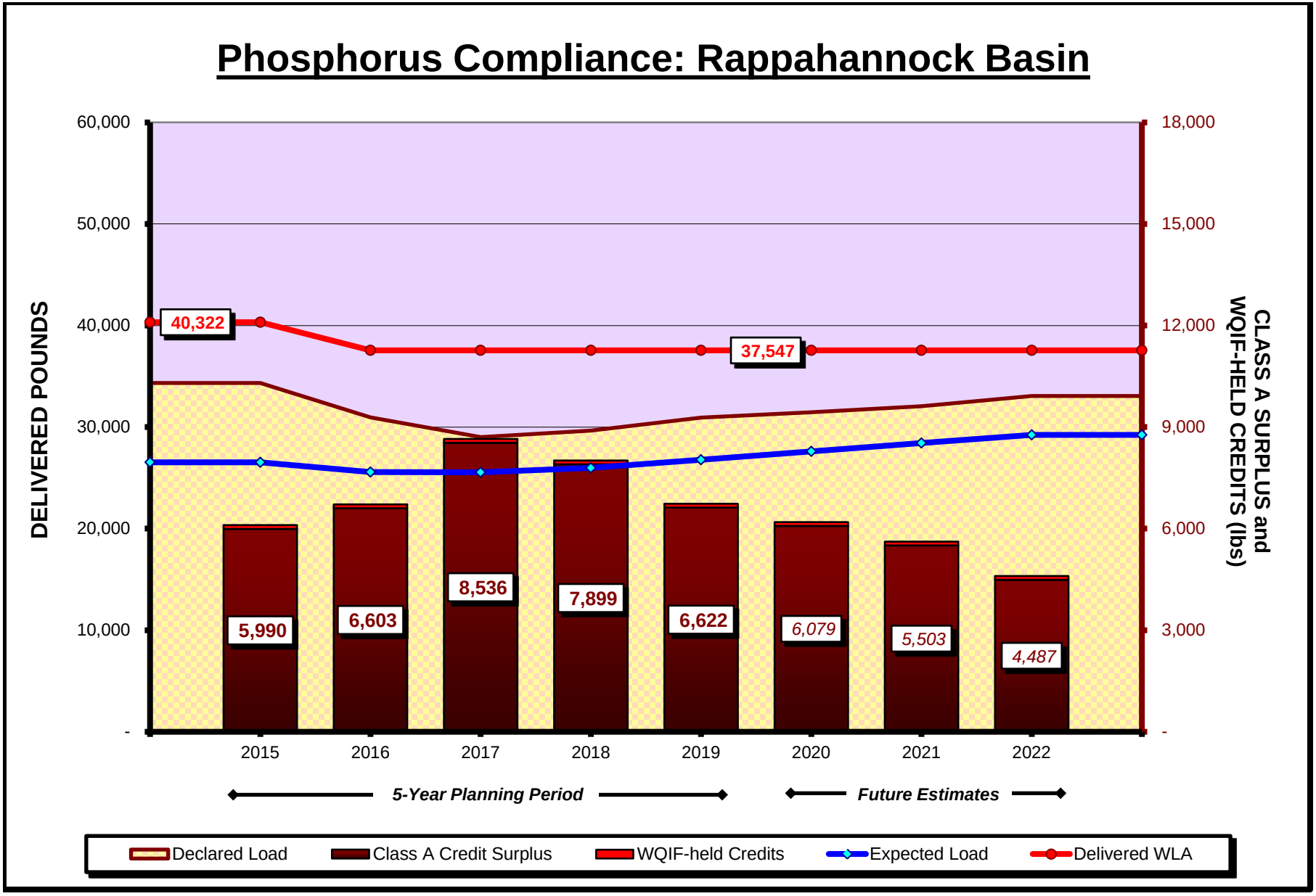

EXHIBIT 3-8
2015 Phosphorus Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Phosphorus Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.92	$ 4.93	$ 0.10
The Exchange (group)	**40,322**	**26,529**	**13,793**	**-**	**-**	**(114)**	**13,679**		**7,566**	**(1,576)**	**7,689**
American Water-Fort Hill	484	146	338	-	-	-	338		85	-	253
Culpeper (Town)	5,483	3,700	1,783	-	-	-	1,783		412	-	1,371
FCWSA-Marshall	585	283	302	-	-	-	302		-	-	302
FCWSA-Remington	1,827	1,039	788	-	-	-	788		-	-	788
Fredericksburg	4,112	3,350	762	-	-	-	762		-	-	762
Greene Co-Rapidan	548	1,279	(731)	-	-	-	(731)		-	(731)	-
HRSD-Urbanna	91	836	(745)	-	-	-	(745)		-	(845)	100
KGCSA-Hopyard Farms	457	152	305	(40)	-	(114)	151		-	-	151
KGCSA-Oakland Park	128	168	(40)	40	-	-	-		-	-	-
Kilmarnock	457	292	165	-	-	-	165		149	-	16
Omega Protein	1,591	365	1,226	-	-	-	1,226		981	-	245
Orange (Town)	2,741	1,169	1,572	-	-	-	1,572		786	-	786
Reedville S.D.	183	64	119	-	-	-	119		-	-	119
RSA-Wilderness Shores	1,142	777	365	-	-	-	365		-	-	365
Spotsy Co-FMC	3,655	2,083	1,572	-	-	-	1,572		472	-	1,100
Spotsy Co-Massaponax	8,405	6,313	2,092	-	-	-	2,092		1,018	-	1,074
Stafford Co-L. Falls Run	7,309	3,646	3,663	-	-	-	3,663		3,663	-	-
Tappahannock	731	548	183	-	-	-	183		-	-	183
Warsaw	274	228	46	-	-	-	46		-	-	46
Westmoreland Co-Montross	119	91	28	-	-	-	28		-	-	28
	-	-	-	-	-	-	-		-	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-9
2016 Phosphorus Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Phosphorus Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.79	$ 5.27	$ 0.13
The Exchange (group)	**37,547**	**25,557**	**11,990**	**-**	**-**	**(113)**	**11,877**		**7,938**	**(1,335)**	**5,274**
American Water-Fort Hill	479	169	310	-	-	-	310		78	-	232
Culpeper (Town)	4,277	2,950	1,327	-	-	-	1,327		1,327	-	-
FCWSA-Marshall	450	232	218	-	-	-	218		-	-	218
FCWSA-Remington	1,425	854	571	-	-	-	571		-	-	571
Fredericksburg	4,112	3,445	667	-	-	-	667		333	-	334
Greene Co-Rapidan	422	1,032	(610)	-	-	-	(610)		-	(610)	-
HRSD-Urbanna	87	812	(725)	-	-	-	(725)		-	(725)	-
KGCSA-Hopyard Farms	452	136	316	(9)	-	(113)	194		-	-	194
KGCSA-Oakland Park	124	133	(9)	9	-	-	-		-	-	-
Kilmarnock	452	298	154	-	-	-	154		-	-	154
Omega Protein	1,591	457	1,134	-	-	-	1,134		907	-	227
Orange (Town)	2,138	998	1,140	-	-	-	1,140		570	-	570
Reedville S.D.	179	63	116	-	-	-	116		-	-	116
RSA-Wilderness Shores	879	612	267	-	-	-	267		-	-	267
Spotsy Co-FMC	3,655	2,138	1,517	-	-	-	1,517		402	-	1,115
Spotsy Co-Massaponax	8,405	6,505	1,900	-	-	-	1,900		859	-	1,041
Stafford Co-L. Falls Run	7,309	3,847	3,462	-	-	-	3,462		3,462	-	-
Tappahannock	731	566	165	-	-	-	165		-	-	165
Warsaw	271	226	45	-	-	-	45		-	-	45
Westmoreland Co-Montross	109	84	25	-	-	-	25		-	-	25
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
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	-	-	-	-	-	-	-		-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-10
2017 Phosphorus Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Phosphorus Credit Ledger

Compliance Year:	2017	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.73	$ 5.65	$ 0.24
The Exchange (group)	**37,547**	**25,550**	**11,997**	**-**	**-**	**(113)**	**11,884**		**9,970**	**(1,434)**	**3,348**
American Water-Fort Hill	479	199	280	-	-	-	280		71	-	209
Culpeper (Town)	4,277	2,185	2,092	-	-	-	2,092		2,092	-	-
FCWSA-Marshall	450	246	204	-	-	-	204		-	-	204
FCWSA-Remington	1,425	869	556	-	-	-	556		-	-	556
Fredericksburg	4,112	3,445	667	-	-	-	667		667	-	-
Greene Co-Rapidan	422	1,126	(704)	-	-	-	(704)		-	(704)	-
HRSD-Urbanna	87	817	(730)	-	-	-	(730)		-	(730)	-
KGCSA-Hopyard Farms	452	121	331	(9)	-	(113)	209		-	-	209
KGCSA-Oakland Park	124	133	(9)	9	-	-	-		-	-	-
Kilmarnock	452	317	135	-	-	-	135		100	-	35
Omega Protein	1,591	457	1,134	-	-	-	1,134		1,134	-	-
Orange (Town)	2,138	1,033	1,105	-	-	-	1,105		553	-	552
Reedville S.D.	179	63	116	-	-	-	116		-	-	116
RSA-Wilderness Shores	879	633	246	-	-	-	246		-	-	246
Spotsy Co-FMC	3,655	2,275	1,380	-	-	-	1,380		1,329	-	51
Spotsy Co-Massaponax	8,405	6,697	1,708	-	-	-	1,708		763	-	945
Stafford Co-L. Falls Run	7,309	4,048	3,261	-	-	-	3,261		3,261	-	-
Tappahannock	731	576	155	-	-	-	155		-	-	155
Warsaw	271	226	45	-	-	-	45		-	-	45
Westmoreland Co-Montross	109	84	25	-	-	-	25		-	-	25
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-11
2018 Phosphorus Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Phosphorus Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.82	$ 5.70	$ 0.24
The Exchange (group)	**37,547**	**25,979**	**11,568**	**-**	**-**	**(113)**	**11,455**		**9,412**	**(1,513)**	**3,556**
American Water-Fort Hill	479	199	280	-	-	-	280		71	-	209
Culpeper (Town)	4,277	2,281	1,996	-	-	-	1,996		1,996	-	-
FCWSA-Marshall	450	253	197	-	-	-	197		-	-	197
FCWSA-Remington	1,425	912	513	-	-	-	513		-	-	513
Fredericksburg	4,112	3,504	608	-	-	-	608		608	-	-
Greene Co-Rapidan	422	1,219	(797)	-	-	-	(797)		-	(797)	-
HRSD-Urbanna	87	803	(716)	-	-	-	(716)		-	(716)	-
KGCSA-Hopyard Farms	452	128	324	(9)	-	(113)	202		-	-	202
KGCSA-Oakland Park	124	133	(9)	9	-	-	-		-	-	-
Kilmarnock	452	317	135	-	-	-	135		100	-	35
Omega Protein	1,591	609	982	-	-	-	982		982	-	-
Orange (Town)	2,138	1,069	1,069	-	-	-	1,069		534	-	535
Reedville S.D.	179	63	116	-	-	-	116		-	-	116
RSA-Wilderness Shores	879	647	232	-	-	-	232		-	-	232
Spotsy Co-FMC	3,655	2,339	1,316	-	-	-	1,316		1,298	-	18
Spotsy Co-Massaponax	8,405	6,359	2,046	-	-	-	2,046		763	-	1,283
Stafford Co-L. Falls Run	7,309	4,249	3,060	-	-	-	3,060		3,060	-	-
Tappahannock	731	585	146	-	-	-	146		-	-	146
Warsaw	271	226	45	-	-	-	45		-	-	45
Westmoreland Co-Montross	109	84	25	-	-	-	25		-	-	25
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 3-12
2019 Phosphorus Trading Ledger: Rappahannock River Basin

RAPPAHANNOCK Basin: Phosphorus Credit Ledger

Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 1.01	$ 5.76	$ 0.23
The Exchange (group)	**37,547**	**26,787**	**10,760**	**-**	**-**	**(113)**	**10,647**		**8,241**	**(1,619)**	**4,025**
American Water-Fort Hill	479	464	15	-	-	-	15		-	-	15
Culpeper (Town)	4,277	2,376	1,901	-	-	-	1,901		1,901	-	-
FCWSA-Marshall	450	267	183	-	-	-	183		-	-	183
FCWSA-Remington	1,425	955	470	-	-	-	470		-	-	470
Fredericksburg	4,112	3,445	667	-	-	-	667		667	-	-
Greene Co-Rapidan	422	1,313	(891)	-	-	-	(891)		-	(891)	-
HRSD-Urbanna	87	815	(728)	-	-	-	(728)		-	(728)	-
KGCSA-Hopyard Farms	452	128	324	(9)	-	(113)	202		-	-	202
KGCSA-Oakland Park	124	133	(9)	9	-	-	-		-	-	-
Kilmarnock	452	317	135	-	-	-	135		75	-	60
Omega Protein	1,591	487	1,104	-	-	-	1,104		1,104	-	-
Orange (Town)	2,138	1,069	1,069	-	-	-	1,069		800	-	269
Reedville S.D.	179	63	116	-	-	-	116		-	-	116
RSA-Wilderness Shores	879	647	232	-	-	-	232		-	-	232
Spotsy Co-FMC	3,655	2,412	1,243	-	-	-	1,243		620	-	623
Spotsy Co-Massaponax	8,405	6,542	1,863	-	-	-	1,863		930	-	933
Stafford Co-L. Falls Run	7,309	4,450	2,859	-	-	-	2,859		2,144	-	715
Tappahannock	731	594	137	-	-	-	137		-	-	137
Warsaw	271	226	45	-	-	-	45		-	-	45
Westmoreland Co-Montross	109	84	25	-	-	-	25		-	-	25
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
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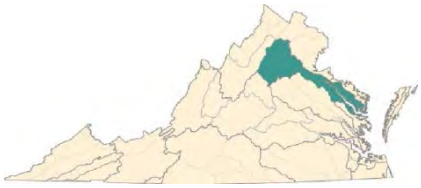
	-	-	-	-	-	-	-		-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

Rappahannock River Basin

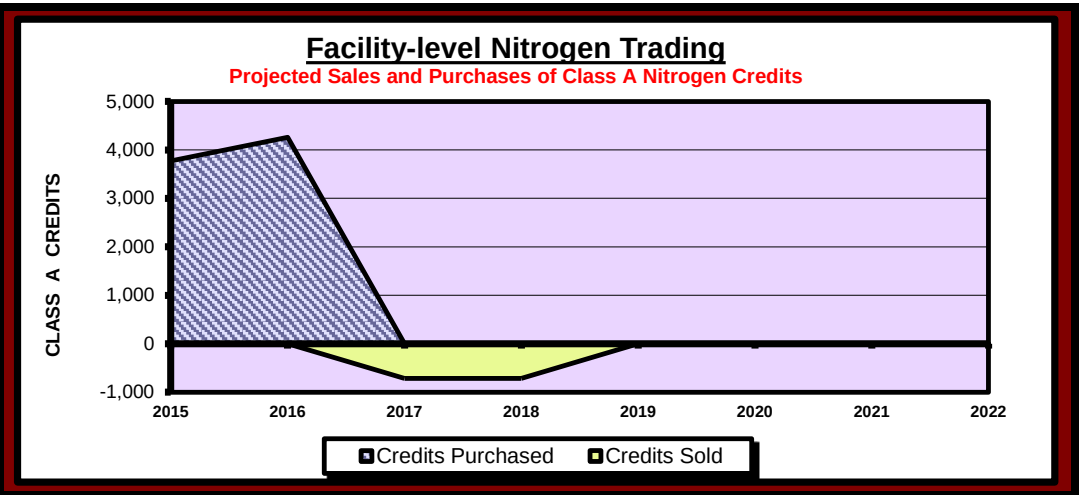
Supplemental Information for Individual Facilities



NITROGEN FACILITY SUMMARY

American Water-Fort Hill

RAPPAHANNOCK Trading Basin

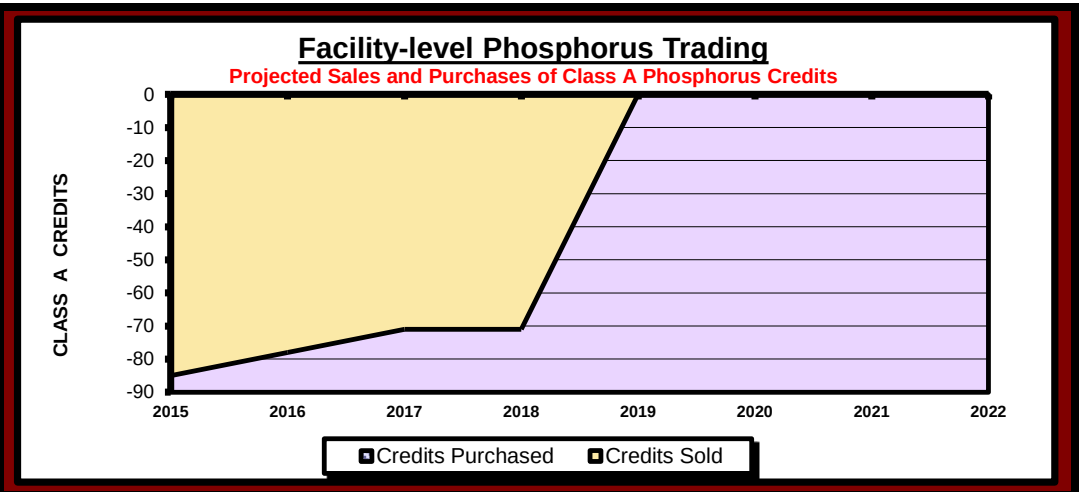


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Projected Flow (mgd)	0.16	0.16	0.11	0.11	0.11	0.11	0.11	0.11
Projected Avg. Annual Concentration (mg/L)	21.00	22.00	15.00	15.00	19.00	19.00	19.00	19.00
Discharged Load (end of pipe)	10,233	10,720	5,025	5,025	6,365	6,365	6,365	6,365
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	10,233	10,720	5,025	5,025	6,365	6,365	6,365	6,365
Delivered WLA	6,457	6,457	6,457	6,457	6,457	6,457	6,457	6,457
Expected Credits (delivered)	(3,776)	(4,263)	1,432	1,432	92	92	92	92
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(3,776)**	**(4,263)**	**1,432**	**1,432**	**92**	**92**	**92**	**92**
Class A Credit Sales (Purchases)	**(3,776)**	**(4,263)**	**716**	**716**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**716**	**716**	**92**	**92**	**92**	**92**

PHOSPHORUS FACILITY SUMMARY

American Water-Fort Hill

RAPPAHANNOCK Trading Basin

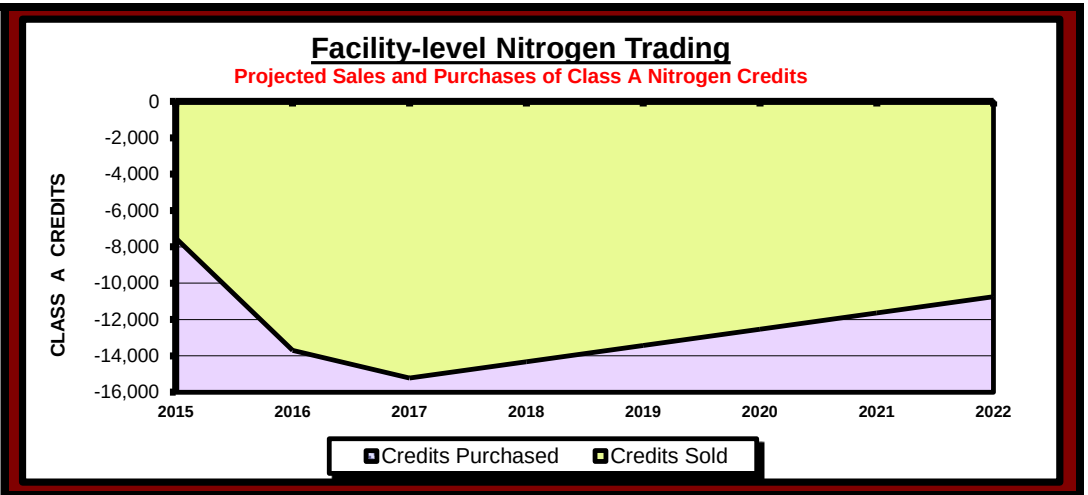


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Projected Flow (mgd)	0.16	0.16	0.11	0.11	0.11	0.11	0.11	0.11
Projected Avg. Annual Concentration (mg/L)	0.30	0.35	0.60	0.60	1.40	1.40	1.40	1.40
Discharged Load (end of pipe)	146	171	201	201	469	469	469	469
Delivery Factor	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Expected Load	146	169	199	199	464	464	464	464
Delivered WLA	484	479	479	479	479	479	479	479
Expected Credits (delivered)	338	310	280	280	15	15	15	15
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**338**	**310**	**280**	**280**	**15**	**15**	**15**	**15**
Class A Credit Sales (Purchases)	**85**	**78**	**71**	**71**	**0**	**0**	**0**	**0**
Expected Class B Credits	**253**	**232**	**209**	**209**	**15**	**15**	**15**	**15**

NITROGEN FACILITY SUMMARY

Culpeper (Town)

RAPPAHANNOCK Trading Basin

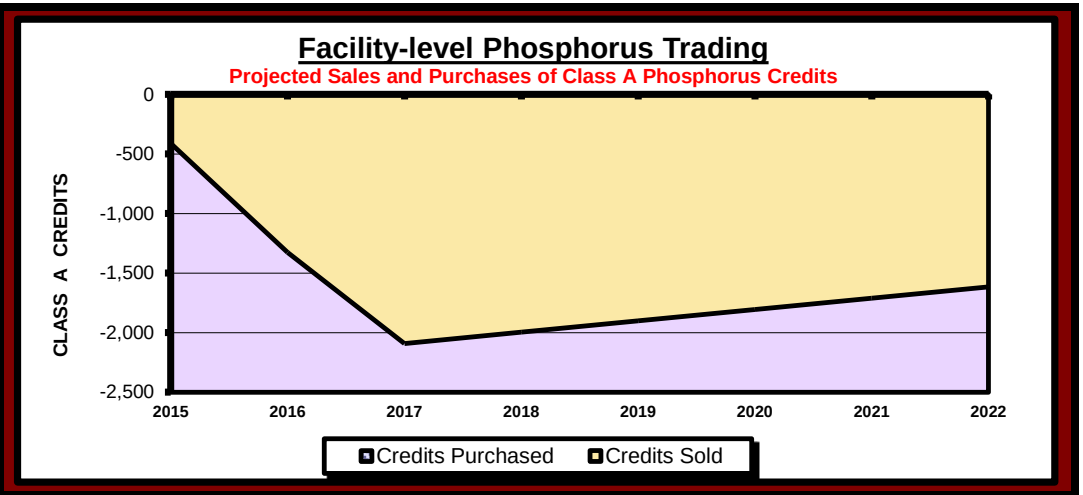


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Projected Flow (mgd)	4.50	4.60	4.60	4.80	5.00	5.20	5.40	5.60
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	41,115	42,029	42,029	43,856	45,683	47,511	49,338	51,165
Delivery Factor	0.61	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Expected Load	25,080	20,594	20,594	21,489	22,385	23,280	24,176	25,071
Delivered WLA	44,587	35,816	35,816	35,816	35,816	35,816	35,816	35,816
Expected Credits (delivered)	19,507	15,222	15,222	14,327	13,431	12,536	11,640	10,745
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**19,507**	**15,222**	**15,222**	**14,327**	**13,431**	**12,536**	**11,640**	**10,745**
Class A Credit Sales (Purchases)	**7,524**	**13,700**	**15,222**	**14,327**	**13,431**	**12,536**	**11,640**	**10,745**
Expected Class B Credits	**11,983**	**1,522**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Culpeper (Town)

RAPPAHANNOCK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Projected Flow (mgd)	4.50	4.60	4.60	4.80	5.00	5.20	5.40	5.60
Projected Avg. Annual Concentration (mg/L)	0.27	0.27	0.20	0.20	0.20	0.20	0.20	0.20
Discharged Load (end of pipe)	3,700	3,783	2,802	2,924	3,046	3,167	3,289	3,411
Delivery Factor	1.00	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Expected Load	3,700	2,950	2,185	2,281	2,376	2,471	2,566	2,661
Delivered WLA	5,483	4,277	4,277	4,277	4,277	4,277	4,277	4,277
Expected Credits (delivered)	1,783	1,327	2,092	1,996	1,901	1,806	1,711	1,616
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,783**	**1,327**	**2,092**	**1,996**	**1,901**	**1,806**	**1,711**	**1,616**
Class A Credit Sales (Purchases)	**412**	**1,327**	**2,092**	**1,996**	**1,901**	**1,806**	**1,711**	**1,616**
Expected Class B Credits	**1,371**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Owner Bubble: Fauquier County Water and Sanitation Authority

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

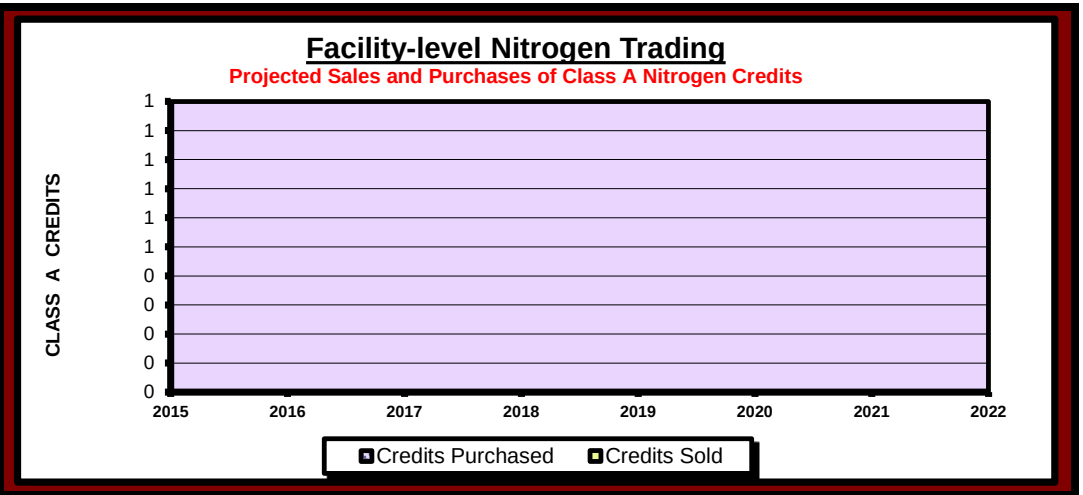
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Marshall	-	47	139	186	278	371	417	463
Remington	-	(47)	(139)	(186)	(278)	(371)	(417)	(463)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Marshall	149	-	-	-	-	-	-	-
Remington	6,688	4,967	4,516	4,111	3,661	3,449	3,283	3,118
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**6,837**	**4,967**	**4,516**	**4,111**	**3,661**	**3,449**	**3,283**	**3,118**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*6,837*	*4,967*	*4,516*	*4,111*	*3,661*	*3,449*	*3,283*	*3,118*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Marshall	-	-	-	-	-	-	-	-
Remington	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Marshall	302	218	204	197	183	169	162	155
Remington	788	571	556	513	470	456	442	427
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**1,090**	**789**	**760**	**710**	**653**	**625**	**604**	**582**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*1,090*	*789*	*760*	*710*	*653*	*625*	*604*	*582*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

FCWSA-Marshall

RAPPAHANNOCK Trading Basin

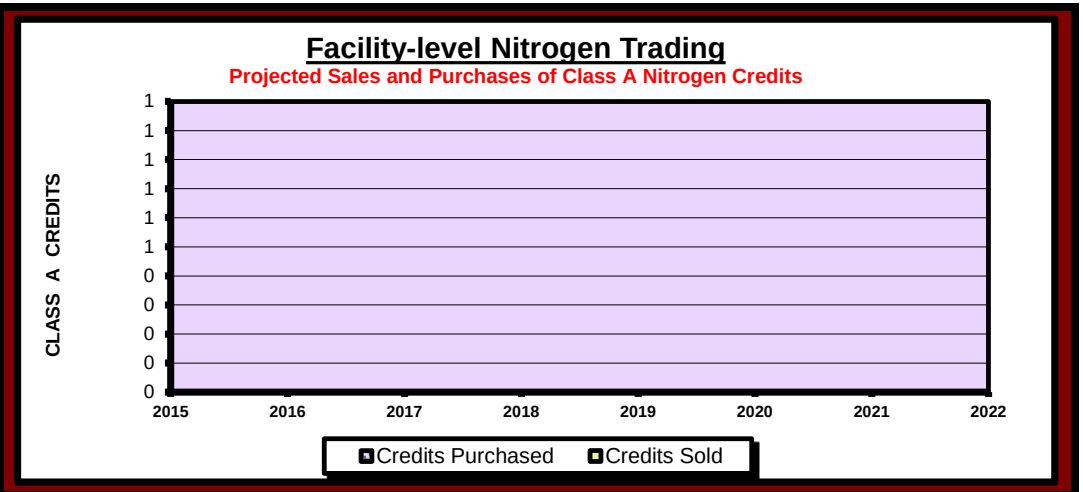


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Projected Flow (mgd)	0.31	0.33	0.35	0.36	0.38	0.40	0.41	0.42
Projected Avg. Annual Concentration (mg/L)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Discharged Load (end of pipe)	7,553	8,040	8,528	8,771	9,259	9,746	9,989	10,233
Delivery Factor	0.61	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Expected Load	4,607	1,528	1,620	1,667	1,759	1,852	1,898	1,944
Delivered WLA	4,756	1,481	1,481	1,481	1,481	1,481	1,481	1,481
Expected Credits (delivered)	149	(47)	(139)	(186)	(278)	(371)	(417)	(463)
Transfers In (Out) within Owner Bubble	0	47	139	186	278	371	417	463
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**149**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**149**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

FCWSA-Remington

RAPPAHANNOCK Trading Basin

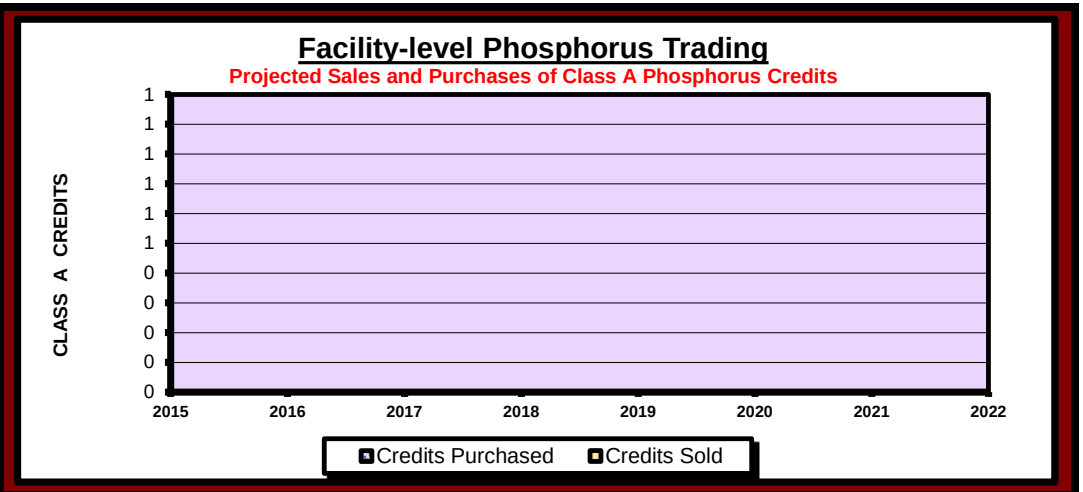


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	1.10	1.16	1.22	1.28	1.34	1.36	1.38	1.40
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	13,400	14,131	14,862	15,593	16,324	16,568	16,811	17,055
Delivery Factor	0.61	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Expected Load	8,174	6,924	7,283	7,641	7,999	8,118	8,238	8,357
Delivered WLA	14,862	11,938	11,938	11,938	11,938	11,938	11,938	11,938
Expected Credits (delivered)	6,688	5,014	4,655	4,297	3,939	3,820	3,700	3,581
Transfers In (Out) within Owner Bubble	0	(47)	(139)	(186)	(278)	(371)	(417)	(463)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**6,688**	**4,967**	**4,516**	**4,111**	**3,661**	**3,449**	**3,283**	**3,118**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**6,688**	**4,967**	**4,516**	**4,111**	**3,661**	**3,449**	**3,283**	**3,118**

PHOSPHORUS FACILITY SUMMARY

FCWSA-Marshall

RAPPAHANNOCK Trading Basin

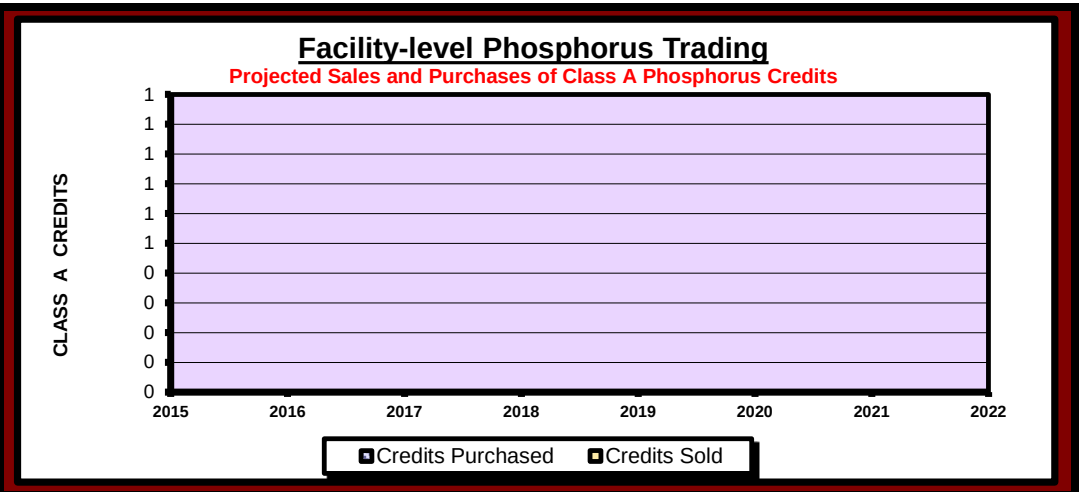


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Projected Flow (mgd)	0.31	0.33	0.35	0.36	0.38	0.40	0.41	0.42
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	283	302	320	329	347	365	375	384
Delivery Factor	1.00	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Expected Load	283	232	246	253	267	281	288	295
Delivered WLA	585	450	450	450	450	450	450	450
Expected Credits (delivered)	302	218	204	197	183	169	162	155
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**302**	**218**	**204**	**197**	**183**	**169**	**162**	**155**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**302**	**218**	**204**	**197**	**183**	**169**	**162**	**155**

PHOSPHORUS FACILITY SUMMARY

FCWSA-Remington

RAPPAHANNOCK Trading Basin

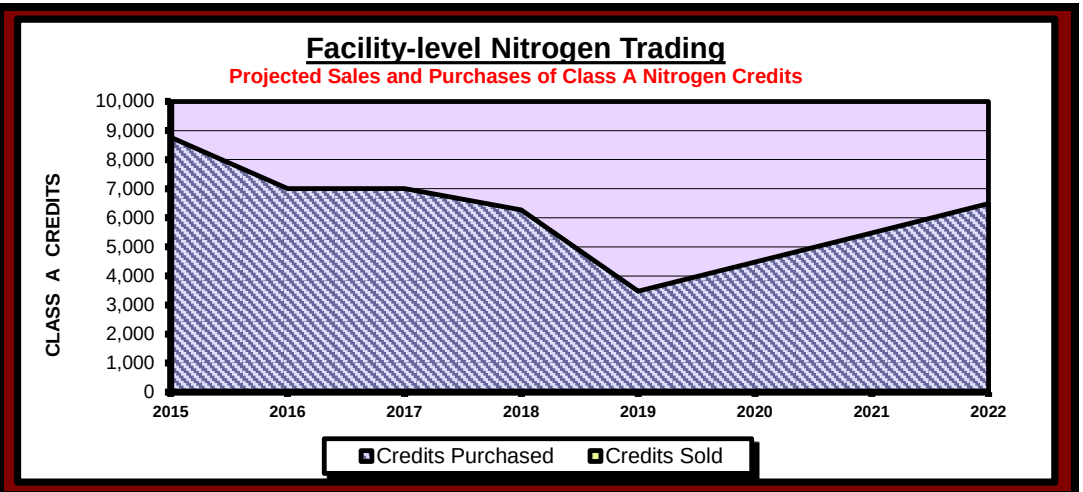


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	1.10	1.16	1.22	1.28	1.34	1.36	1.38	1.40
Projected Avg. Annual Concentration (mg/L)	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	1,039	1,095	1,115	1,169	1,224	1,243	1,261	1,279
Delivery Factor	1.00	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Expected Load	1,039	854	869	912	955	969	983	998
Delivered WLA	1,827	1,425	1,425	1,425	1,425	1,425	1,425	1,425
Expected Credits (delivered)	788	571	556	513	470	456	442	427
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**788**	**571**	**556**	**513**	**470**	**456**	**442**	**427**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**788**	**571**	**556**	**513**	**470**	**456**	**442**	**427**

NITROGEN FACILITY SUMMARY

Fredericksburg

RAPPAHANNOCK Trading Basin

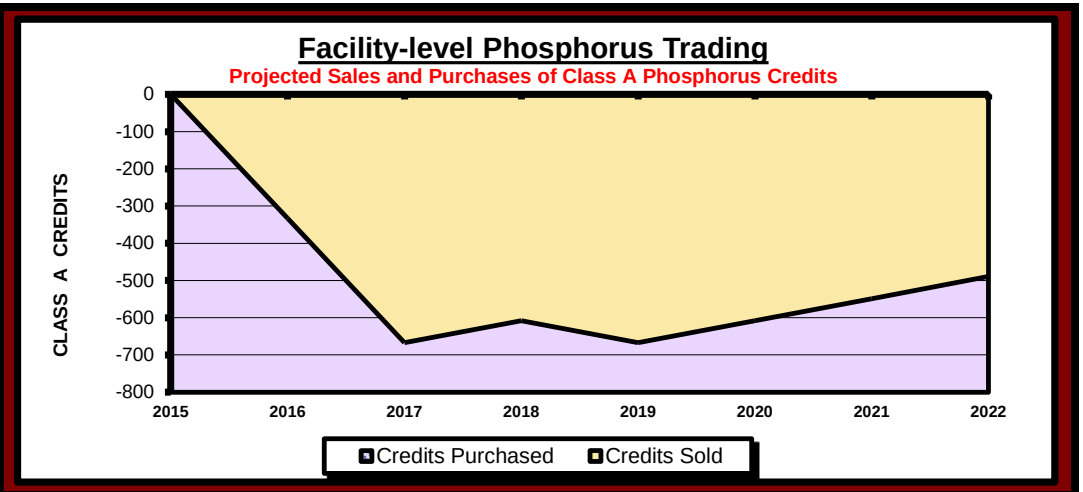


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Projected Flow (mgd)	2.82	2.90	2.90	2.95	2.90	2.95	3.00	3.05
Projected Avg. Annual Concentration (mg/L)	7.00	7.00	7.00	6.80	6.60	6.60	6.60	6.60
Discharged Load (end of pipe)	60,119	61,825	61,825	61,094	58,292	59,297	60,302	61,307
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	60,119	61,825	61,825	61,094	58,292	59,297	60,302	61,307
Delivered WLA	54,820	54,820	54,820	54,820	54,820	54,820	54,820	54,820
Expected Credits (delivered)	(5,299)	(7,005)	(7,005)	(6,274)	(3,472)	(4,477)	(5,482)	(6,487)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(5,299)**	**(7,005)**	**(7,005)**	**(6,274)**	**(3,472)**	**(4,477)**	**(5,482)**	**(6,487)**
Class A Credit Sales (Purchases)	**(8,771)**	**(7,005)**	**(7,005)**	**(6,274)**	**(3,472)**	**(4,477)**	**(5,482)**	**(6,487)**
Expected Class B Credits	**3,472**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Fredericksburg

RAPPAHANNOCK Trading Basin

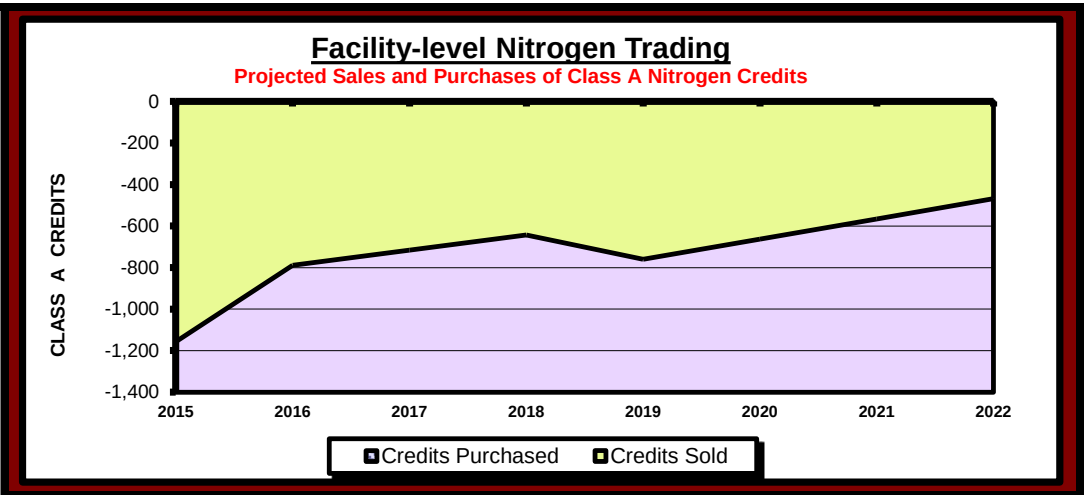


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Projected Flow (mgd)	2.82	2.90	2.90	2.95	2.90	2.95	3.00	3.05
Projected Avg. Annual Concentration (mg/L)	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Discharged Load (end of pipe)	3,350	3,445	3,445	3,504	3,445	3,504	3,563	3,623
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	3,350	3,445	3,445	3,504	3,445	3,504	3,563	3,623
Delivered WLA	4,112	4,112	4,112	4,112	4,112	4,112	4,112	4,112
Expected Credits (delivered)	762	667	667	608	667	608	549	489
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**762**	**667**	**667**	**608**	**667**	**608**	**549**	**489**
Class A Credit Sales (Purchases)	**0**	**333**	**667**	**608**	**667**	**608**	**549**	**489**
Expected Class B Credits	**762**	**334**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Greene Co-Rapidan

RAPPAHANNOCK Trading Basin

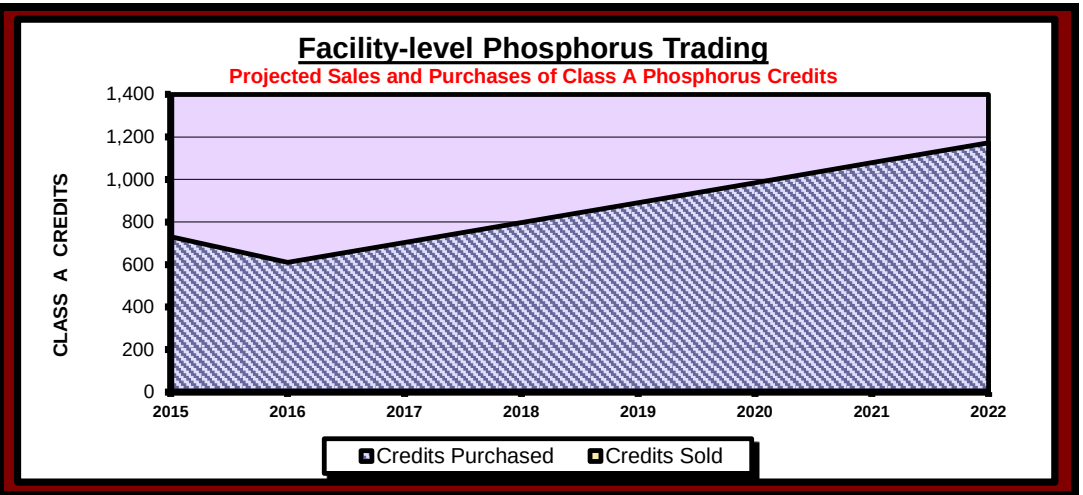


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.11	0.11	0.12	0.13	0.14	0.15	0.16	0.17
Projected Avg. Annual Concentration (mg/L)	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Discharged Load (end of pipe)	3,518	3,685	4,020	4,355	4,690	5,025	5,360	5,695
Delivery Factor	0.61	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Expected Load	2,146	1,069	1,166	1,263	1,360	1,457	1,554	1,652
Delivered WLA	4,459	2,120	2,120	2,120	2,120	2,120	2,120	2,120
Expected Credits (delivered)	2,313	1,051	954	857	760	663	566	468
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,313**	**1,051**	**954**	**857**	**760**	**663**	**566**	**468**
Class A Credit Sales (Purchases)	**1,157**	**789**	**716**	**643**	**760**	**663**	**566**	**468**
Expected Class B Credits	**1,156**	**262**	**238**	**214**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Greene Co-Rapidan

RAPPAHANNOCK Trading Basin

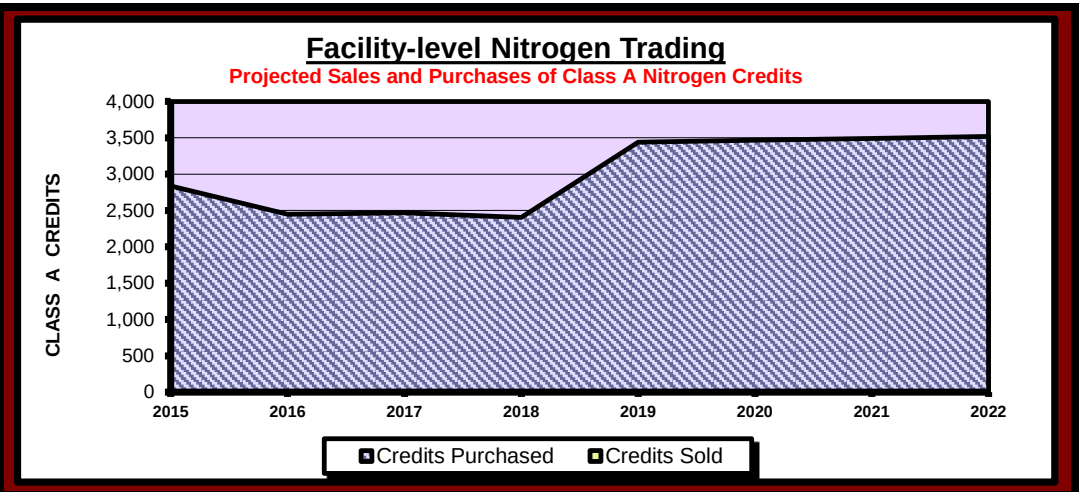


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.11	0.11	0.12	0.13	0.14	0.15	0.16	0.17
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	1,279	1,340	1,462	1,584	1,706	1,827	1,949	2,071
Delivery Factor	1.00	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Expected Load	1,279	1,032	1,126	1,219	1,313	1,407	1,501	1,595
Delivered WLA	548	422	422	422	422	422	422	422
Expected Credits (delivered)	(731)	(610)	(704)	(797)	(891)	(985)	(1,079)	(1,173)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(731)**	**(610)**	**(704)**	**(797)**	**(891)**	**(985)**	**(1,079)**	**(1,173)**
Class A Credit Sales (Purchases)	**(731)**	**(610)**	**(704)**	**(797)**	**(891)**	**(985)**	**(1,079)**	**(1,173)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

HRSD-Urbanna

RAPPAHANNOCK Trading Basin

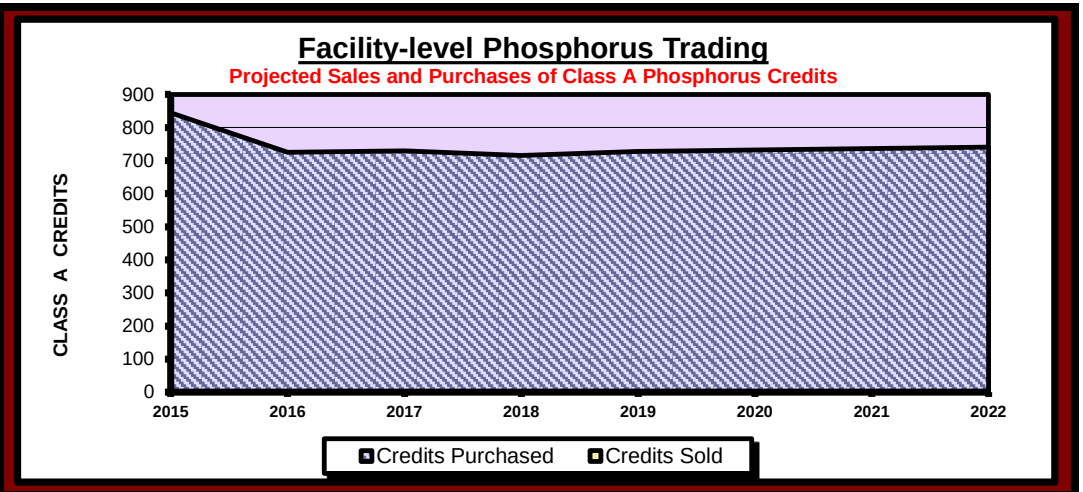


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	22.10	22.10	22.10	22.10	28.00	28.00	28.00	28.00
Discharged Load (end of pipe)	3,625	3,666	3,688	3,625	4,659	4,685	4,710	4,736
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	3,625	3,666	3,688	3,625	4,659	4,685	4,710	4,736
Delivered WLA	1,218	1,218	1,218	1,218	1,218	1,218	1,218	1,218
Expected Credits (delivered)	(2,407)	(2,448)	(2,470)	(2,407)	(3,441)	(3,467)	(3,492)	(3,518)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(2,407)**	**(2,448)**	**(2,470)**	**(2,407)**	**(3,441)**	**(3,467)**	**(3,492)**	**(3,518)**
Class A Credit Sales (Purchases)	**(2,839)**	**(2,448)**	**(2,470)**	**(2,407)**	**(3,441)**	**(3,467)**	**(3,492)**	**(3,518)**
Expected Class B Credits	**432**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

HRSD-Urbanna

RAPPAHANNOCK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10
Discharged Load (end of pipe)	836	846	851	837	849	853	858	863
Delivery Factor	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Expected Load	836	812	817	803	815	819	824	828
Delivered WLA	91	87	87	87	87	87	87	87
Expected Credits (delivered)	(745)	(725)	(730)	(716)	(728)	(732)	(737)	(741)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(745)**	**(725)**	**(730)**	**(716)**	**(728)**	**(732)**	**(737)**	**(741)**
Class A Credit Sales (Purchases)	**(845)**	**(725)**	**(730)**	**(716)**	**(728)**	**(732)**	**(737)**	**(741)**
Expected Class B Credits	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Owner Bubble: King George County SA (Rappahannock)

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

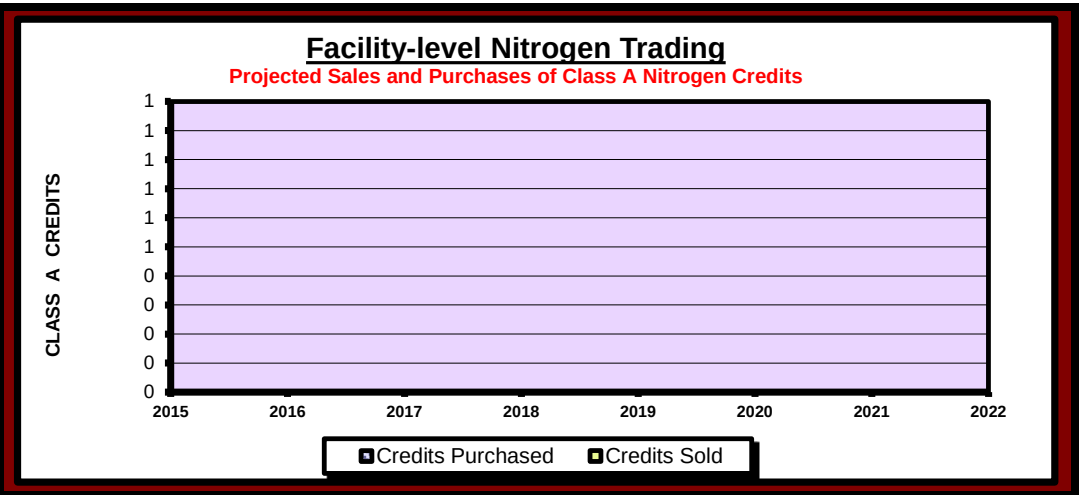
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Hopyard Farms	-	-	-	-	-	-	-	-
Oakland Park	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Hopyard Farms	2,741	2,923	3,106	3,015	3,015	2,741	2,741	2,558
Oakland Park	31	335	335	335	335	183	183	183
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**2,772**	**3,258**	**3,441**	**3,350**	**3,350**	**2,924**	**2,924**	**2,741**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*2,772*	*3,258*	*3,441*	*3,350*	*3,350*	*2,924*	*2,924*	*2,741*
WQIF-Held Credits	*1,523*	*1,523*	*1,523*	*1,523*	*1,523*	*1,523*	*1,523*	*1,523*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Hopyard Farms	(40)	(9)	(9)	(9)	(9)	(24)	(24)	(24)
Oakland Park	40	9	9	9	9	24	24	24
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Hopyard Farms	151	194	209	202	202	164	164	149
Oakland Park	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**151**	**194**	**209**	**202**	**202**	**164**	**164**	**149**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*151*	*194*	*209*	*202*	*202*	*164*	*164*	*149*
WQIF-Held Credits	*114*	*113*	*113*	*113*	*113*	*113*	*113*	*113*

NITROGEN FACILITY SUMMARY

KGCSA-Hopyard Farms

RAPPAHANNOCK Trading Basin

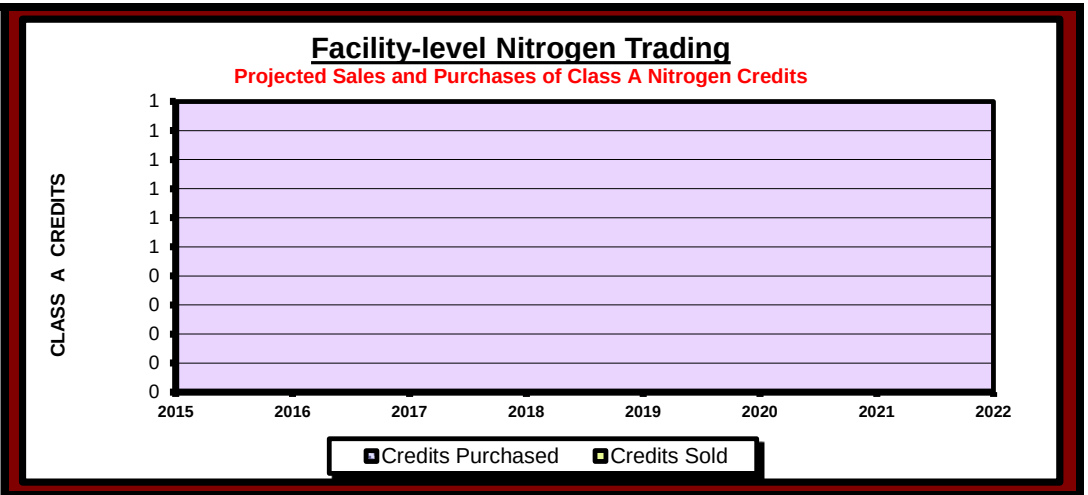


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Projected Flow (mgd)	0.10	0.09	0.08	0.09	0.09	0.10	0.10	0.11
Projected Avg. Annual Concentration (mg/L)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Discharged Load (end of pipe)	1,827	1,645	1,462	1,553	1,553	1,827	1,827	2,010
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	1,827	1,645	1,462	1,553	1,553	1,827	1,827	2,010
Delivered WLA	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091
Expected Credits (delivered)	4,264	4,446	4,629	4,538	4,538	4,264	4,264	4,081
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(1,523)	(1,523)	(1,523)	(1,523)	(1,523)	(1,523)	(1,523)	(1,523)
Expected Net Credits	**2,741**	**2,923**	**3,106**	**3,015**	**3,015**	**2,741**	**2,741**	**2,558**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**2,741**	**2,923**	**3,106**	**3,015**	**3,015**	**2,741**	**2,741**	**2,558**

NITROGEN FACILITY SUMMARY

KGCSA-Oakland Park

RAPPAHANNOCK Trading Basin

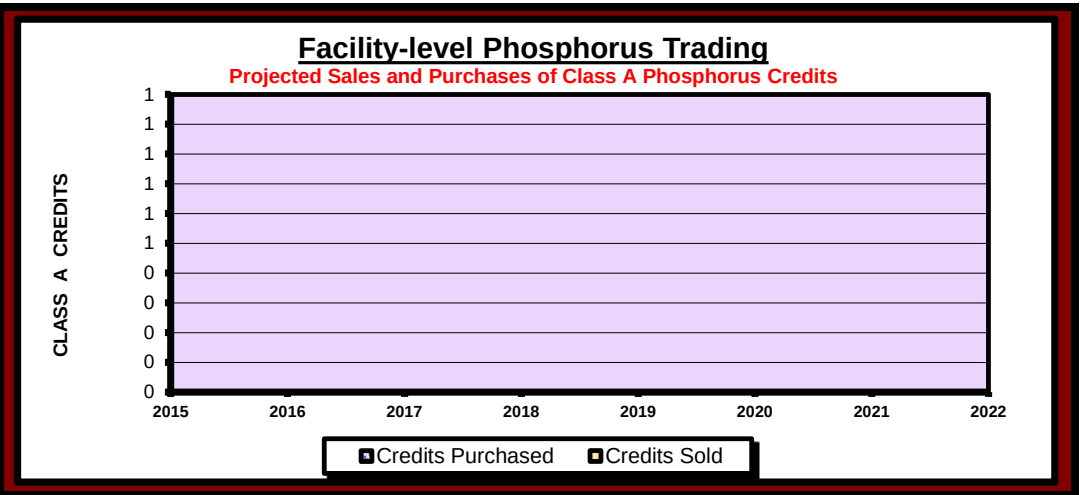


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Projected Flow (mgd)	0.11	0.09	0.09	0.09	0.09	0.10	0.10	0.10
Projected Avg. Annual Concentration (mg/L)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Discharged Load (end of pipe)	1,675	1,371	1,371	1,371	1,371	1,523	1,523	1,523
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	1,675	1,371	1,371	1,371	1,371	1,523	1,523	1,523
Delivered WLA	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706
Expected Credits (delivered)	31	335	335	335	335	183	183	183
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**31**	**335**	**335**	**335**	**335**	**183**	**183**	**183**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**31**	**335**	**335**	**335**	**335**	**183**	**183**	**183**

PHOSPHORUS FACILITY SUMMARY

KGCSA-Hopyard Farms

RAPPAHANNOCK Trading Basin

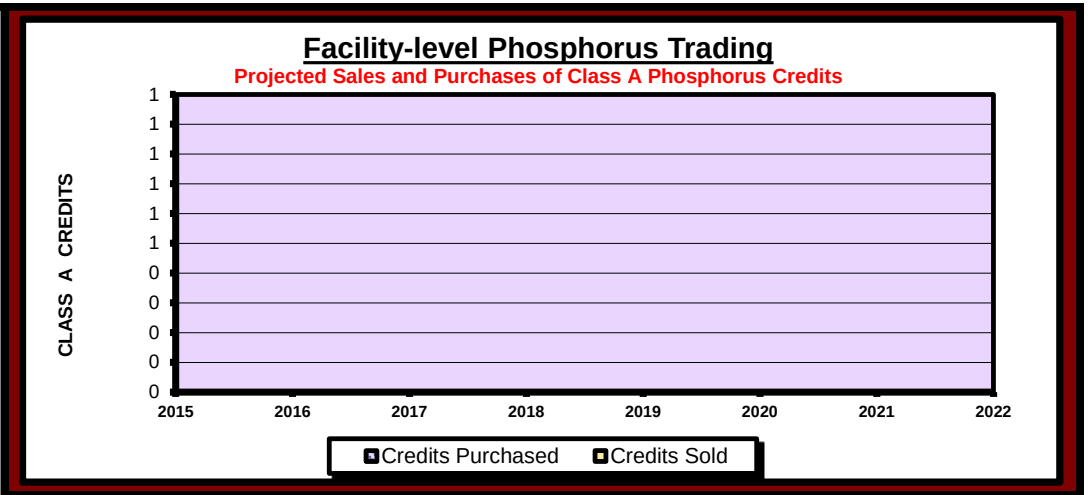


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Projected Flow (mgd)	0.10	0.09	0.08	0.09	0.09	0.10	0.10	0.11
Projected Avg. Annual Concentration (mg/L)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	152	137	122	129	129	152	152	168
Delivery Factor	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Expected Load	152	136	121	128	128	151	151	166
Delivered WLA	457	452	452	452	452	452	452	452
Expected Credits (delivered)	305	316	331	324	324	301	301	286
Transfers In (Out) within Owner Bubble	(40)	(9)	(9)	(9)	(9)	(24)	(24)	(24)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(114)	(113)	(113)	(113)	(113)	(113)	(113)	(113)
Expected Net Credits	**151**	**194**	**209**	**202**	**202**	**164**	**164**	**149**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**151**	**194**	**209**	**202**	**202**	**164**	**164**	**149**

PHOSPHORUS FACILITY SUMMARY

KGCSA-Oakland Park

RAPPAHANNOCK Trading Basin

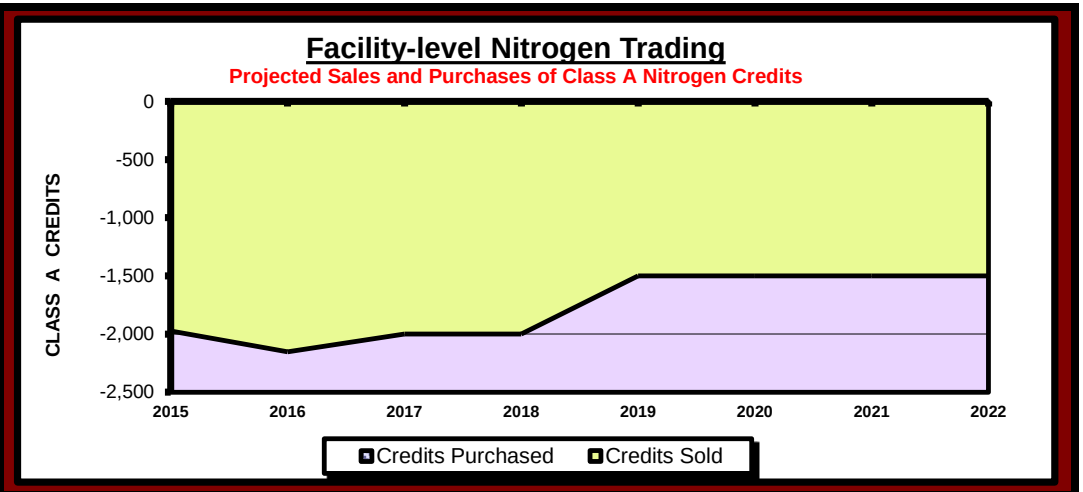


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Projected Flow (mgd)	0.11	0.09	0.09	0.09	0.09	0.10	0.10	0.10
Projected Avg. Annual Concentration (mg/L)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	168	137	137	137	137	152	152	152
Delivery Factor	1.00	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Expected Load	168	133	133	133	133	148	148	148
Delivered WLA	128	124	124	124	124	124	124	124
Expected Credits (delivered)	(40)	(9)	(9)	(9)	(9)	(24)	(24)	(24)
Transfers In (Out) within Owner Bubble	40	9	9	9	9	24	24	24
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Kilmarnock

RAPPAHANNOCK Trading Basin

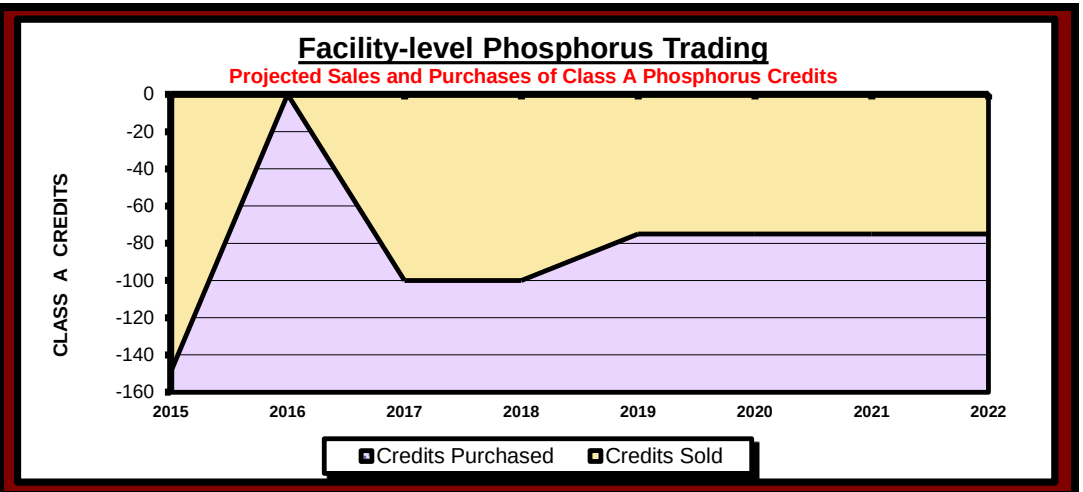


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.32	0.33	0.35	0.35	0.35	0.35	0.35	0.35
Projected Avg. Annual Concentration (mg/L)	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	3,898	3,015	3,198	3,198	3,198	3,198	3,198	3,198
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	3,898	3,015	3,198	3,198	3,198	3,198	3,198	3,198
Delivered WLA	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091
Expected Credits (delivered)	2,193	3,076	2,893	2,893	2,893	2,893	2,893	2,893
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,193**	**3,076**	**2,893**	**2,893**	**2,893**	**2,893**	**2,893**	**2,893**
Class A Credit Sales (Purchases)	**1,974**	**2,153**	**2,000**	**2,000**	**1,500**	**1,500**	**1,500**	**1,500**
Expected Class B Credits	**219**	**923**	**893**	**893**	**1,393**	**1,393**	**1,393**	**1,393**

PHOSPHORUS FACILITY SUMMARY

Kilmarnock

RAPPAHANNOCK Trading Basin

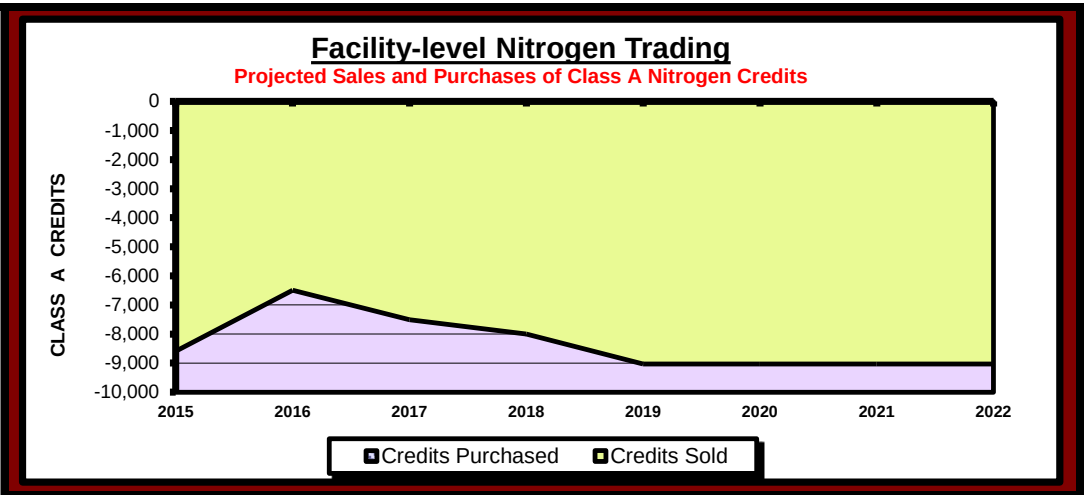


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.32	0.33	0.35	0.35	0.35	0.35	0.35	0.35
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	292	302	320	320	320	320	320	320
Delivery Factor	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Expected Load	292	298	317	317	317	317	317	317
Delivered WLA	457	452	452	452	452	452	452	452
Expected Credits (delivered)	165	154	135	135	135	135	135	135
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**165**	**154**	**135**	**135**	**135**	**135**	**135**	**135**
Class A Credit Sales (Purchases)	**149**	**0**	**100**	**100**	**75**	**75**	**75**	**75**
Expected Class B Credits	**16**	**154**	**35**	**35**	**60**	**60**	**60**	**60**

NITROGEN FACILITY SUMMARY

Omega Protein

RAPPAHANNOCK Trading Basin

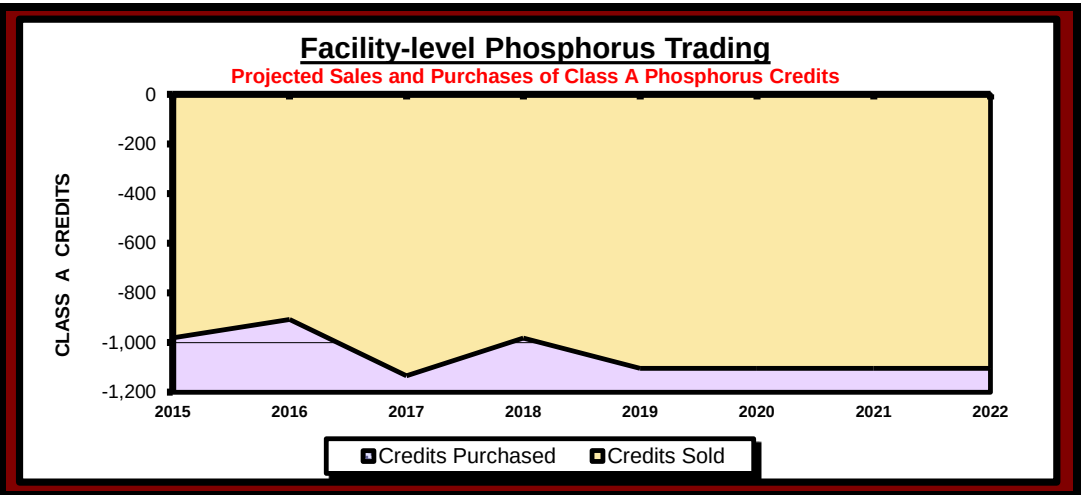


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
Projected Flow (mgd)	0.08	0.10	0.15	0.20	0.20	0.20	0.20	0.20
Projected Avg. Annual Concentration (mg/L)	43.00	43.00	30.00	20.00	20.00	20.00	20.00	20.00
Discharged Load (end of pipe)	10,477	13,096	13,705	12,182	12,182	12,182	12,182	12,182
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	10,477	13,096	13,705	12,182	12,182	12,182	12,182	12,182
Delivered WLA	21,213	21,213	21,213	21,213	21,213	21,213	21,213	21,213
Expected Credits (delivered)	10,736	8,117	7,508	9,031	9,031	9,031	9,031	9,031
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**10,736**	**8,117**	**7,508**	**9,031**	**9,031**	**9,031**	**9,031**	**9,031**
Class A Credit Sales (Purchases)	**8,589**	**6,494**	**7,508**	**8,000**	**9,031**	**9,031**	**9,031**	**9,031**
Expected Class B Credits	**2,147**	**1,623**	**0**	**1,031**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Omega Protein

RAPPAHANNOCK Trading Basin

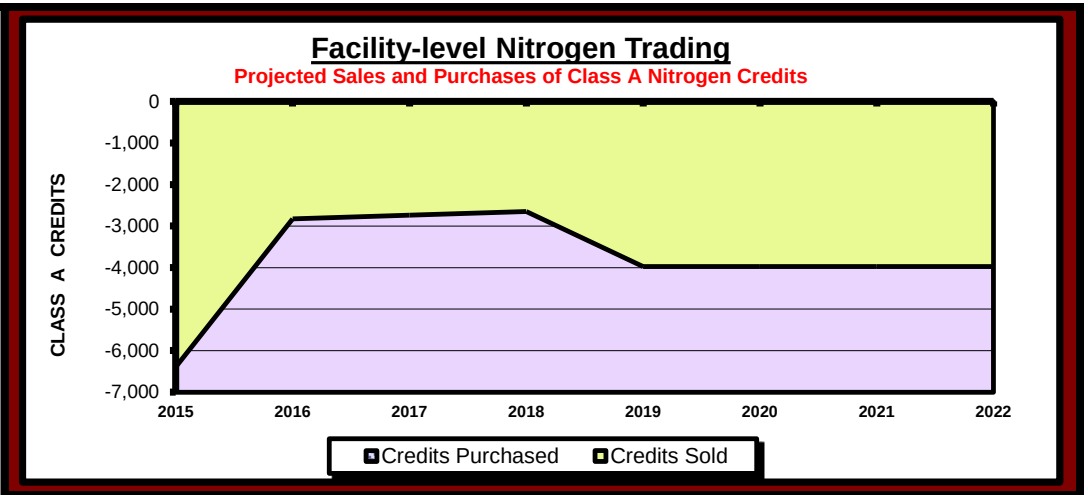


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
Projected Flow (mgd)	0.08	0.10	0.15	0.20	0.20	0.20	0.20	0.20
Projected Avg. Annual Concentration (mg/L)	1.50	1.50	1.00	1.00	0.80	0.80	0.80	0.80
Discharged Load (end of pipe)	365	457	457	609	487	487	487	487
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	365	457	457	609	487	487	487	487
Delivered WLA	1,591	1,591	1,591	1,591	1,591	1,591	1,591	1,591
Expected Credits (delivered)	1,226	1,134	1,134	982	1,104	1,104	1,104	1,104
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,226**	**1,134**	**1,134**	**982**	**1,104**	**1,104**	**1,104**	**1,104**
Class A Credit Sales (Purchases)	**981**	**907**	**1,134**	**982**	**1,104**	**1,104**	**1,104**	**1,104**
Expected Class B Credits	**245**	**227**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Orange (Town)

RAPPAHANNOCK Trading Basin

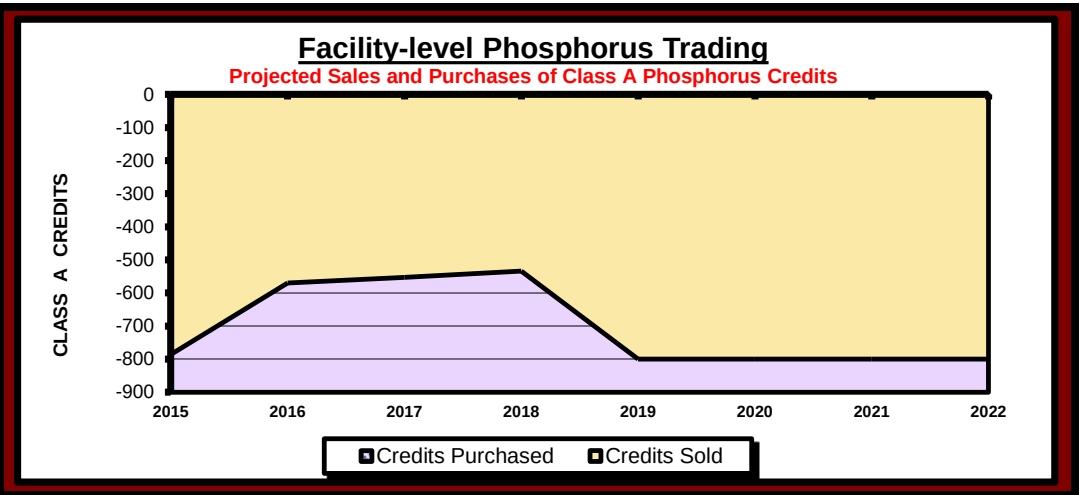


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Projected Flow (mgd)	1.28	1.40	1.45	1.50	1.50	1.50	1.50	1.50
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	15,593	17,055	17,664	18,273	18,273	18,273	18,273	18,273
Delivery Factor	0.61	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Expected Load	9,512	4,946	5,123	5,299	5,299	5,299	5,299	5,299
Delivered WLA	22,293	10,599	10,599	10,599	10,599	10,599	10,599	10,599
Expected Credits (delivered)	12,781	5,653	5,476	5,300	5,300	5,300	5,300	5,300
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**12,781**	**5,653**	**5,476**	**5,300**	**5,300**	**5,300**	**5,300**	**5,300**
Class A Credit Sales (Purchases)	**6,391**	**2,827**	**2,738**	**2,650**	**3,975**	**3,975**	**3,975**	**3,975**
Expected Class B Credits	**6,390**	**2,826**	**2,738**	**2,650**	**1,325**	**1,325**	**1,325**	**1,325**

PHOSPHORUS FACILITY SUMMARY

Orange (Town)

RAPPAHANNOCK Trading Basin

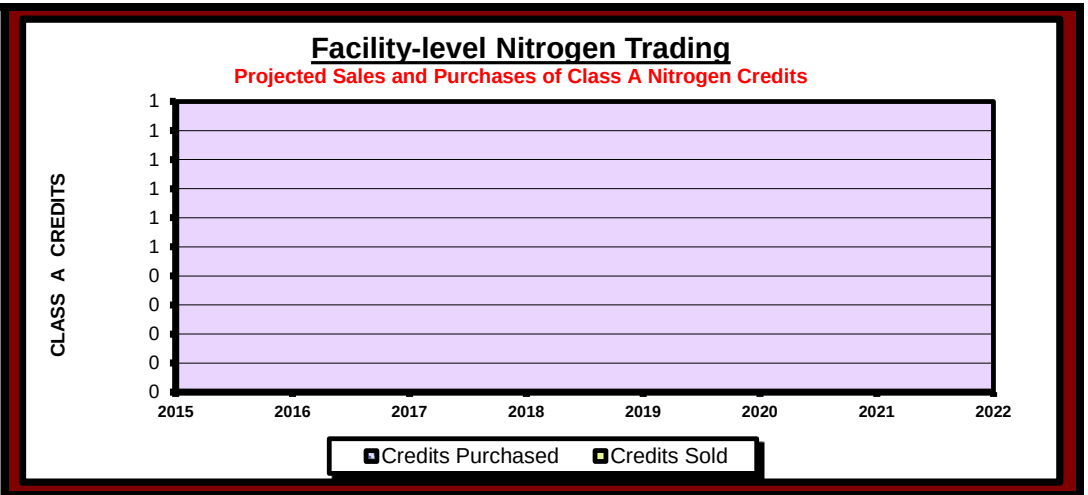


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Projected Flow (mgd)	1.28	1.40	1.45	1.50	1.50	1.50	1.50	1.50
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	1,169	1,279	1,325	1,371	1,371	1,371	1,371	1,371
Delivery Factor	1.00	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Expected Load	1,169	998	1,033	1,069	1,069	1,069	1,069	1,069
Delivered WLA	2,741	2,138	2,138	2,138	2,138	2,138	2,138	2,138
Expected Credits (delivered)	1,572	1,140	1,105	1,069	1,069	1,069	1,069	1,069
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,572**	**1,140**	**1,105**	**1,069**	**1,069**	**1,069**	**1,069**	**1,069**
Class A Credit Sales (Purchases)	**786**	**570**	**553**	**534**	**800**	**800**	**800**	**800**
Expected Class B Credits	**786**	**570**	**552**	**535**	**269**	**269**	**269**	**269**

NITROGEN FACILITY SUMMARY

Reedville S.D.

RAPPAHANNOCK Trading Basin

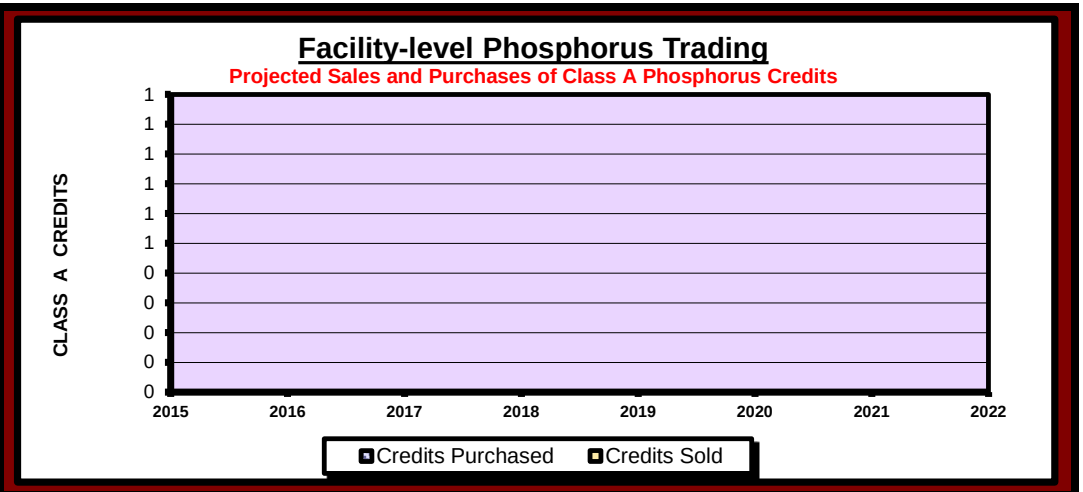


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Projected Flow (mgd)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	853	853	853	853	853	853	853	853
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	853	853	853	853	853	853	853	853
Delivered WLA	2,436	2,436	2,436	2,436	2,436	2,436	2,436	2,436
Expected Credits (delivered)	1,583	1,583	1,583	1,583	1,583	1,583	1,583	1,583
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**	**1,583**

PHOSPHORUS FACILITY SUMMARY

Reedville S.D.

RAPPAHANNOCK Trading Basin

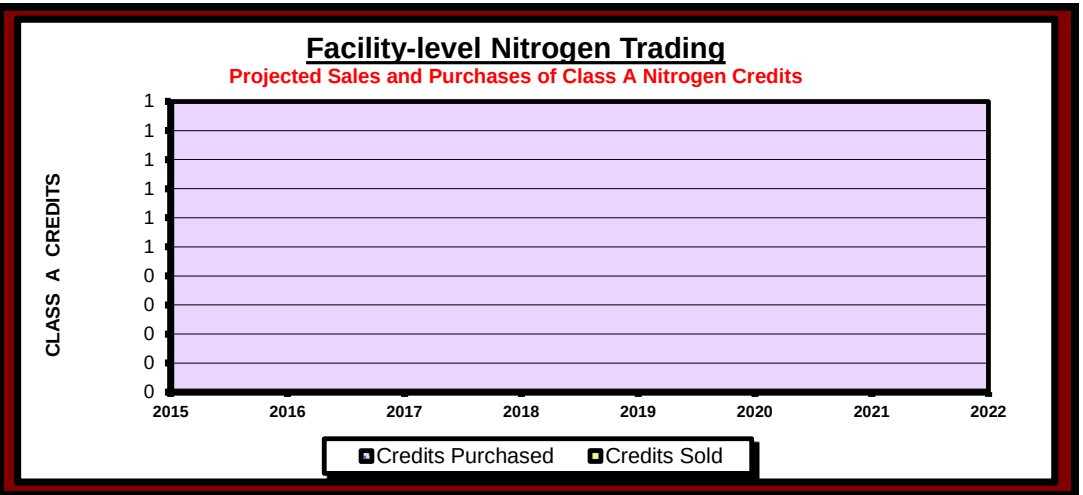


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Projected Flow (mgd)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	64	64	64	64	64	64	64	64
Delivery Factor	1.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Expected Load	64	63	63	63	63	63	63	63
Delivered WLA	183	179	179	179	179	179	179	179
Expected Credits (delivered)	119	116	116	116	116	116	116	116
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**119**	**116**	**116**	**116**	**116**	**116**	**116**	**116**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**119**	**116**	**116**	**116**	**116**	**116**	**116**	**116**

NITROGEN FACILITY SUMMARY

RSA-Wilderness Shores

RAPPAHANNOCK Trading Basin

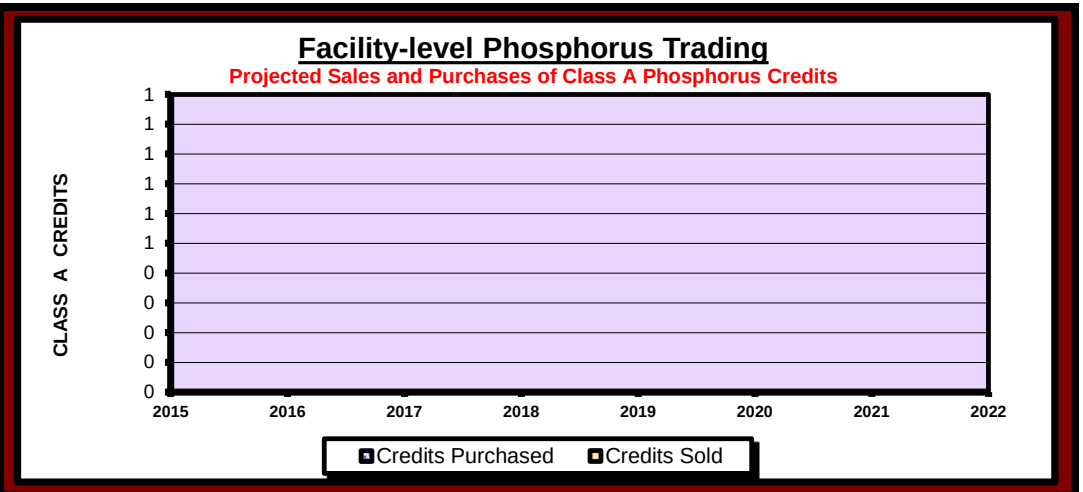


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	0.85	0.87	0.90	0.92	0.92	0.94	0.96	0.98
Projected Avg. Annual Concentration (mg/L)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	7,766	7,949	8,223	8,406	8,406	8,588	8,771	8,954
Delivery Factor	0.61	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Expected Load	4,737	3,259	3,371	3,446	3,446	3,521	3,596	3,671
Delivered WLA	9,289	6,243	6,243	6,243	6,243	6,243	6,243	6,243
Expected Credits (delivered)	4,552	2,984	2,872	2,797	2,797	2,722	2,647	2,572
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**4,552**	**2,984**	**2,872**	**2,797**	**2,797**	**2,722**	**2,647**	**2,572**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**4,552**	**2,984**	**2,872**	**2,797**	**2,797**	**2,722**	**2,647**	**2,572**

PHOSPHORUS FACILITY SUMMARY

RSA-Wilderness Shores

RAPPAHANNOCK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	0.85	0.87	0.90	0.92	0.92	0.94	0.96	0.98
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	777	795	822	841	841	859	877	895
Delivery Factor	1.00	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Expected Load	777	612	633	647	647	661	675	689
Delivered WLA	1,142	879	879	879	879	879	879	879
Expected Credits (delivered)	365	267	246	232	232	218	204	190
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**365**	**267**	**246**	**232**	**232**	**218**	**204**	**190**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**365**	**267**	**246**	**232**	**232**	**218**	**204**	**190**

Owner Bubble: Spotsylvania County

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

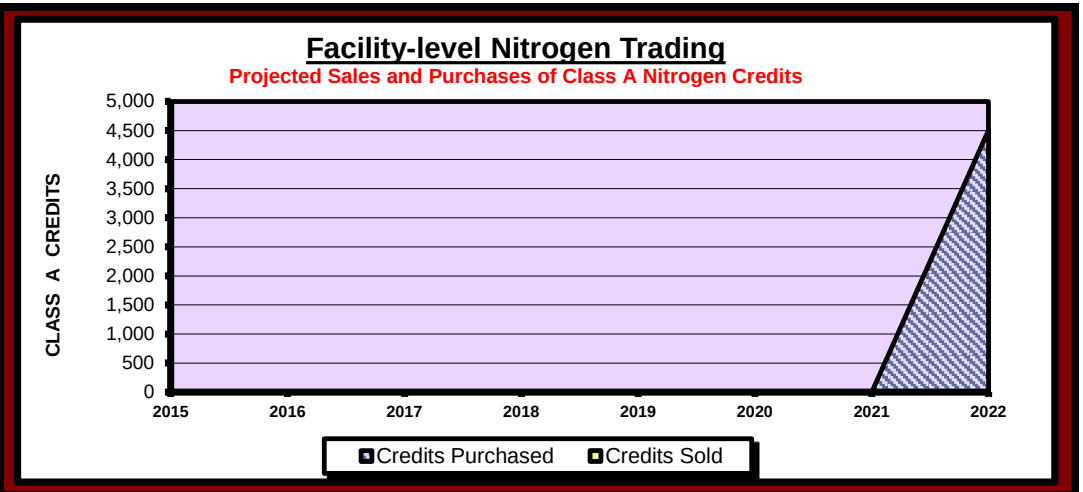
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
FMC	6,814	8,276	11,931	13,636	15,585	17,534	21,433	19,118
Massaponax	(6,814)	(8,276)	(11,931)	(13,636)	(15,585)	(17,534)	(21,433)	(19,118)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
FMC	-	-	-	-	-	-	-	(4,508)
Massaponax	23,512	19,491	13,278	16,081	11,695	7,066	487	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**23,512**	**19,491**	**13,278**	**16,081**	**11,695**	**7,066**	**487**	**(4,508)**
Class A Sales (Purchases)	**2,620**	**122**	**0**	**0**	**5,800**	**3,500**	**0**	**(4,508)**
Expected Class B Credits	*20,892*	*19,369*	*13,278*	*16,081*	*5,895*	*3,566*	*487*	*0*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
FMC	-	-	-	-	-	-	-	-
Massaponax	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
FMC	1,572	1,517	1,380	1,316	1,243	1,170	1,024	941
Massaponax	2,092	1,900	1,708	2,046	1,863	1,662	1,461	1,251
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**3,664**	**3,417**	**3,088**	**3,362**	**3,106**	**2,832**	**2,485**	**2,192**
Class A Sales (Purchases)	**1,490**	**1,261**	**2,092**	**2,061**	**1,550**	**1,410**	**1,230**	**625**
Expected Class B Credits	*2,174*	*2,156*	*996*	*1,301*	*1,556*	*1,422*	*1,255*	*1,567*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

Spotsy Co-FMC

RAPPAHANNOCK Trading Basin

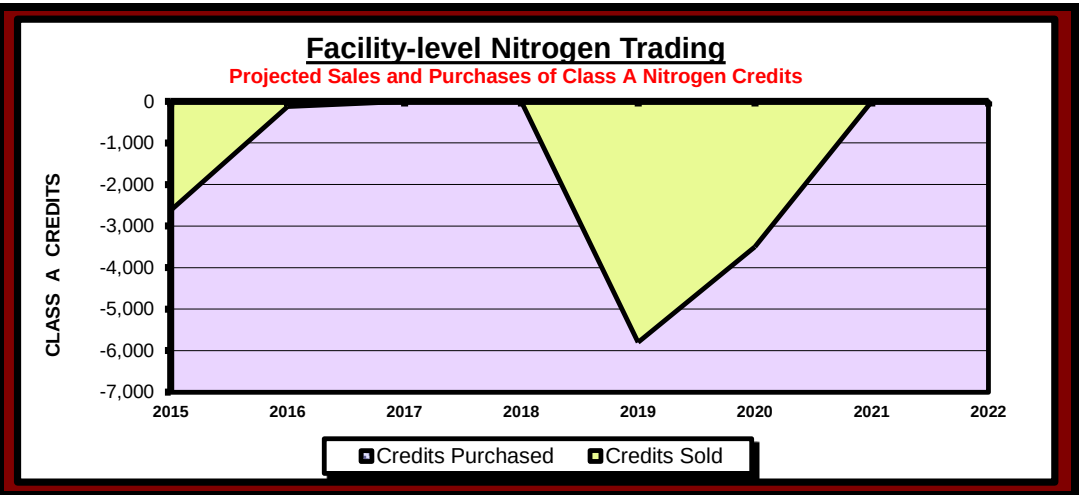


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	2.28	2.34	2.49	2.56	2.64	2.72	2.88	2.97
Projected Avg. Annual Concentration (mg/L)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Discharged Load (end of pipe)	55,551	57,013	60,668	62,373	64,322	66,271	70,170	72,363
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	55,551	57,013	60,668	62,373	64,322	66,271	70,170	72,363
Delivered WLA	48,737	48,737	48,737	48,737	48,737	48,737	48,737	48,737
Expected Credits (delivered)	(6,814)	(8,276)	(11,931)	(13,636)	(15,585)	(17,534)	(21,433)	(23,626)
Transfers In (Out) within Owner Bubble	6,814	8,276	11,931	13,636	15,585	17,534	21,433	19,118
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(4,508)**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(4,508)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Spotsy Co-Massaponax

RAPPAHANNOCK Trading Basin

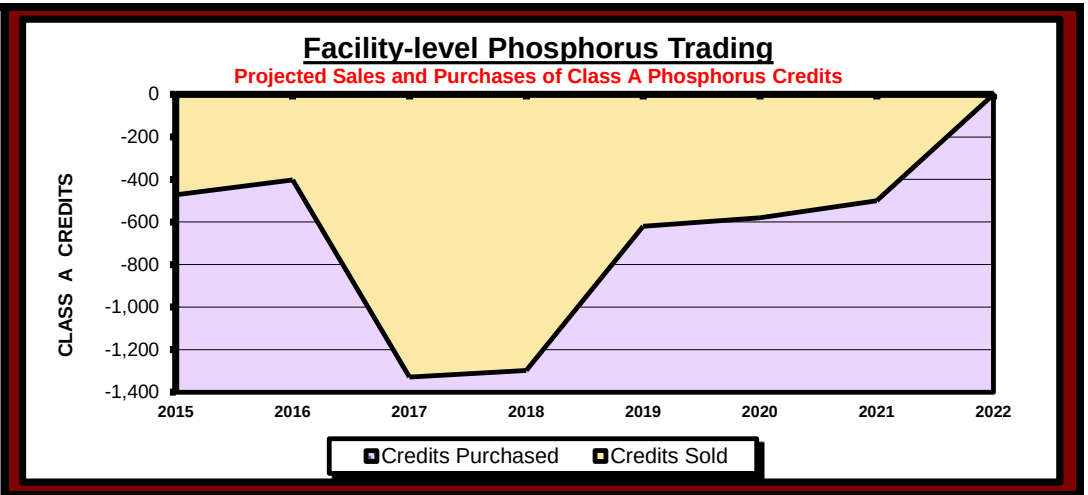


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Projected Flow (mgd)	6.91	7.12	7.33	6.96	7.16	7.38	7.60	7.83
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	84,179	86,738	89,296	84,788	87,225	89,905	92,585	95,387
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	84,179	86,738	89,296	84,788	87,225	89,905	92,585	95,387
Delivered WLA	114,505	114,505	114,505	114,505	114,505	114,505	114,505	114,505
Expected Credits (delivered)	30,326	27,767	25,209	29,717	27,280	24,600	21,920	19,118
Transfers In (Out) within Owner Bubble	(6,814)	(8,276)	(11,931)	(13,636)	(15,585)	(17,534)	(21,433)	(19,118)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**23,512**	**19,491**	**13,278**	**16,081**	**11,695**	**7,066**	**487**	**0**
Class A Credit Sales (Purchases)	**2,620**	**122**	**0**	**0**	**5,800**	**3,500**	**0**	**0**
Expected Class B Credits	**20,892**	**19,369**	**13,278**	**16,081**	**5,895**	**3,566**	**487**	**0**

PHOSPHORUS FACILITY SUMMARY

Spotsy Co-FMC

RAPPAHANNOCK Trading Basin

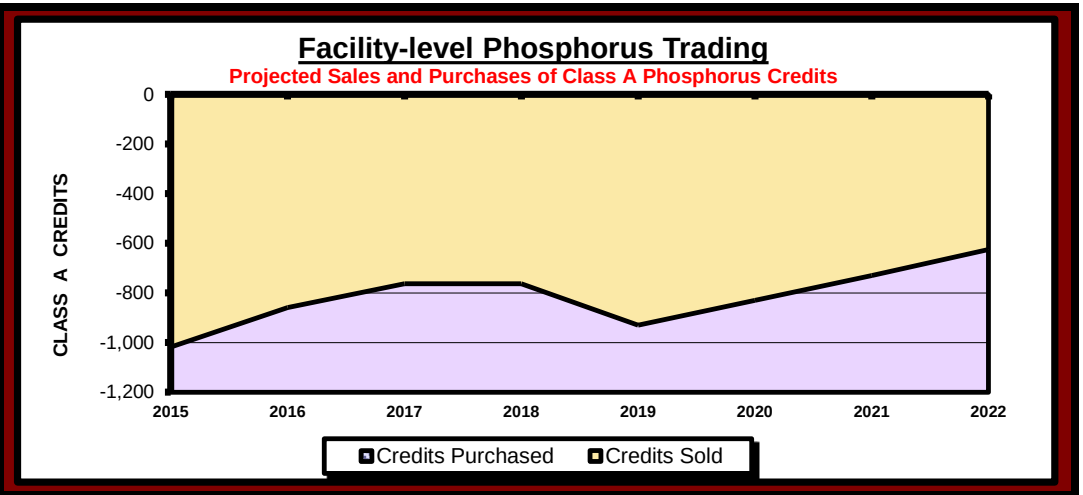


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	2.28	2.34	2.49	2.56	2.64	2.72	2.88	2.97
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	2,083	2,138	2,275	2,339	2,412	2,485	2,631	2,714
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,083	2,138	2,275	2,339	2,412	2,485	2,631	2,714
Delivered WLA	3,655	3,655	3,655	3,655	3,655	3,655	3,655	3,655
Expected Credits (delivered)	1,572	1,517	1,380	1,316	1,243	1,170	1,024	941
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,572**	**1,517**	**1,380**	**1,316**	**1,243**	**1,170**	**1,024**	**941**
Class A Credit Sales (Purchases)	**472**	**402**	**1,329**	**1,298**	**620**	**580**	**500**	**0**
Expected Class B Credits	**1,100**	**1,115**	**51**	**18**	**623**	**590**	**524**	**941**

PHOSPHORUS FACILITY SUMMARY

Spotsy Co-Massaponax

RAPPAHANNOCK Trading Basin



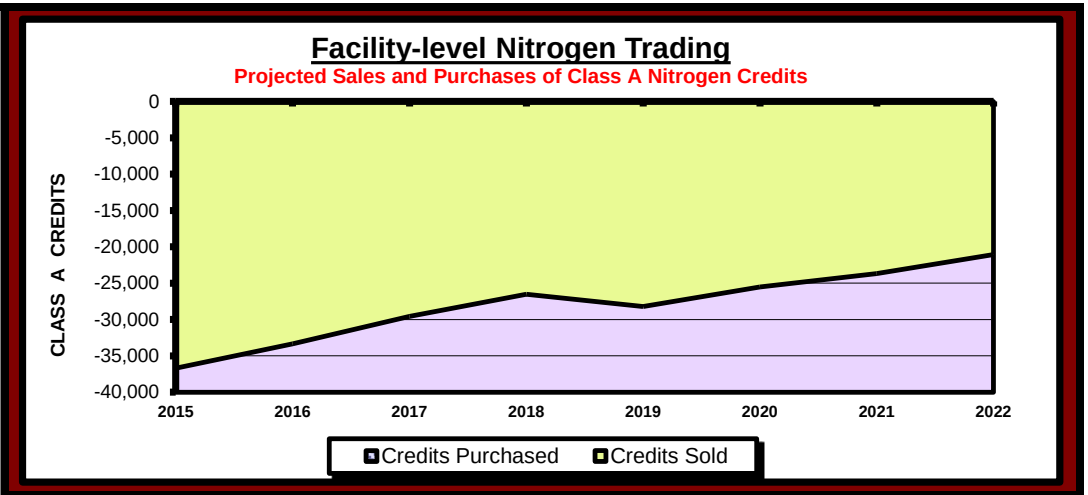
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Projected Flow (mgd)	6.91	7.12	7.33	6.96	7.16	7.38	7.60	7.83
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	6,313	6,505	6,697	6,359	6,542	6,743	6,944	7,154
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	6,313	6,505	6,697	6,359	6,542	6,743	6,944	7,154
Delivered WLA*	8,405	8,405	8,405	8,405	8,405	8,405	8,405	8,405
Expected Credits (delivered)	2,092	1,900	1,708	2,046	1,863	1,662	1,461	1,251
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,092**	**1,900**	**1,708**	**2,046**	**1,863**	**1,662**	**1,461**	**1,251**
Class A Credit Sales (Purchases)	**1,018**	**859**	**763**	**763**	**930**	**830**	**730**	**625**
Expected Class B Credits	**1,074**	**1,041**	**945**	**1,283**	**933**	**832**	**731**	**626**

** Reflects allocation transfer to Rush River WWTP of 183 discharged pounds of TP (this forecast assumes extension of transfer agreement beyond 2016)*

NITROGEN FACILITY SUMMARY

Stafford Co-L. Falls Run

RAPPAHANNOCK Trading Basin

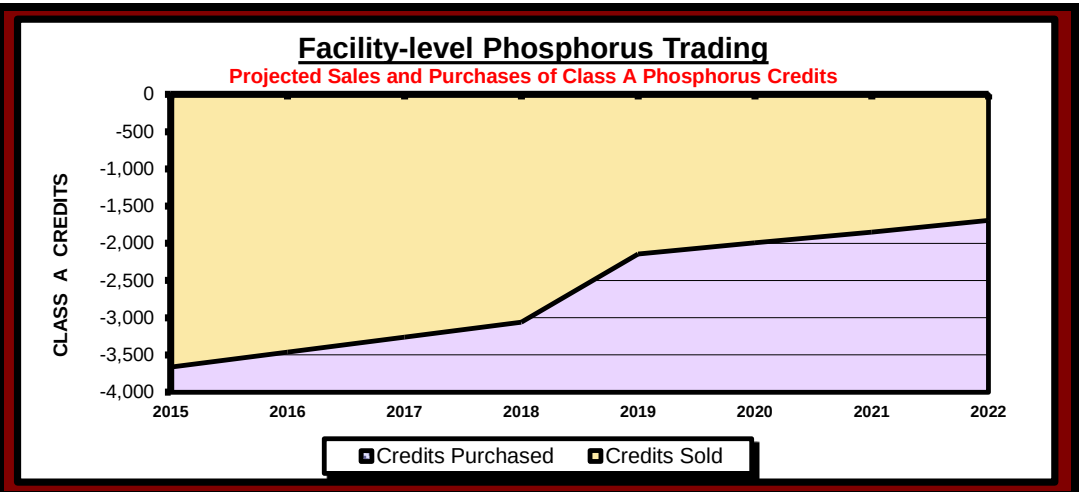


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Projected Flow (mgd)	3.99	4.21	4.43	4.65	4.87	5.09	5.30	5.53
Projected Avg. Annual Concentration (mg/L)	5.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	60,759	64,109	53,967	56,647	59,328	62,008	64,566	67,368
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	60,759	64,109	53,967	56,647	59,328	62,008	64,566	67,368
Delivered WLA	97,458	97,458	97,458	97,458	97,458	97,458	97,458	97,458
Expected Credits (delivered)	36,699	33,349	43,491	40,811	38,130	35,450	32,892	30,090
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**36,699**	**33,349**	**43,491**	**40,811**	**38,130**	**35,450**	**32,892**	**30,090**
Class A Credit Sales (Purchases)	**36,699**	**33,349**	**29,574**	**26,527**	**28,216**	**25,524**	**23,682**	**21,063**
Expected Class B Credits	**0**	**0**	**13,917**	**14,284**	**9,914**	**9,926**	**9,210**	**9,027**

PHOSPHORUS FACILITY SUMMARY

Stafford Co-L. Falls Run

RAPPAHANNOCK Trading Basin

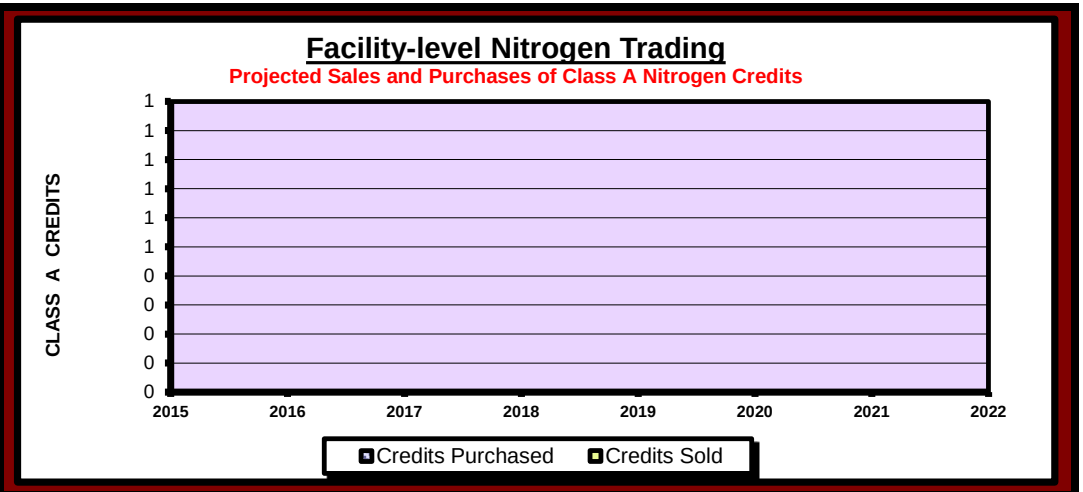


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Projected Flow (mgd)	3.99	4.21	4.43	4.65	4.87	5.09	5.30	5.53
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	3,646	3,847	4,048	4,249	4,450	4,651	4,842	5,053
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	3,646	3,847	4,048	4,249	4,450	4,651	4,842	5,053
Delivered WLA	7,309	7,309	7,309	7,309	7,309	7,309	7,309	7,309
Expected Credits (delivered)	3,663	3,462	3,261	3,060	2,859	2,658	2,467	2,256
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,663**	**3,462**	**3,261**	**3,060**	**2,859**	**2,658**	**2,467**	**2,256**
Class A Credit Sales (Purchases)	**3,663**	**3,462**	**3,261**	**3,060**	**2,144**	**1,993**	**1,850**	**1,692**
Expected Class B Credits	**0**	**0**	**0**	**0**	**715**	**665**	**617**	**564**

NITROGEN FACILITY SUMMARY

Tappahannock

RAPPAHANNOCK Trading Basin

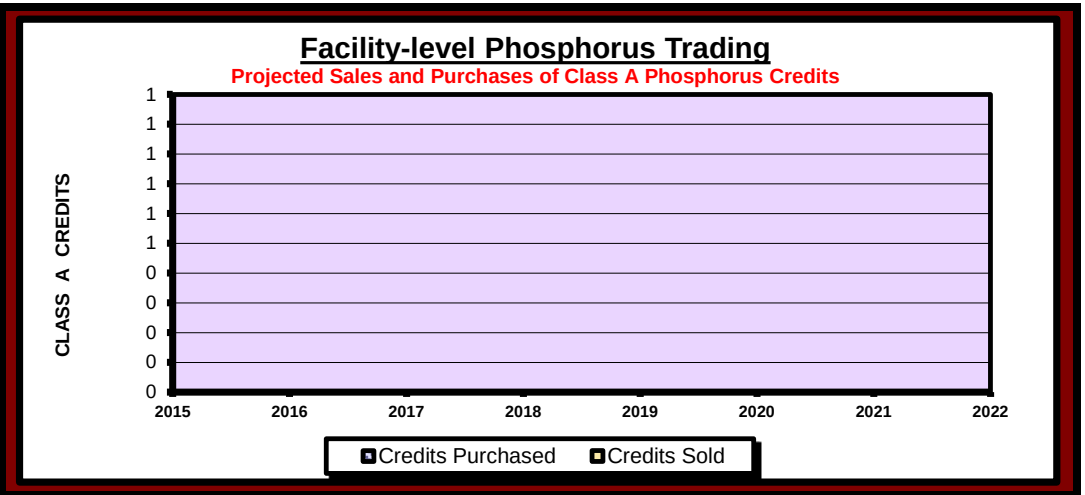


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Projected Flow (mgd)	0.60	0.62	0.63	0.64	0.65	0.66	0.66	0.66
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	7,309	7,553	7,675	7,797	7,918	8,040	8,040	8,040
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	7,309	7,553	7,675	7,797	7,918	8,040	8,040	8,040
Delivered WLA	9,746	9,746	9,746	9,746	9,746	9,746	9,746	9,746
Expected Credits (delivered)	2,437	2,193	2,071	1,949	1,828	1,706	1,706	1,706
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,437**	**2,193**	**2,071**	**1,949**	**1,828**	**1,706**	**1,706**	**1,706**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**2,437**	**2,193**	**2,071**	**1,949**	**1,828**	**1,706**	**1,706**	**1,706**

PHOSPHORUS FACILITY SUMMARY

Tappahannock

RAPPAHANNOCK Trading Basin

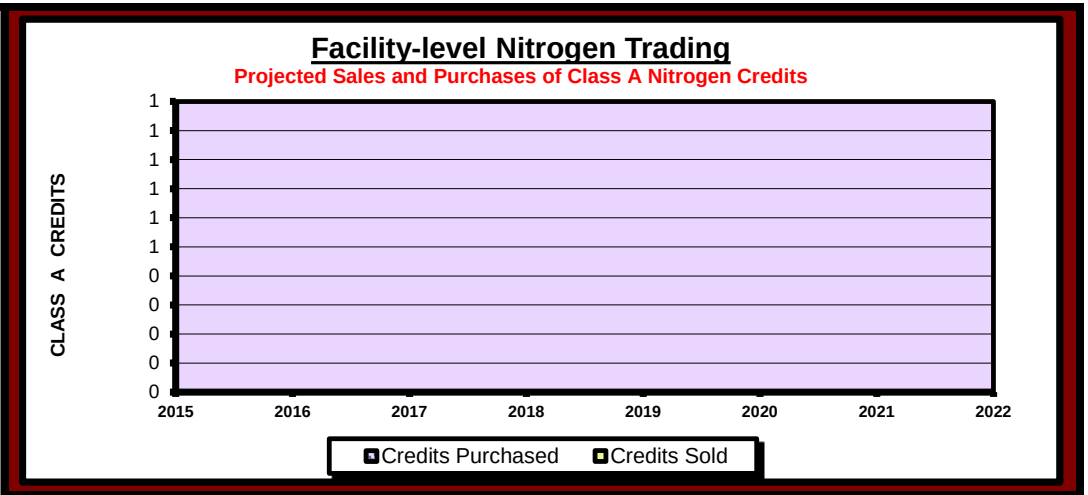


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Projected Flow (mgd)	0.60	0.62	0.63	0.64	0.65	0.66	0.66	0.66
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	548	566	576	585	594	603	603	603
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	548	566	576	585	594	603	603	603
Delivered WLA	731	731	731	731	731	731	731	731
Expected Credits (delivered)	183	165	155	146	137	128	128	128
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**183**	**165**	**155**	**146**	**137**	**128**	**128**	**128**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**183**	**165**	**155**	**146**	**137**	**128**	**128**	**128**

NITROGEN FACILITY SUMMARY

Warsaw

RAPPAHANNOCK Trading Basin

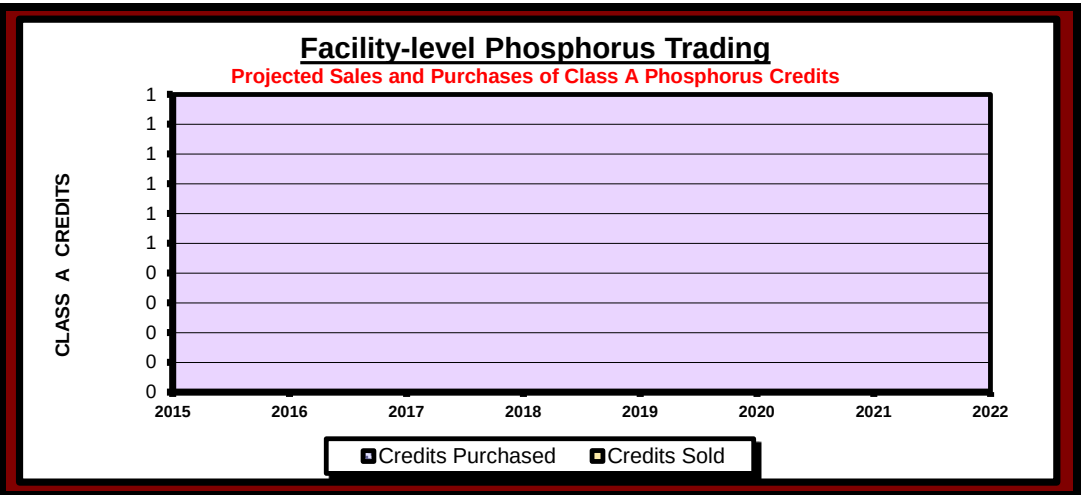


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Projected Flow (mgd)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046
Delivered WLA	3,655	3,655	3,655	3,655	3,655	3,655	3,655	3,655
Expected Credits (delivered)	609	609	609	609	609	609	609	609
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**609**	**609**	**609**	**609**	**609**	**609**	**609**	**609**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**609**	**609**	**609**	**609**	**609**	**609**	**609**	**609**

PHOSPHORUS FACILITY SUMMARY

Warsaw

RAPPAHANNOCK Trading Basin

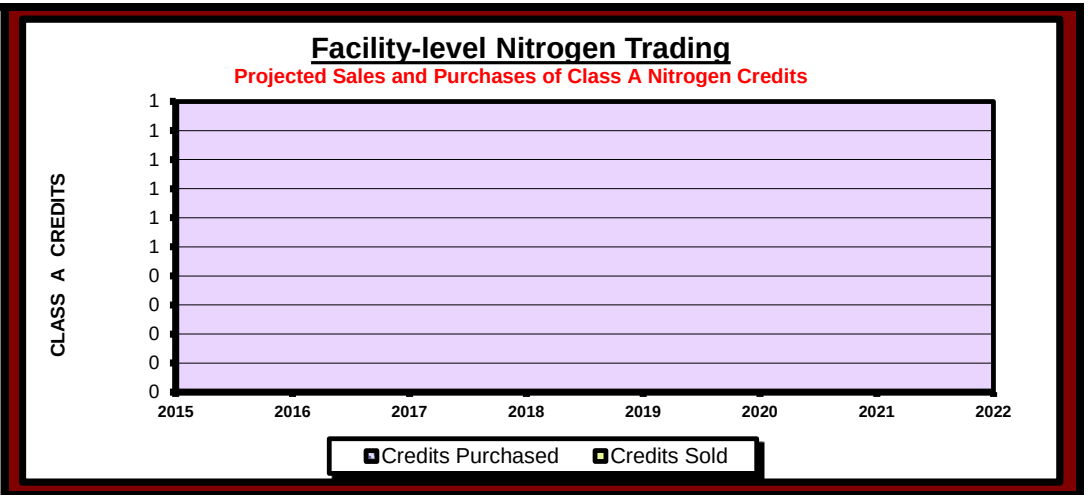


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Projected Flow (mgd)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	228	228	228	228	228	228	228	228
Delivery Factor	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Expected Load	228	226	226	226	226	226	226	226
Delivered WLA	274	271	271	271	271	271	271	271
Expected Credits (delivered)	46	45	45	45	45	45	45	45
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**46**	**45**	**45**	**45**	**45**	**45**	**45**	**45**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**46**	**45**	**45**	**45**	**45**	**45**	**45**	**45**

NITROGEN FACILITY SUMMARY

Westmoreland Co-Montross

RAPPAHANNOCK Trading Basin

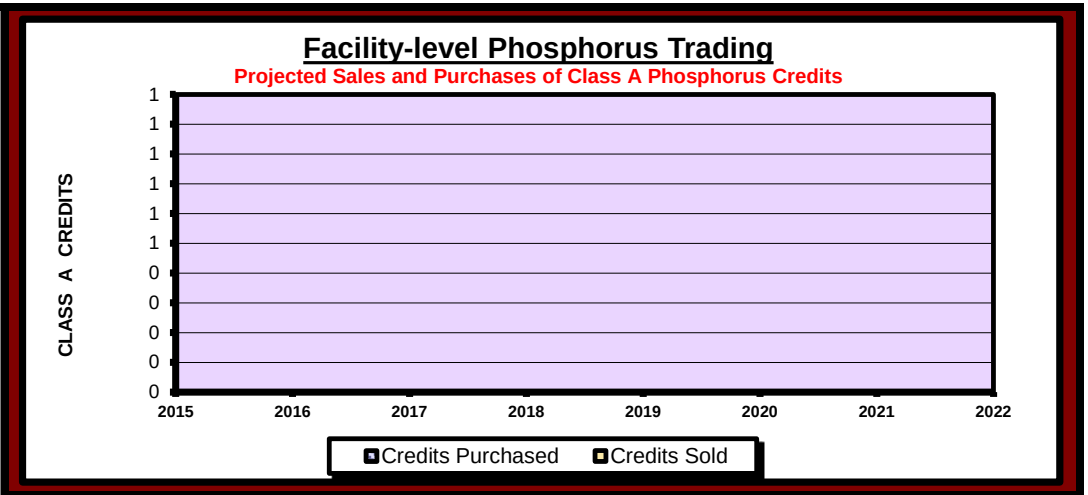


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Projected Flow (mgd)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	731	731	731	731	731	731	731	731
Delivery Factor	1.00	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Expected Load	731	541	541	541	541	541	541	541
Delivered WLA	1,584	1,172	1,172	1,172	1,172	1,172	1,172	1,172
Expected Credits (delivered)	853	631	631	631	631	631	631	631
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**853**	**631**	**631**	**631**	**631**	**631**	**631**	**631**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**853**	**631**	**631**	**631**	**631**	**631**	**631**	**631**

PHOSPHORUS FACILITY SUMMARY

Westmoreland Co-Montross

RAPPAHANNOCK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Projected Flow (mgd)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	91	91	91	91	91	91	91	91
Delivery Factor	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Expected Load	91	84	84	84	84	84	84	84
Delivered WLA	119	109	109	109	109	109	109	109
Expected Credits (delivered)	28	25	25	25	25	25	25	25
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**28**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**28**	**25**	**25**	**25**	**25**	**25**	**25**	**25**

SECTION 4

York River Basin Exchange Compliance Plan

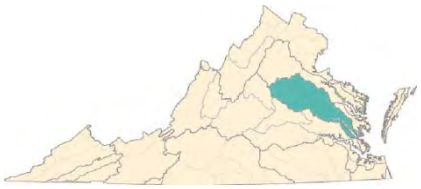


EXHIBIT 4-1
Nitrogen Plan Summary: York River Basin

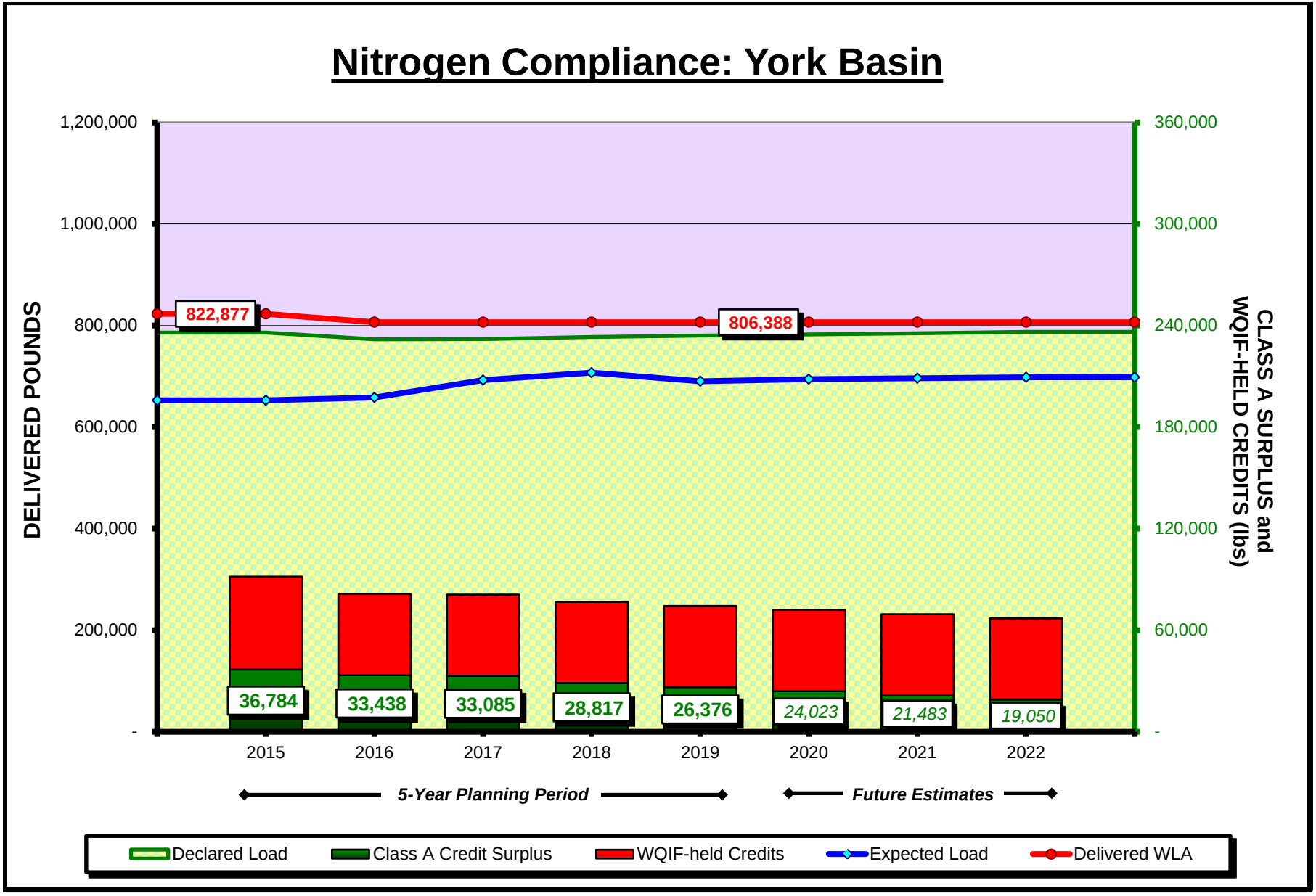


EXHIBIT 4-2
2015 Nitrogen Trading Ledger: York River Basin

YORK Basin: Nitrogen Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	No Sale	No Sale	No Sale
The Exchange (group)	**822,877**	**652,918**	**169,959**	**-**	**-**	**(54,869)**	**115,090**		**36,784**	**-**	**78,306**
Bear Island Paper WB LLC	24,137	24,137	-	-	-	-	-		-	-	-
Caroline Co.	3,837	2,552	1,285	-	-	-	1,285		1,028	-	257
Hanover Co-Ashland	18,639	28,734	(10,095)	10,095	-	-	-		-	-	-
Hanover Co-Doswell	9,319	13,045	(3,726)	3,726	-	-	-		-	-	-
Hanover Co-Totopotomoy	182,734	76,504	106,230	(13,821)	-	(54,820)	37,589		22,964	-	14,625
HRSD-King William	1,424	335	1,089	(1,089)	-	-	-		-	-	-
HRSD-West Point	10,964	20,787	(9,823)	9,823	-	-	-		-	-	-
HRSD-York	275,927	226,038	49,889	(8,734)	-	-	41,155		-	-	41,155
New Kent Co-Parham	36,547	10,964	25,583	-	-	-	25,583		12,792	-	12,791
RockTenn	259,177	249,736	9,441	-	-	-	9,441		-	-	9,441
RSA-Gordonsville	172	86	86	-	-	(49)	37		-	-	37

There are no Class A Credit Purchases for this Compliance Year

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 4-3
2016 Nitrogen Trading Ledger: York River Basin

YORK Basin: Nitrogen Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	No Sale	No Sale	No Sale
The Exchange (group)	**806,388**	**658,219**	**148,169**	**-**	**-**	**(47,941)**	**100,228**		**33,438**	**-**	**66,790**
Bear Island Paper WB LLC	24,137	24,137	-	-	-	-	-		-	-	-
Caroline Co.	5,299	3,215	2,084	-	-	-	2,084		1,667	-	417
Hanover Co-Ashland	22,659	35,996	(13,337)	13,337	-	-	-		-	-	-
Hanover Co-Doswell	10,416	15,018	(4,602)	4,602	-	-	-		-	-	-
Hanover Co-Totopotomoy	158,979	68,679	90,300	(17,939)	-	(47,694)	24,667		20,000	-	4,667
HRSD-King William	1,424	340	1,084	(1,084)	-	-	-		-	-	-
HRSD-West Point	10,964	21,106	(10,142)	10,142	-	-	-		-	-	-
HRSD-York	275,927	227,753	48,174	(9,058)	-	-	39,116		-	-	39,116
New Kent Co-Parham	36,547	13,005	23,542	-	-	-	23,542		11,771	-	11,771
RockTenn	259,177	248,541	10,636	-	-	-	10,636		-	-	10,636
RSA-Gordonsville	859	429	430	-	-	(247)	183		-	-	183
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-

EXHIBIT 4-4
2017 Nitrogen Trading Ledger: York River Basin

YORK Basin: Nitrogen Credit Ledger

Compliance Year:	2017	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	No Sale	No Sale	No Sale
The Exchange (group)	**806,388**	**692,544**	**113,844**	**-**	**-**	**(47,941)**	**65,903**		**33,085**	**-**	**32,818**
Bear Island Paper WB LLC	24,137	24,137	-	-	-	-	-		-	-	-
Caroline Co.	5,299	3,524	1,775	-	-	-	1,775		1,420	-	355
Hanover Co-Ashland	22,659	37,061	(14,402)	14,402	-	-	-		-	-	-
Hanover Co-Doswell	10,416	15,303	(4,887)	4,887	-	-	-		-	-	-
Hanover Co-Totopotomoy	158,979	70,798	88,181	(19,289)	-	(47,694)	21,198		20,000	-	1,198
HRSD-King William	1,424	397	1,027	(1,027)	-	-	-		-	-	-
HRSD-West Point	10,964	24,612	(13,648)	13,648	-	-	-		-	-	-
HRSD-York	275,927	253,938	21,989	(12,621)	-	-	9,368		-	-	9,368
New Kent Co-Parham	36,547	13,218	23,329	-	-	-	23,329		11,665	-	11,664
RockTenn	259,177	249,127	10,050	-	-	-	10,050		-	-	10,050
RSA-Gordonsville	859	429	430	-	-	(247)	183		-	-	183

There are no Class A Credit Purchases for this Compliance Year

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 4-5
2018 Nitrogen Trading Ledger: York River Basin

YORK Basin: Nitrogen Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	No Sale	No Sale	No Sale
The Exchange (group)	**806,388**	**707,070**	**99,318**	**-**	**-**	**(47,941)**	**51,377**		**28,817**	**-**	**22,560**
Bear Island Paper WB LLC	24,137	24,137	-	-	-	-	-		-	-	-
Caroline Co.	5,299	3,762	1,537	-	-	-	1,537		1,153	-	384
Hanover Co-Ashland	22,659	38,126	(15,467)	15,467	-	-	-		-	-	-
Hanover Co-Doswell	10,416	16,014	(5,598)	5,598	-	-	-		-	-	-
Hanover Co-Totopotomoy	158,979	72,918	86,061	(21,065)	-	(47,694)	17,302		16,000	-	1,302
HRSD-King William	1,424	392	1,032	(1,032)	-	-	-		-	-	-
HRSD-West Point	10,964	22,189	(11,225)	11,225	-	-	-		-	-	-
HRSD-York	275,927	262,982	12,945	(10,193)	-	-	2,752		-	-	2,752
New Kent Co-Parham	36,547	13,218	23,329	-	-	-	23,329		11,664	-	11,665
RockTenn	259,177	252,903	6,274	-	-	-	6,274		-	-	6,274
RSA-Gordonsville	859	429	430	-	-	(247)	183		-	-	183
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-

EXHIBIT 4-6
2019 Nitrogen Trading Ledger: York River Basin

YORK Basin: Nitrogen Credit Ledger

Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	No Sale	No Sale	No Sale
The Exchange (group)	**806,388**	**690,430**	**115,958**	**-**	**-**	**(47,941)**	**68,017**		**26,376**	**-**	**41,641**
Bear Island Paper WB LLC	24,137	24,137	-	-	-	-	-		-	-	-
Caroline Co.	5,299	3,498	1,801	-	-	-	1,801		1,219	-	582
Hanover Co-Ashland	22,659	39,404	(16,745)	16,745	-	-	-		-	-	-
Hanover Co-Doswell	10,416	16,370	(5,954)	5,954	-	-	-		-	-	-
Hanover Co-Totopotomoy	158,979	75,038	83,941	(22,699)	-	(47,694)	13,548		12,000	-	1,548
HRSD-King William	1,424	616	808	(808)	-	-	-		-	-	-
HRSD-West Point	10,964	24,786	(13,822)	13,822	-	-	-		-	-	-
HRSD-York	275,927	239,239	36,688	(13,014)	-	-	23,674		-	-	23,674
New Kent Co-Parham	36,547	10,233	26,314	-	-	-	26,314		13,157	-	13,157
RockTenn	259,177	256,680	2,497	-	-	-	2,497		-	-	2,497
RSA-Gordonsville	859	429	430	-	-	(247)	183		-	-	183
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There are no Class A Credit Purchases for this Compliance Year

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 4-7
Phosphorus Plan Summary: York River Basin

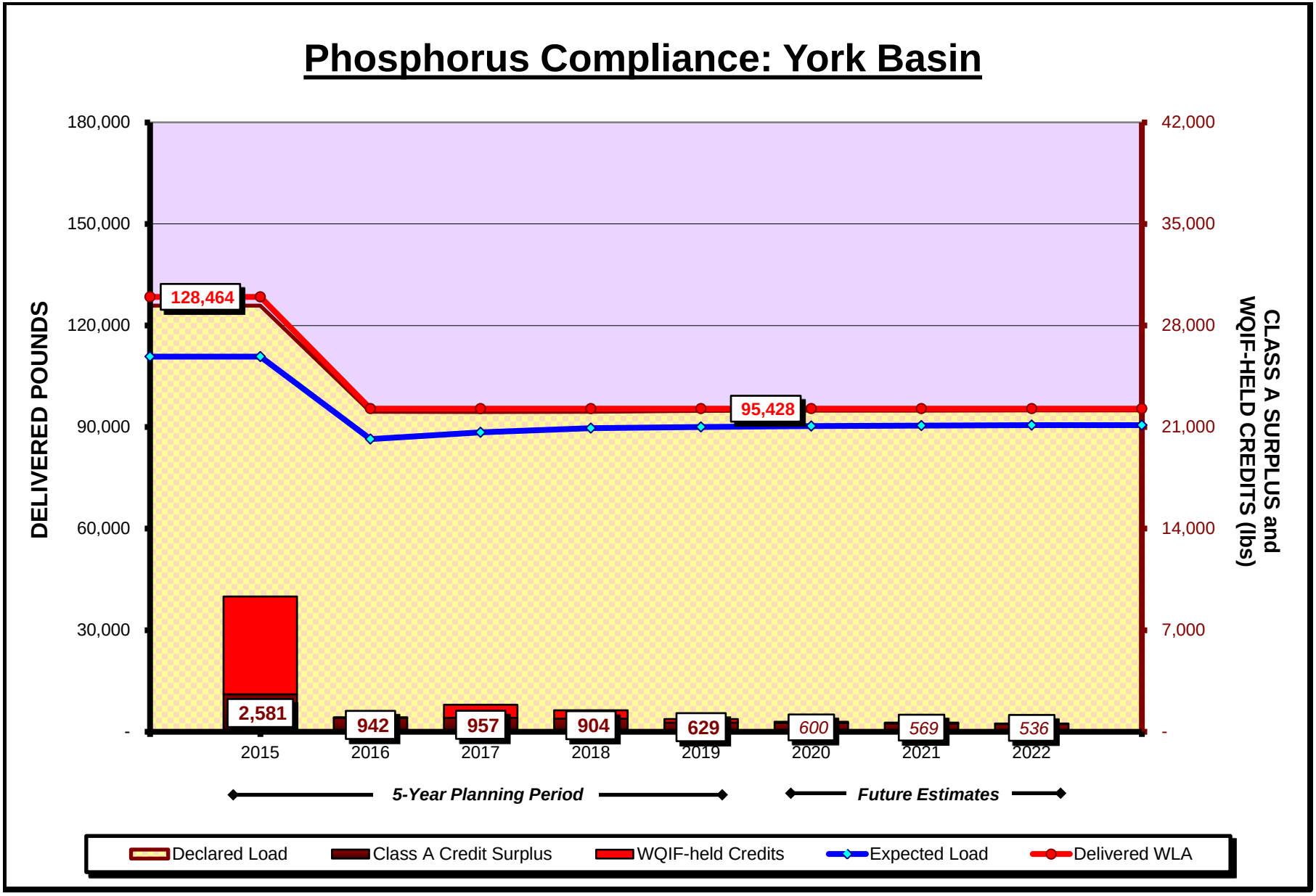


EXHIBIT 4-8
2015 Phosphorus Trading Ledger: York River Basin

YORK Basin: Phosphorus Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	No Sale	No Sale	No Sale
The Exchange (group)	**128,464**	**110,835**	**17,629**	**-**	**-**	**(6,741)**	**10,888**		**2,581**	**-**	**8,307**
Bear Island Paper WB LLC	7,675	7,675	-	-	-	-	-		-	-	-
Caroline Co.	469	153	316	-	-	-	316		253	-	63
Hanover Co-Ashland	2,558	7,312	(4,754)	4,754	-	-	-		-	-	-
Hanover Co-Doswell	1,279	1,273	6	(6)	-	-	-		-	-	-
Hanover Co-Totopotomoy	21,319	9,563	11,756	(4,748)	-	(6,396)	612		-	-	612
HRSD-King William	190	25	165	(165)	-	-	-		-	-	-
HRSD-West Point	1,279	2,809	(1,530)	1,530	-	-	-		-	-	-
HRSD-York	32,191	26,371	5,820	(1,365)	-	-	4,455		-	-	4,455
New Kent Co-Parham	4,264	1,279	2,985	-	-	-	2,985		1,493	-	1,492
RockTenn	56,038	53,602	2,436	-	-	-	2,436		835	-	1,601
RSA-Gordonsville	1,202	773	429	-	-	(345)	84		-	-	84

There are no Class A Credit Purchases for this Compliance Year

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 4-9
2016 Phosphorus Trading Ledger: York River Basin

YORK Basin: Phosphorus Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 2.53	$ 5.27	$ 0.07
The Exchange (group)	**95,428**	**86,420**	**9,008**	**-**	**-**	**(57)**	**8,951**		**2,023**	**(1,081)**	**8,009**
Bear Island Paper WB LLC	5,628	5,628	-	-	-	-	-		-	(1,055)	1,055
Caroline Co.	414	215	199	-	-	-	199		159	-	40
Hanover Co-Ashland	1,340	4,812	(3,472)	3,472	-	-	-		-	-	-
Hanover Co-Doswell	670	1,202	(532)	532	-	-	-		-	-	-
Hanover Co-Totopotomoy	9,380	5,319	4,061	(4,004)	-	(57)	-		-	-	-
HRSD-King William	190	25	165	(165)	-	-	-		-	-	-
HRSD-West Point	731	2,852	(2,121)	2,121	-	-	-		-	-	-
HRSD-York	18,395	11,388	7,007	(1,956)	-	-	5,051		-	-	5,051
New Kent Co-Parham	2,436	743	1,693	-	-	-	1,693		847	-	846
RockTenn	56,038	54,004	2,034	-	-	-	2,034		1,017	-	1,017
RSA-Gordonsville	206	232	(26)	-	-	-	(26)		-	(26)	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-

EXHIBIT 4-10
2017 Phosphorus Trading Ledger: York River Basin

YORK Basin: Phosphorus Credit Ledger

Compliance Year:	2017	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.13	$ 5.65	$ -
The Exchange (group)	**95,428**	**88,415**	**7,013**	**-**	**-**	**(903)**	**6,110**		**983**	**(26)**	**5,153**
Bear Island Paper WB LLC	5,628	5,628	-	-	-	-	-		-	-	-
Caroline Co.	414	236	178	-	-	-	178		142	-	36
Hanover Co-Ashland	1,340	4,955	(3,615)	3,615	-	-	-		-	-	-
Hanover Co-Doswell	670	1,224	(554)	554	-	-	-		-	-	-
Hanover Co-Totopotomoy	9,380	4,308	5,072	(4,169)	-	(903)	-		-	-	-
HRSD-King William	190	30	160	(160)	-	-	-		-	-	-
HRSD-West Point	731	4,219	(3,488)	3,488	-	-	-		-	-	-
HRSD-York	18,395	14,511	3,884	(3,328)	-	-	556		-	-	556
New Kent Co-Parham	2,436	755	1,681	-	-	-	1,681		841	-	840
RockTenn	56,038	52,317	3,721	-	-	-	3,721		-	-	3,721
RSA-Gordonsville	206	232	(26)	-	-	-	(26)		-	(26)	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-

EXHIBIT 4-11
2018 Phosphorus Trading Ledger: York River Basin

YORK Basin: Phosphorus Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.14	$ 5.70	$ -
The Exchange (group)	**95,428**	**89,695**	**5,733**	**-**	**-**	**(575)**	**5,158**		**930**	**(26)**	**4,254**
Bear Island Paper WB LLC	5,628	5,628	-	-	-	-	-		-	-	-
Caroline Co.	414	294	120	-	-	-	120		90	-	30
Hanover Co-Ashland	1,340	5,097	(3,757)	3,757	-	-	-		-	-	-
Hanover Co-Doswell	670	1,281	(611)	611	-	-	-		-	-	-
Hanover Co-Totopotomoy	9,380	4,437	4,943	(4,368)	-	(575)	-		-	-	-
HRSD-King William	190	29	161	(161)	-	-	-		-	-	-
HRSD-West Point	731	3,804	(3,073)	3,073	-	-	-		-	-	-
HRSD-York	18,395	15,028	3,367	(2,912)	-	-	455		-	-	455
New Kent Co-Parham	2,436	755	1,681	-	-	-	1,681		840	-	841
RockTenn	56,038	53,110	2,928	-	-	-	2,928		-	-	2,928
RSA-Gordonsville	206	232	(26)	-	-	-	(26)		-	(26)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 4-12
2019 Phosphorus Trading Ledger: York River Basin

YORK Basin: Phosphorus Credit Ledger

Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.20	$ 5.76	$ -
The Exchange (group)	**95,428**	**90,016**	**5,412**	**-**	**-**	**(246)**	**5,166**		**655**	**(26)**	**4,537**
Bear Island Paper WB LLC	5,628	5,628	-	-	-	-	-		-	-	-
Caroline Co.	414	273	141	-	-	-	141		100	-	41
Hanover Co-Ashland	1,340	5,268	(3,928)	3,928	-	-	-		-	-	-
Hanover Co-Doswell	670	1,310	(640)	640	-	-	-		-	-	-
Hanover Co-Totopotomoy	9,380	4,566	4,814	(4,568)	-	(246)	-		-	-	-
HRSD-King William	190	46	144	(144)	-	-	-		-	-	-
HRSD-West Point	731	4,249	(3,518)	3,518	-	-	-		-	-	-
HRSD-York	18,395	13,956	4,439	(3,374)	-	-	1,065		-	-	1,065
New Kent Co-Parham	2,436	585	1,851	-	-	-	1,851		555	-	1,296
RockTenn	56,038	53,903	2,135	-	-	-	2,135		-	-	2,135
RSA-Gordonsville	206	232	(26)	-	-	-	(26)		-	(26)	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

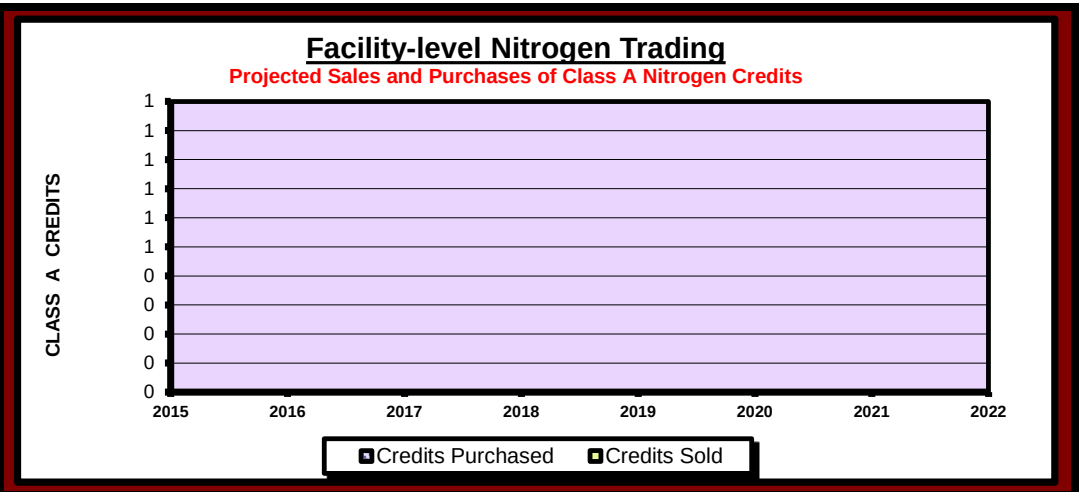
York River Basin

Supplemental Information for Individual Facilities

NITROGEN FACILITY SUMMARY

Bear Island Paper WB LLC

YORK Trading Basin

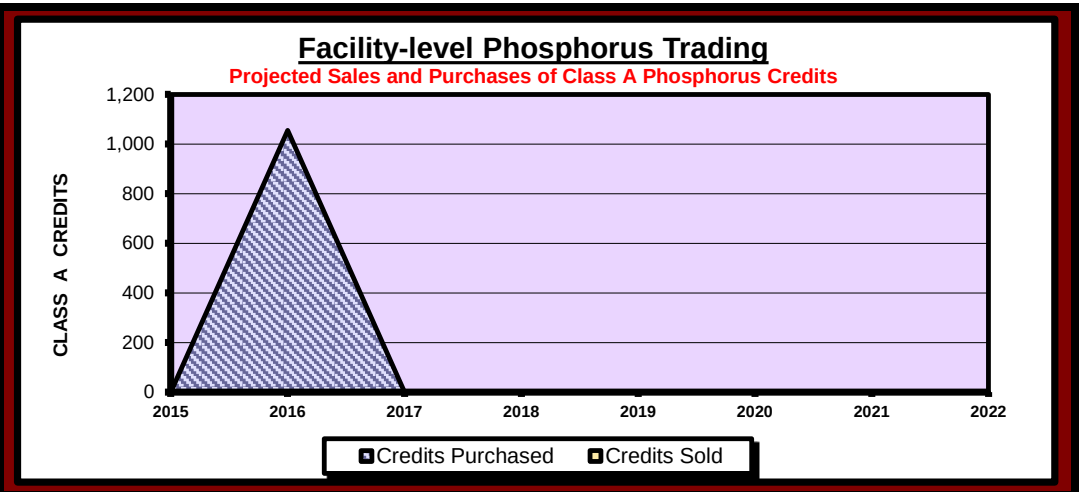


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
Projected Flow (mgd)	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
Projected Avg. Annual Concentration (mg/L)	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
Discharged Load (end of pipe)	47,328	47,328	47,328	47,328	47,328	47,328	47,328	47,328
Delivery Factor	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Expected Load	24,137	24,137	24,137	24,137	24,137	24,137	24,137	24,137
Delivered WLA	24,137	24,137	24,137	24,137	24,137	24,137	24,137	24,137
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Bear Island Paper WB LLC

YORK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
Projected Flow (mgd)	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
Projected Avg. Annual Concentration (mg/L)	1.00	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Discharged Load (end of pipe)	12,791	10,233	10,233	10,233	10,233	10,233	10,233	10,233
Delivery Factor	0.60	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Expected Load	7,675	5,628	5,628	5,628	5,628	5,628	5,628	5,628
Delivered WLA	7,675	5,628	5,628	5,628	5,628	5,628	5,628	5,628
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**(1,055)**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**1,055**	**0**	**0**	**0**	**0**	**0**	**0**

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Facility (Or Owner Bubble) Name: Bear Island Paper WB LLC

Check One:
_____ James River TN Compliance
__√__ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

__√__ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:

Bear Island has hired a consulting firm to examine the treatment of phosphorus internally. Furthermore, we changed our traditional polymer chemistry to Alum chemistry. Additional capital project evaluation is ongoing.

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
__√__ NO ____ YES

2. Is permittee implementing a capital project to comply?
_____ NO __√__ YES
(If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

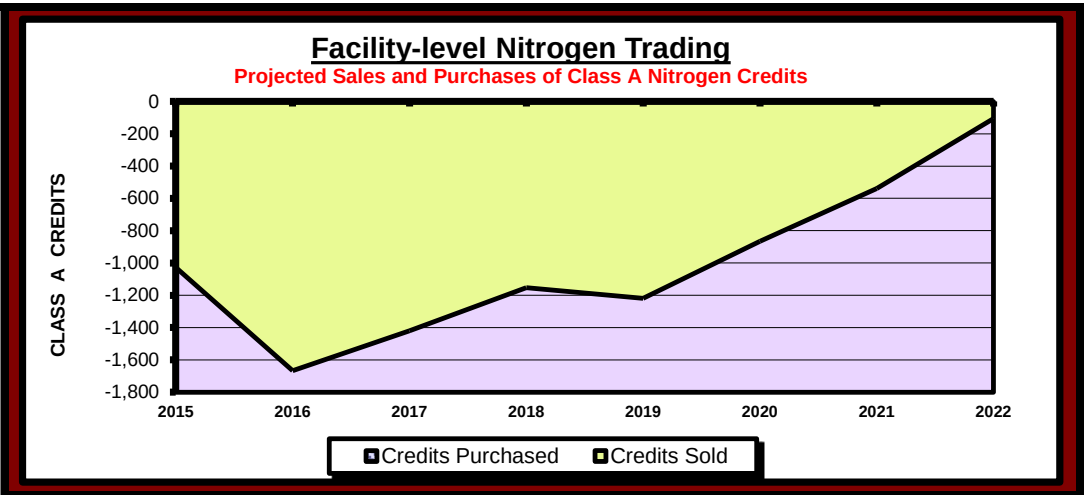
3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

Engineer selection	Fiss Environmental
PER/CER to DEQ	
Plans & Specifications to DEQ	
Commence construction	
Complete construction	
CTO Request to DEQ (POTWs only)	

NITROGEN FACILITY SUMMARY

Caroline Co.

YORK Trading Basin

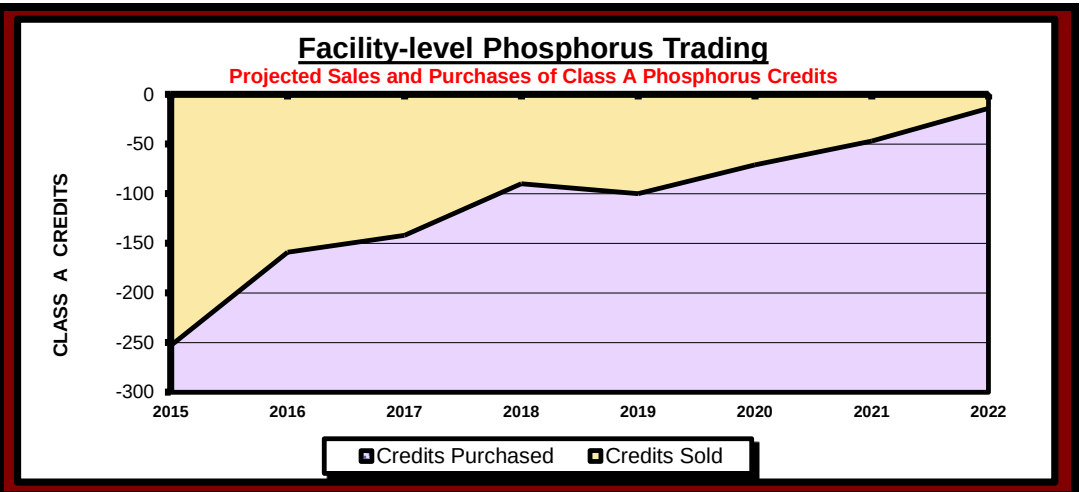


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Projected Flow (mgd)	0.57	0.52	0.57	0.71	0.66	0.72	0.77	0.84
Projected Avg. Annual Concentration (mg/L)	3.50	3.50	3.50	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	6,076	5,543	6,076	6,487	6,030	6,578	7,035	7,675
Delivery Factor	0.42	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Expected Load	2,552	3,215	3,524	3,762	3,498	3,815	4,080	4,451
Delivered WLA	3,837	5,299	5,299	5,299	5,299	5,299	5,299	5,299
Expected Credits (delivered)	1,285	2,084	1,775	1,537	1,801	1,484	1,219	848
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,285**	**2,084**	**1,775**	**1,537**	**1,801**	**1,484**	**1,219**	**848**
Class A Credit Sales (Purchases)	**1,028**	**1,667**	**1,420**	**1,153**	**1,219**	**866**	**539**	**106**
Expected Class B Credits	**257**	**417**	**355**	**384**	**582**	**618**	**680**	**742**

PHOSPHORUS FACILITY SUMMARY

Caroline Co.

YORK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Projected Flow (mgd)	0.57	0.52	0.57	0.71	0.66	0.72	0.77	0.84
Projected Avg. Annual Concentration (mg/L)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Discharged Load (end of pipe)	347	317	347	432	402	439	469	512
Delivery Factor	0.44	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Expected Load	153	215	236	294	273	298	319	348
Delivered WLA	469	414	414	414	414	414	414	414
Expected Credits (delivered)	316	199	178	120	141	116	95	66
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**316**	**199**	**178**	**120**	**141**	**116**	**95**	**66**
Class A Credit Sales (Purchases)	**253**	**159**	**142**	**90**	**100**	**71**	**47**	**14**
Expected Class B Credits	**63**	**40**	**36**	**30**	**41**	**45**	**48**	**52**

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Facility (Or Owner Bubble) Name: Caroline County Regional STP

Check One:

_____ James River TN Compliance
__√__ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

__√__ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
Additional capital project(s) is need to ensure continued compliance._____
_____
_____

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
   __√__ NO _____ YES

2. Is permittee implementing a capital project to comply?
   _____ NO ___√_ YES
   (If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

Engineer selection	_____Completed_____
PER/CER to DEQ	_____Completed_____
Plans & Specifications to DEQ	_____Completed_____
Commence construction	_____Completed_____
Complete construction	_____October 2013____
CTO Request to DEQ (POTWs only)	____February 27, 2014____

Owner Bubble: Hanover County

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

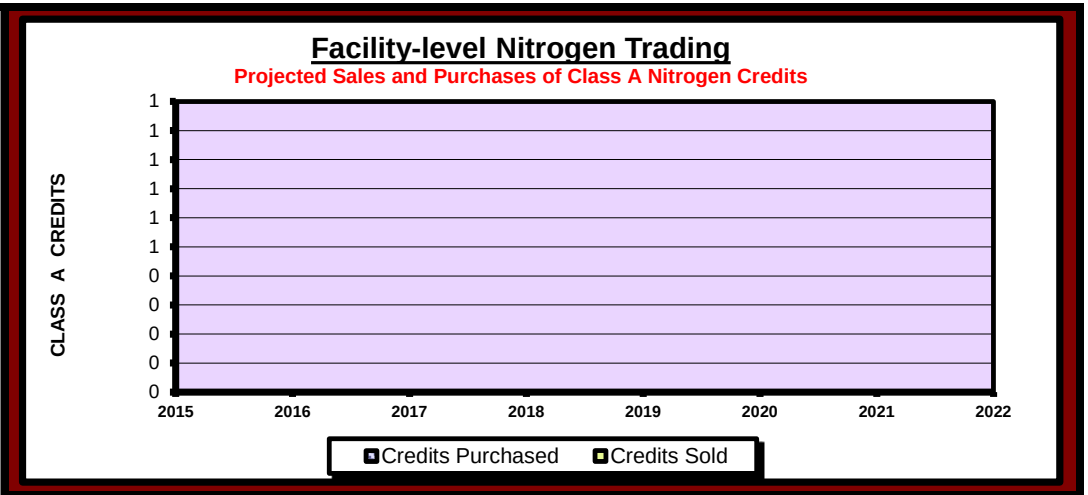
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Ashland	10,095	13,337	14,402	15,467	16,745	16,745	16,745	16,745
Doswell	3,726	4,602	4,887	5,598	5,954	6,310	6,666	7,022
Totopotomoy	(13,821)	(17,939)	(19,289)	(21,065)	(22,699)	(23,055)	(23,411)	(23,767)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Ashland	-	-	-	-	-	-	-	-
Doswell	-	-	-	-	-	-	-	-
Totopotomoy	37,589	24,667	21,198	17,302	13,548	11,073	10,717	10,361
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**37,589**	**24,667**	**21,198**	**17,302**	**13,548**	**11,073**	**10,717**	**10,361**
Class A Sales (Purchases)	**22,964**	**20,000**	**20,000**	**16,000**	**12,000**	**10,000**	**8,000**	**6,000**
Expected Class B Credits	*14,625*	*4,667*	*1,198*	*1,302*	*1,548*	*1,073*	*2,717*	*4,361*
WQIF-Held Credits	*54,820*	*47,694*	*47,694*	*47,694*	*47,694*	*47,694*	*47,694*	*47,694*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Ashland	4,754	3,472	3,615	3,757	3,928	3,928	3,928	3,928
Doswell	(6)	532	554	611	640	668	697	725
Totopotomoy	(4,748)	(4,004)	(4,169)	(4,368)	(4,568)	(4,596)	(4,625)	(4,653)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Ashland	-	-	-	-	-	-	-	-
Doswell	-	-	-	-	-	-	-	-
Totopotomoy	612	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**612**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*612*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
WQIF-Held Credits	*6,396*	*57*	*903*	*575*	*246*	*89*	*60*	*32*

NITROGEN FACILITY SUMMARY

Hanover Co-Ashland

YORK Trading Basin

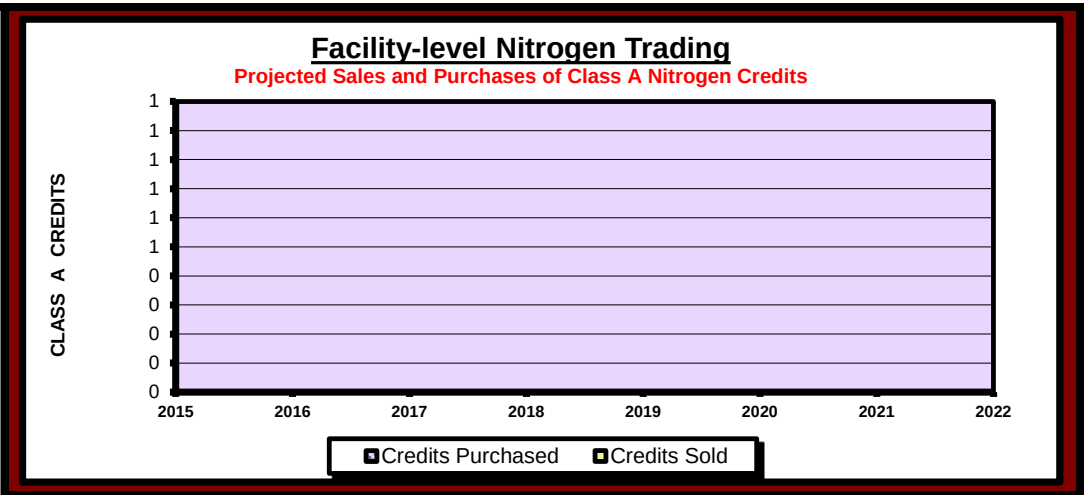


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	1.64	1.69	1.74	1.79	1.85	1.85	1.85	1.85
Projected Avg. Annual Concentration (mg/L)	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.28
Discharged Load (end of pipe)	56,340	58,058	59,776	61,494	63,555	63,555	63,555	63,555
Delivery Factor	0.51	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Expected Load	28,734	35,996	37,061	38,126	39,404	39,404	39,404	39,404
Delivered WLA	18,639	22,659	22,659	22,659	22,659	22,659	22,659	22,659
Expected Credits (delivered)	(10,095)	(13,337)	(14,402)	(15,467)	(16,745)	(16,745)	(16,745)	(16,745)
Transfers In (Out) within Owner Bubble	10,095	13,337	14,402	15,467	16,745	16,745	16,745	16,745
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Hanover Co-Doswell

YORK Trading Basin

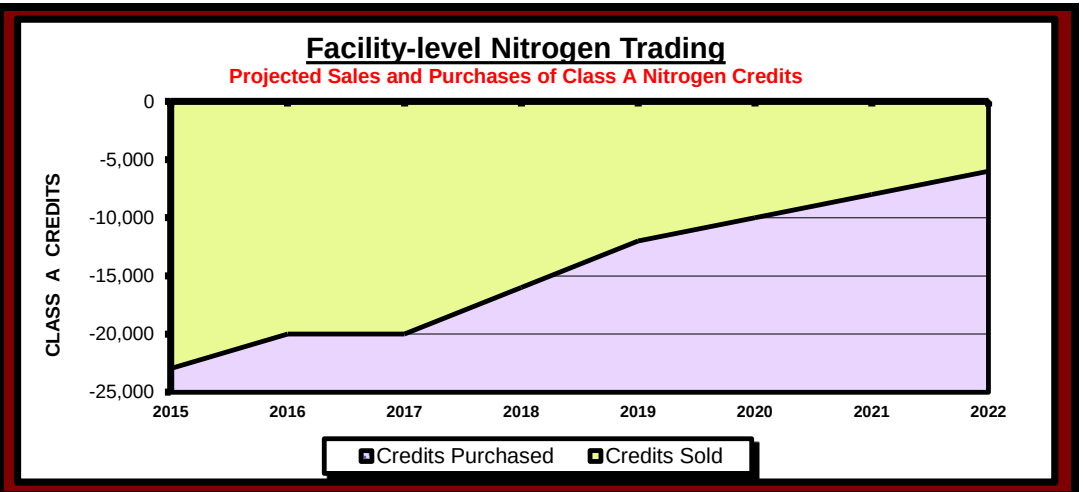


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.41	0.42	0.43	0.45	0.46	0.47	0.48	0.49
Projected Avg. Annual Concentration (mg/L)	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50
Discharged Load (end of pipe)	25,579	26,347	26,847	28,095	28,720	29,344	29,968	30,593
Delivery Factor	0.51	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Expected Load	13,045	15,018	15,303	16,014	16,370	16,726	17,082	17,438
Delivered WLA	9,319	10,416	10,416	10,416	10,416	10,416	10,416	10,416
Expected Credits (delivered)	(3,726)	(4,602)	(4,887)	(5,598)	(5,954)	(6,310)	(6,666)	(7,022)
Transfers In (Out) within Owner Bubble	3,726	4,602	4,887	5,598	5,954	6,310	6,666	7,022
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Hanover Co-Totopotomoy

YORK Trading Basin

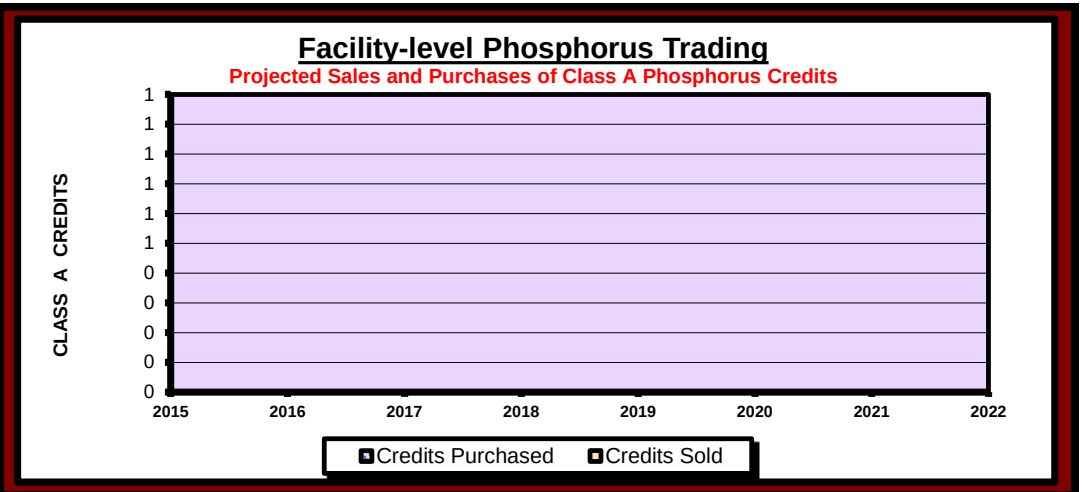


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Projected Flow (mgd)	3.14	3.24	3.34	3.44	3.54	3.64	3.64	3.64
Projected Avg. Annual Concentration (mg/L)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Discharged Load (end of pipe)	76,504	78,941	81,377	83,814	86,250	88,687	88,687	88,687
Delivery Factor	1.00	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Expected Load	76,504	68,679	70,798	72,918	75,038	77,157	77,157	77,157
Delivered WLA	182,734	158,979	158,979	158,979	158,979	158,979	158,979	158,979
Expected Credits (delivered)	106,230	90,300	88,181	86,061	83,941	81,822	81,822	81,822
Transfers In (Out) within Owner Bubble	(13,821)	(17,939)	(19,289)	(21,065)	(22,699)	(23,055)	(23,411)	(23,767)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(54,820)	(47,694)	(47,694)	(47,694)	(47,694)	(47,694)	(47,694)	(47,694)
Expected Net Credits	**37,589**	**24,667**	**21,198**	**17,302**	**13,548**	**11,073**	**10,717**	**10,361**
Class A Credit Sales (Purchases)	**22,964**	**20,000**	**20,000**	**16,000**	**12,000**	**10,000**	**8,000**	**6,000**
Expected Class B Credits	**14,625**	**4,667**	**1,198**	**1,302**	**1,548**	**1,073**	**2,717**	**4,361**

PHOSPHORUS FACILITY SUMMARY

Hanover Co-Ashland

YORK Trading Basin

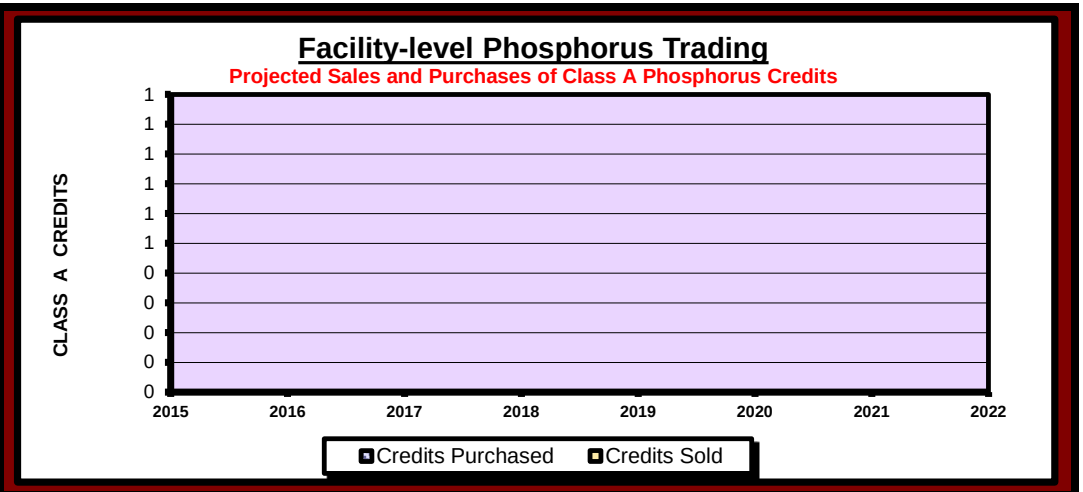


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	1.64	1.69	1.74	1.79	1.85	1.85	1.85	1.85
Projected Avg. Annual Concentration (mg/L)	2.44	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Discharged Load (end of pipe)	12,187	8,750	9,009	9,268	9,578	9,578	9,578	9,578
Delivery Factor	0.60	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Expected Load	7,312	4,812	4,955	5,097	5,268	5,268	5,268	5,268
Delivered WLA	2,558	1,340	1,340	1,340	1,340	1,340	1,340	1,340
Expected Credits (delivered)	(4,754)	(3,472)	(3,615)	(3,757)	(3,928)	(3,928)	(3,928)	(3,928)
Transfers In (Out) within Owner Bubble	4,754	3,472	3,615	3,757	3,928	3,928	3,928	3,928
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Hanover Co-Doswell

YORK Trading Basin

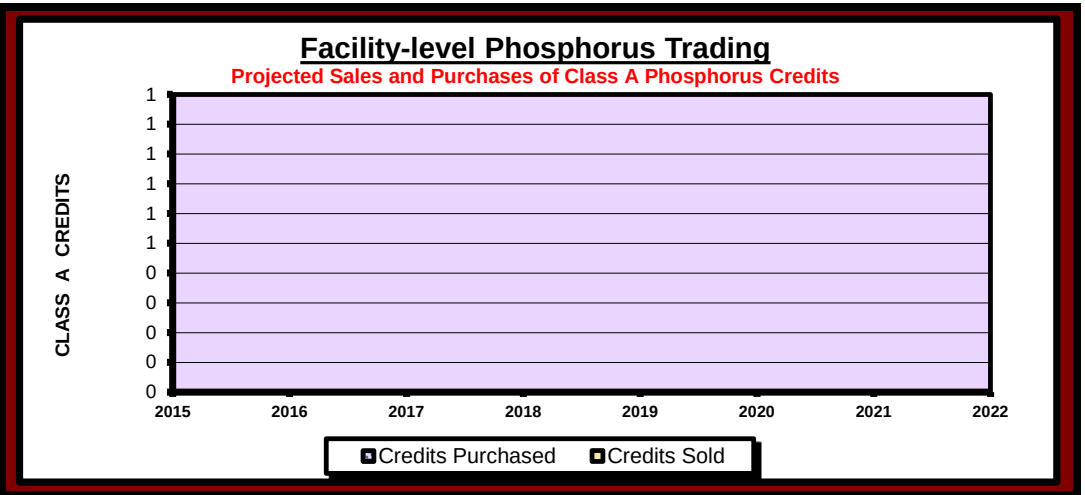


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.41	0.42	0.43	0.45	0.46	0.47	0.48	0.49
Projected Avg. Annual Concentration (mg/L)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Discharged Load (end of pipe)	2,121	2,185	2,226	2,330	2,382	2,433	2,485	2,537
Delivery Factor	0.60	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Expected Load	1,273	1,202	1,224	1,281	1,310	1,338	1,367	1,395
Delivered WLA	1,279	670	670	670	670	670	670	670
Expected Credits (delivered)	6	(532)	(554)	(611)	(640)	(668)	(697)	(725)
Transfers In (Out) within Owner Bubble	(6)	532	554	611	640	668	697	725
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Hanover Co-Totopotomoy

YORK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Projected Flow (mgd)	3.14	3.24	3.34	3.44	3.54	3.64	3.64	3.64
Projected Avg. Annual Concentration (mg/L)	1.00	0.70	0.55	0.55	0.55	0.55	0.55	0.55
Discharged Load (end of pipe)	9,563	6,907	5,595	5,762	5,930	6,097	6,097	6,097
Delivery Factor	1.00	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Expected Load	9,563	5,319	4,308	4,437	4,566	4,695	4,695	4,695
Delivered WLA	21,319	9,380	9,380	9,380	9,380	9,380	9,380	9,380
Expected Credits (delivered)	11,756	4,061	5,072	4,943	4,814	4,685	4,685	4,685
Transfers In (Out) within Owner Bubble	(4,748)	(4,004)	(4,169)	(4,368)	(4,568)	(4,596)	(4,625)	(4,653)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(6,396)	(57)	(903)	(575)	(246)	(89)	(60)	(32)
Expected Net Credits	**612**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**612**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Facility (Or Owner Bubble) Name: ***Hanover County***

Check One:
_____ James River TN Compliance
__x__ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 <u>or</u> Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

__x__ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
<u>The allocation for phosphorous was greatly reduced in 2012 for the York River Basin; consequently, additional facilities will need to be constructed at the Totopotomoy WWTP to trim phosphorous loading starting in 2016. Note that nutrient upgrades at the Ashland WWTP have been postponed; this should not impact the ability of Hanover County to continue WLA compliance.</u>

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
   __x__ NO _____ YES

2. Is permittee implementing a capital project to comply?
   _____ NO __x__ YES
   (If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

   <u>Ashland WWTP</u>
   Nutrient upgrade has been postponed

Totopotomoy WWTP

Engineer selection	Hazen & Sawyer
PER/CER to DEQ	Complete
Plans & Specifications to DEQ	Complete (waiting on final approval letter from the DEQ)
Notice to Proceed	February 2014
Final Completion	December 2015
CTO Request to DEQ (POTWs only)	December 2015

Owner Bubble: Hampton Roads Sanitation District (York)

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

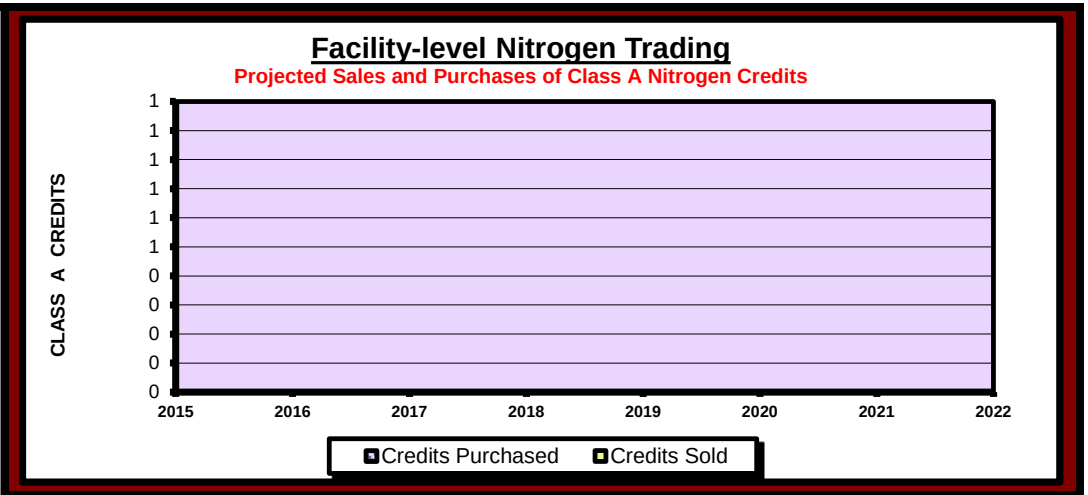
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
King William	(1,089)	(1,084)	(1,027)	(1,032)	(808)	(774)	(739)	(704)
West Point	9,823	10,142	13,648	11,225	13,822	13,982	14,142	14,304
York	(8,734)	(9,058)	(12,621)	(10,193)	(13,014)	(13,208)	(13,403)	(13,600)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
King William	-	-	-	-	-	-	-	-
West Point	-	-	-	-	-	-	-	-
York	41,155	39,116	9,368	2,752	23,674	22,615	21,552	20,483
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**41,155**	**39,116**	**9,368**	**2,752**	**23,674**	**22,615**	**21,552**	**20,483**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*41,155*	*39,116*	*9,368*	*2,752*	*23,674*	*22,615*	*21,552*	*20,483*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
King William	(165)	(165)	(160)	(161)	(144)	(141)	(139)	(136)
West Point	1,530	2,121	3,488	3,073	3,518	3,545	3,573	3,601
York	(1,365)	(1,956)	(3,328)	(2,912)	(3,374)	(3,404)	(3,434)	(3,465)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
King William	-	-	-	-	-	-	-	-
West Point	-	-	-	-	-	-	-	-
York	4,455	5,051	556	455	1,065	985	904	822
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**4,455**	**5,051**	**556**	**455**	**1,065**	**985**	**904**	**822**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*4,455*	*5,051*	*556*	*455*	*1,065*	*985*	*904*	*822*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

HRSD-King William

YORK Trading Basin

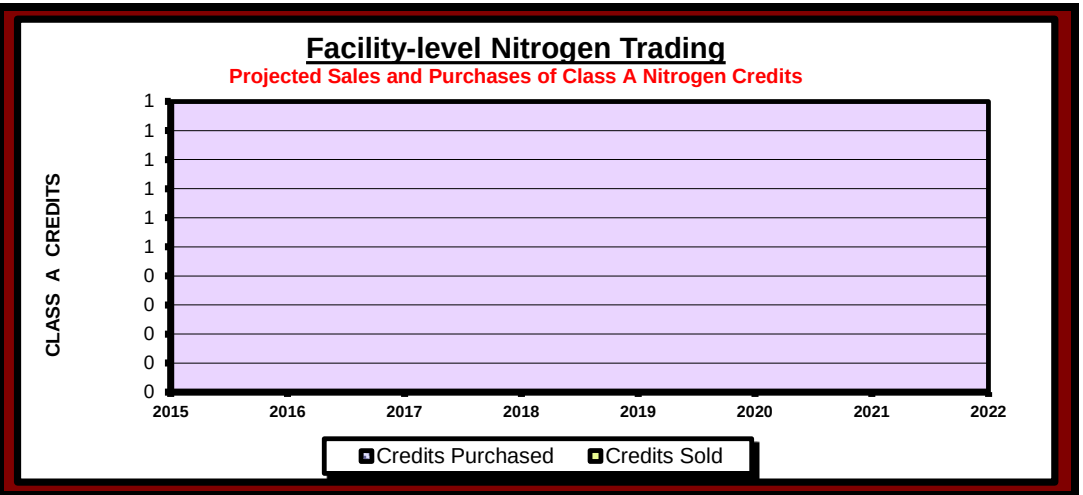


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.03	0.03	0.03	0.03	0.05	0.05	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	335	340	397	392	616	650	685	720
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	335	340	397	392	616	650	685	720
Delivered WLA	1,424	1,424	1,424	1,424	1,424	1,424	1,424	1,424
Expected Credits (delivered)	1,089	1,084	1,027	1,032	808	774	739	704
Transfers In (Out) within Owner Bubble	(1,089)	(1,084)	(1,027)	(1,032)	(808)	(774)	(739)	(704)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

HRSD-West Point

YORK Trading Basin

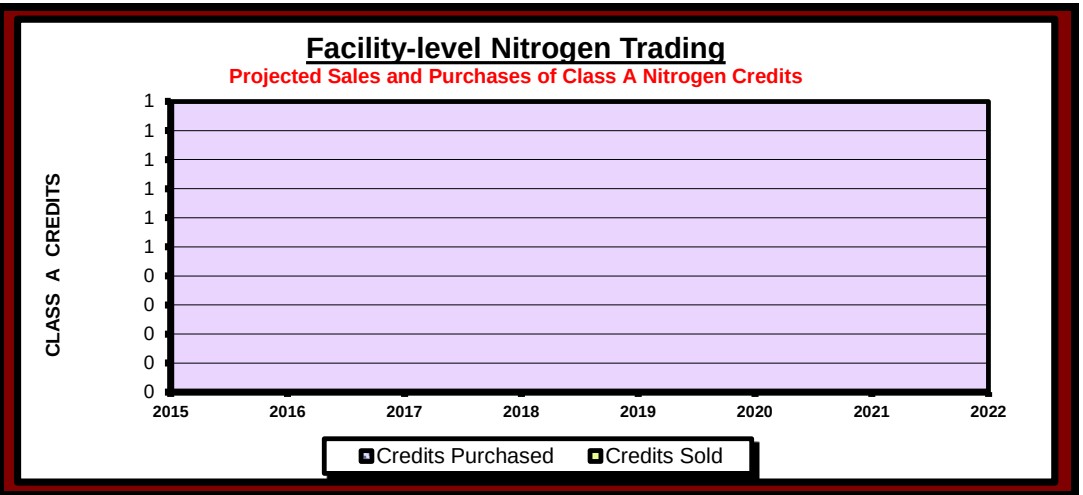


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.46	0.47	0.46	0.42	0.47	0.47	0.47	0.47
Projected Avg. Annual Concentration (mg/L)	14.80	14.80	17.50	17.50	17.50	17.50	17.50	17.50
Discharged Load (end of pipe)	20,787	21,106	24,612	22,189	24,786	24,946	25,106	25,268
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	20,787	21,106	24,612	22,189	24,786	24,946	25,106	25,268
Delivered WLA	10,964	10,964	10,964	10,964	10,964	10,964	10,964	10,964
Expected Credits (delivered)	(9,823)	(10,142)	(13,648)	(11,225)	(13,822)	(13,982)	(14,142)	(14,304)
Transfers In (Out) within Owner Bubble	9,823	10,142	13,648	11,225	13,822	13,982	14,142	14,304
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

HRSD-York

YORK Trading Basin



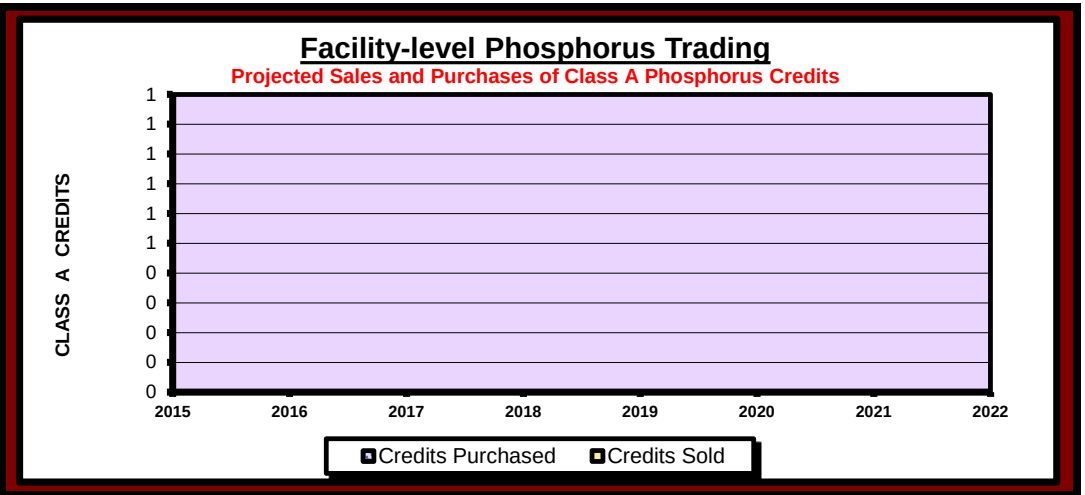
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Projected Flow (mgd)	12.37	12.46	11.91	12.34	13.09	13.14	13.19	13.23
Projected Avg. Annual Concentration (mg/L)	6.00	6.00	7.00	7.00	6.00	6.00	6.00	6.00
Discharged Load (end of pipe)	226,038	227,753	253,938	262,982	239,239	240,104	240,972	241,844
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	226,038	227,753	253,938	262,982	239,239	240,104	240,972	241,844
Delivered WLA*	275,927	275,927	275,927	275,927	275,927	275,927	275,927	275,927
Expected Credits (delivered)	49,889	48,174	21,989	12,945	36,688	35,823	34,955	34,083
Transfers In (Out) within Owner Bubble	(8,734)	(9,058)	(12,621)	(10,193)	(13,014)	(13,208)	(13,403)	(13,600)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**41,155**	**39,116**	**9,368**	**2,752**	**23,674**	**22,615**	**21,552**	**20,483**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**41,155**	**39,116**	**9,368**	**2,752**	**23,674**	**22,615**	**21,552**	**20,483**

** Reflects consolication of the HRSD-Mathews WLA*

PHOSPHORUS FACILITY SUMMARY

HRSD-King William

YORK Trading Basin

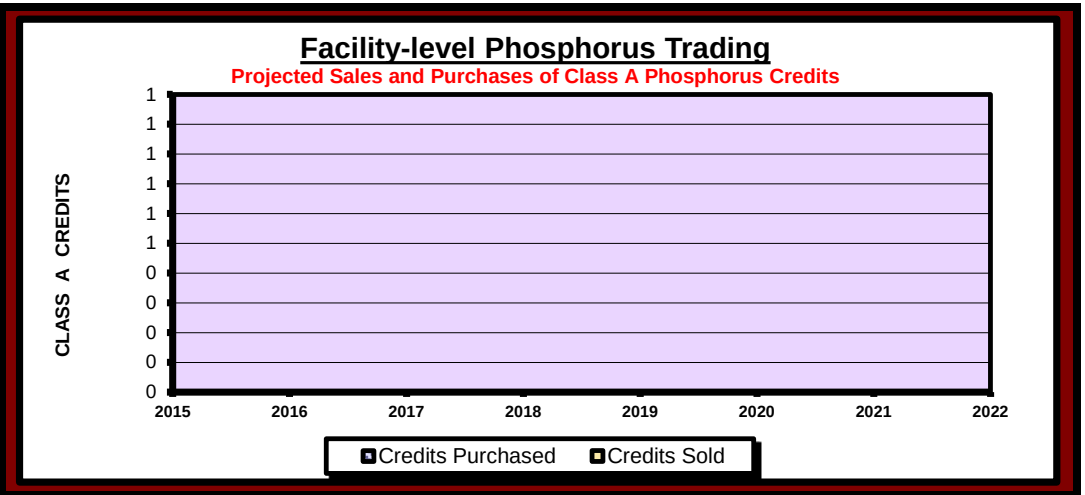


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.03	0.03	0.03	0.03	0.05	0.05	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	25	25	30	29	46	49	51	54
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	25	25	30	29	46	49	51	54
Delivered WLA	190	190	190	190	190	190	190	190
Expected Credits (delivered)	165	165	160	161	144	141	139	136
Transfers In (Out) within Owner Bubble	(165)	(165)	(160)	(161)	(144)	(141)	(139)	(136)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

HRSD-West Point

YORK Trading Basin

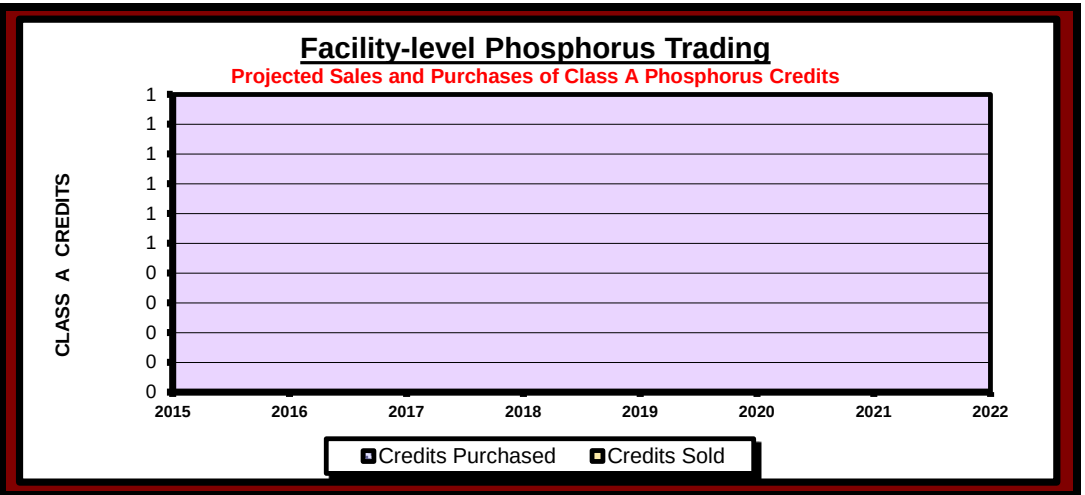


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.46	0.47	0.46	0.42	0.47	0.47	0.47	0.47
Projected Avg. Annual Concentration (mg/L)	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00
Discharged Load (end of pipe)	2,809	2,852	4,219	3,804	4,249	4,276	4,304	4,332
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,809	2,852	4,219	3,804	4,249	4,276	4,304	4,332
Delivered WLA	1,279	731	731	731	731	731	731	731
Expected Credits (delivered)	(1,530)	(2,121)	(3,488)	(3,073)	(3,518)	(3,545)	(3,573)	(3,601)
Transfers In (Out) within Owner Bubble	1,530	2,121	3,488	3,073	3,518	3,545	3,573	3,601
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

HRSD-York

YORK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Projected Flow (mgd)	12.37	12.46	11.91	12.34	13.09	13.14	13.19	13.23
Projected Avg. Annual Concentration (mg/L)	0.70	0.30	0.40	0.40	0.35	0.35	0.35	0.35
Discharged Load (end of pipe)	26,371	11,388	14,511	15,028	13,956	14,006	14,057	14,108
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	26,371	11,388	14,511	15,028	13,956	14,006	14,057	14,108
Delivered WLA*	32,191	18,395	18,395	18,395	18,395	18,395	18,395	18,395
Expected Credits (delivered)	5,820	7,007	3,884	3,367	4,439	4,389	4,338	4,287
Transfers In (Out) within Owner Bubble	(1,365)	(1,956)	(3,328)	(2,912)	(3,374)	(3,404)	(3,434)	(3,465)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**4,455**	**5,051**	**556**	**455**	**1,065**	**985**	**904**	**822**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**4,455**	**5,051**	**556**	**455**	**1,065**	**985**	**904**	**822**

** Reflects consolication of the HRSD-Mathews WLA*

FACILITY (OR OWNER BUBBLE) NAME: VAN030052 HRSD York River Aggregate

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Check One:

__ James River TN Compliance
_X_ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

_X_ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
York River STP chemical facility improvement project will include plant improvements to address reliability of the nutrient removal process through the installation of new chemical feed facilities.

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
   _X_ NO _____ YES

2. Is permittee implementing a capital project to comply?
   _____ NO _X_ YES
   (If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

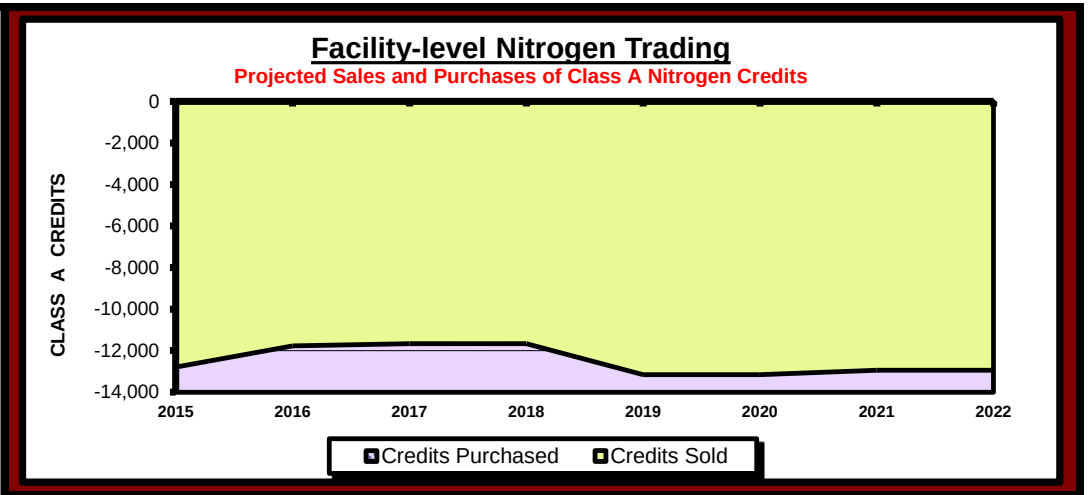
York River STP –Chemical Facility Improvements

Engineer selection	9/1/2013
PER/CER to DEQ	5/1/2014
Plans & Specifications to DEQ	12/1/2014
Commence construction	1/1/2015
Complete construction	1/1/2016
CTO Request to DEQ (POTWs only)	2/1/2016

NITROGEN FACILITY SUMMARY

New Kent Co-Parham

YORK Trading Basin

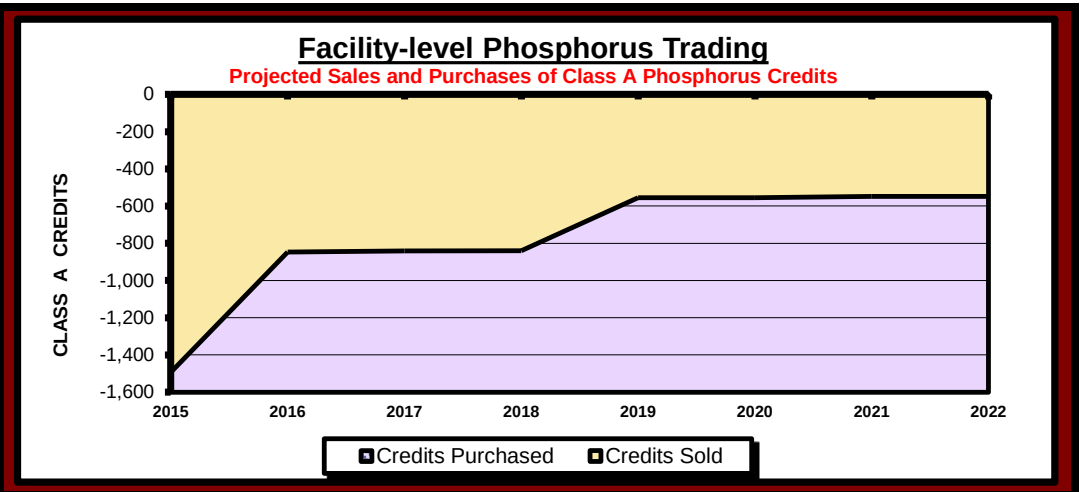


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	0.60	0.61	0.62	0.62	0.48	0.48	0.50	0.50
Projected Avg. Annual Concentration (mg/L)	6.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Discharged Load (end of pipe)	10,964	13,005	13,218	13,218	10,233	10,233	10,659	10,659
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	10,964	13,005	13,218	13,218	10,233	10,233	10,659	10,659
Delivered WLA	36,547	36,547	36,547	36,547	36,547	36,547	36,547	36,547
Expected Credits (delivered)	25,583	23,542	23,329	23,329	26,314	26,314	25,888	25,888
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**25,583**	**23,542**	**23,329**	**23,329**	**26,314**	**26,314**	**25,888**	**25,888**
Class A Credit Sales (Purchases)	**12,792**	**11,771**	**11,665**	**11,664**	**13,157**	**13,157**	**12,944**	**12,944**
Expected Class B Credits	**12,791**	**11,771**	**11,664**	**11,665**	**13,157**	**13,157**	**12,944**	**12,944**

PHOSPHORUS FACILITY SUMMARY

New Kent Co-Parham

YORK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Projected Flow (mgd)	0.60	0.61	0.62	0.62	0.48	0.48	0.50	0.50
Projected Avg. Annual Concentration (mg/L)	0.70	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Discharged Load (end of pipe)	1,279	743	755	755	585	585	609	609
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	1,279	743	755	755	585	585	609	609
Delivered WLA	4,264	2,436	2,436	2,436	2,436	2,436	2,436	2,436
Expected Credits (delivered)	2,985	1,693	1,681	1,681	1,851	1,851	1,827	1,827
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,985**	**1,693**	**1,681**	**1,681**	**1,851**	**1,851**	**1,827**	**1,827**
Class A Credit Sales (Purchases)	**1,493**	**847**	**841**	**840**	**555**	**555**	**548**	**548**
Expected Class B Credits	**1,492**	**846**	**840**	**841**	**1,296**	**1,296**	**1,279**	**1,279**

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Facility (Or Owner Bubble) Name: **New Kent County – Parham Landing WWTP**

Check One:
_____ James River TN Compliance
__X__ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

__X__ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
Enhancement to the Alum feed system to optimize chemical feed rates to offset additional cost associated with new limit.

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
__X__ NO _____ YES

2. Is permittee implementing a capital project to comply?
_____ NO __X__ YES
(If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

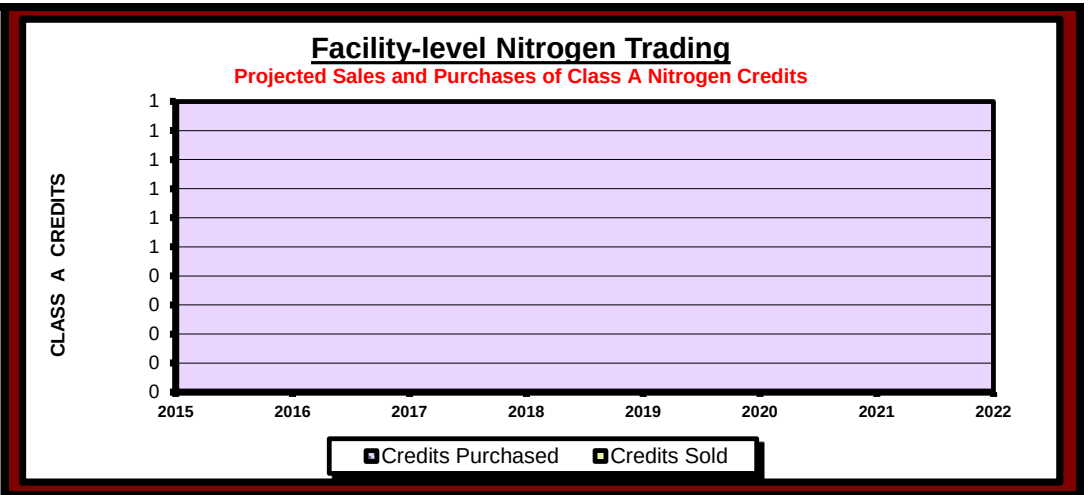
3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

Engineer selection	NA
PER/CER to DEQ	NA
Plans & Specifications to DEQ	March 2020
Commence construction	September 2021
Complete construction	December 2021
CTO Request to DEQ (POTWs only)	NA

NITROGEN FACILITY SUMMARY

RockTenn

YORK Trading Basin

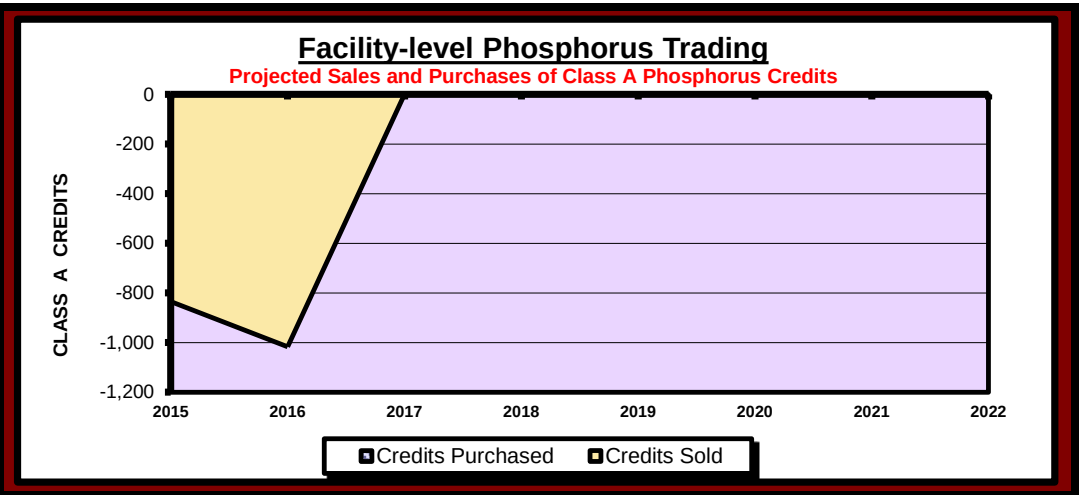


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Projected Flow (mgd)	20.00	20.15	20.45	20.76	21.07	21.07	21.07	21.07
Projected Avg. Annual Concentration (mg/L)	4.10	4.05	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	249,736	248,541	249,127	252,903	256,680	256,680	256,680	256,680
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	249,736	248,541	249,127	252,903	256,680	256,680	256,680	256,680
Delivered WLA	259,177	259,177	259,177	259,177	259,177	259,177	259,177	259,177
Expected Credits (delivered)	9,441	10,636	10,050	6,274	2,497	2,497	2,497	2,497
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**9,441**	**10,636**	**10,050**	**6,274**	**2,497**	**2,497**	**2,497**	**2,497**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**9,441**	**10,636**	**10,050**	**6,274**	**2,497**	**2,497**	**2,497**	**2,497**

PHOSPHORUS FACILITY SUMMARY

RockTenn

YORK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Projected Flow (mgd)	20.00	20.15	20.45	20.76	21.07	21.07	21.07	21.07
Projected Avg. Annual Concentration (mg/L)	0.88	0.88	0.84	0.84	0.84	0.84	0.84	0.84
Discharged Load (end of pipe)	53,602	54,004	52,317	53,110	53,903	53,903	53,903	53,903
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	53,602	54,004	52,317	53,110	53,903	53,903	53,903	53,903
Delivered WLA	56,038	56,038	56,038	56,038	56,038	56,038	56,038	56,038
Expected Credits (delivered)	2,436	2,034	3,721	2,928	2,135	2,135	2,135	2,135
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,436**	**2,034**	**3,721**	**2,928**	**2,135**	**2,135**	**2,135**	**2,135**
Class A Credit Sales (Purchases)	**835**	**1,017**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**1,601**	**1,017**	**3,721**	**2,928**	**2,135**	**2,135**	**2,135**	**2,135**

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Facility (Or Owner Bubble) Name: **RockTenn CP LLC West Point Mill**

Check One:
_____ James River TN Compliance
__X__ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

__X__ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

_____ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
_____
_____
_____

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
   __X__ NO _____ YES

2. Is permittee implementing a capital project to comply?
   __X__ NO _____ YES
   (If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

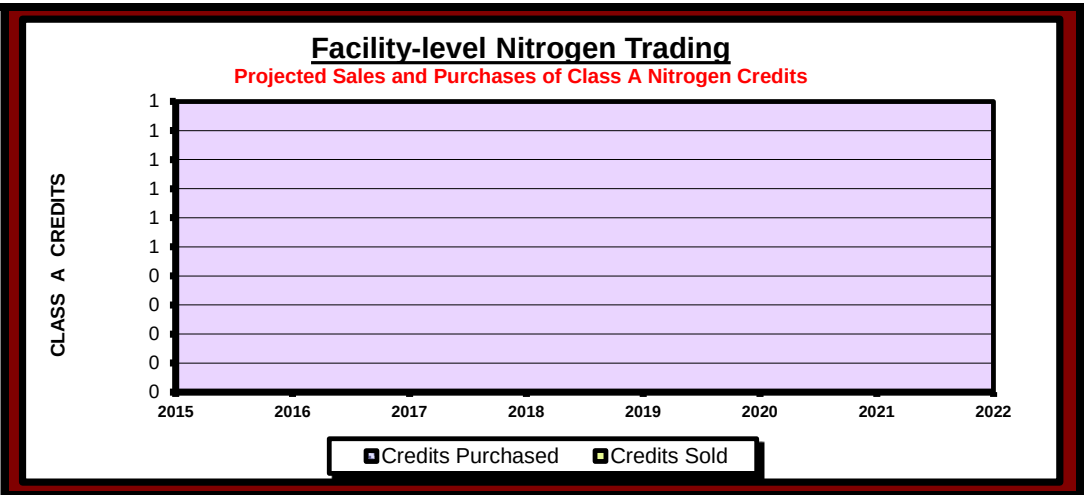
3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

   Engineer selection _____
   PER/CER to DEQ _____
   Plans & Specifications to DEQ _____
   Commence construction _____
   Complete construction _____
   CTO Request to DEQ (POTWs only) _____

NITROGEN FACILITY SUMMARY

RSA-Gordonsville

YORK Trading Basin

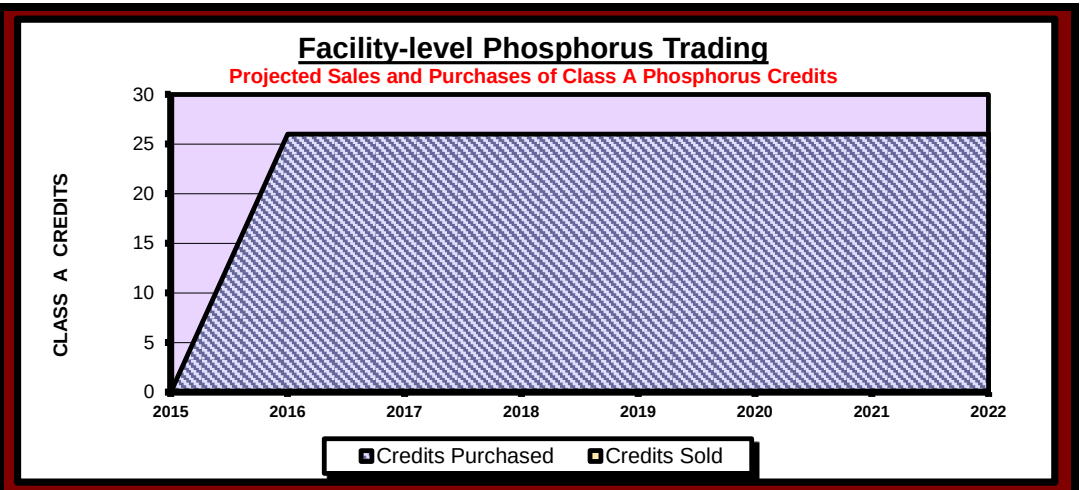


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Projected Flow (mgd)	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Projected Avg. Annual Concentration (mg/L)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Discharged Load (end of pipe)	8,588	8,588	8,588	8,588	8,588	8,588	8,588	8,588
Delivery Factor	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Expected Load	86	429	429	429	429	429	429	429
Delivered WLA	172	859	859	859	859	859	859	859
Expected Credits (delivered)	86	430	430	430	430	430	430	430
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(49)	(247)	(247)	(247)	(247)	(247)	(247)	(247)
Expected Net Credits	**37**	**183**	**183**	**183**	**183**	**183**	**183**	**183**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**37**	**183**	**183**	**183**	**183**	**183**	**183**	**183**

PHOSPHORUS FACILITY SUMMARY

RSA-Gordonsville

YORK Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Projected Flow (mgd)	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Projected Avg. Annual Concentration (mg/L)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Discharged Load (end of pipe)	1,288	1,288	1,288	1,288	1,288	1,288	1,288	1,288
Delivery Factor	0.60	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Expected Load	773	232	232	232	232	232	232	232
Delivered WLA	1,202	206	206	206	206	206	206	206
Expected Credits (delivered)	429	(26)	(26)	(26)	(26)	(26)	(26)	(26)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(345)	0	0	0	0	0	0	0
Expected Net Credits	**84**	**(26)**	**(26)**	**(26)**	**(26)**	**(26)**	**(26)**	**(26)**
Class A Credit Sales (Purchases)	**0**	**(26)**	**(26)**	**(26)**	**(26)**	**(26)**	**(26)**	**(26)**
Expected Class B Credits	**84**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Facility (Or Owner Bubble) Name: **Gordonsville STP**

Check One:

_____ James River TN Compliance
__X York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

__X Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
This facility is located in the York River Basin. The basin had its TP nutrient limit reduced from 0.7 mg/L to 0.4 mg/L and a likewise reduction in its allocation by the regulatory agencies. This facility will therefore find it difficult to maintain compliance.

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
_____ NO __X__ YES

2. Is permittee implementing a capital project to comply?
__X__ NO _____ YES
(If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

Engineer selection _____
PER/CER to DEQ _____
Plans & Specifications to DEQ _____
Commence construction _____
Complete construction _____
CTO Request to DEQ (POTWs only) _____

SECTION 5

James River Basin Exchange Compliance Plan

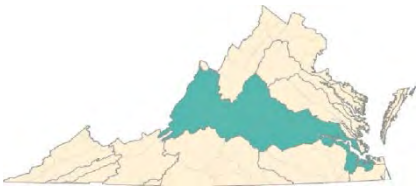


EXHIBIT 5-1
Nitrogen Plan Summary: James River Basin

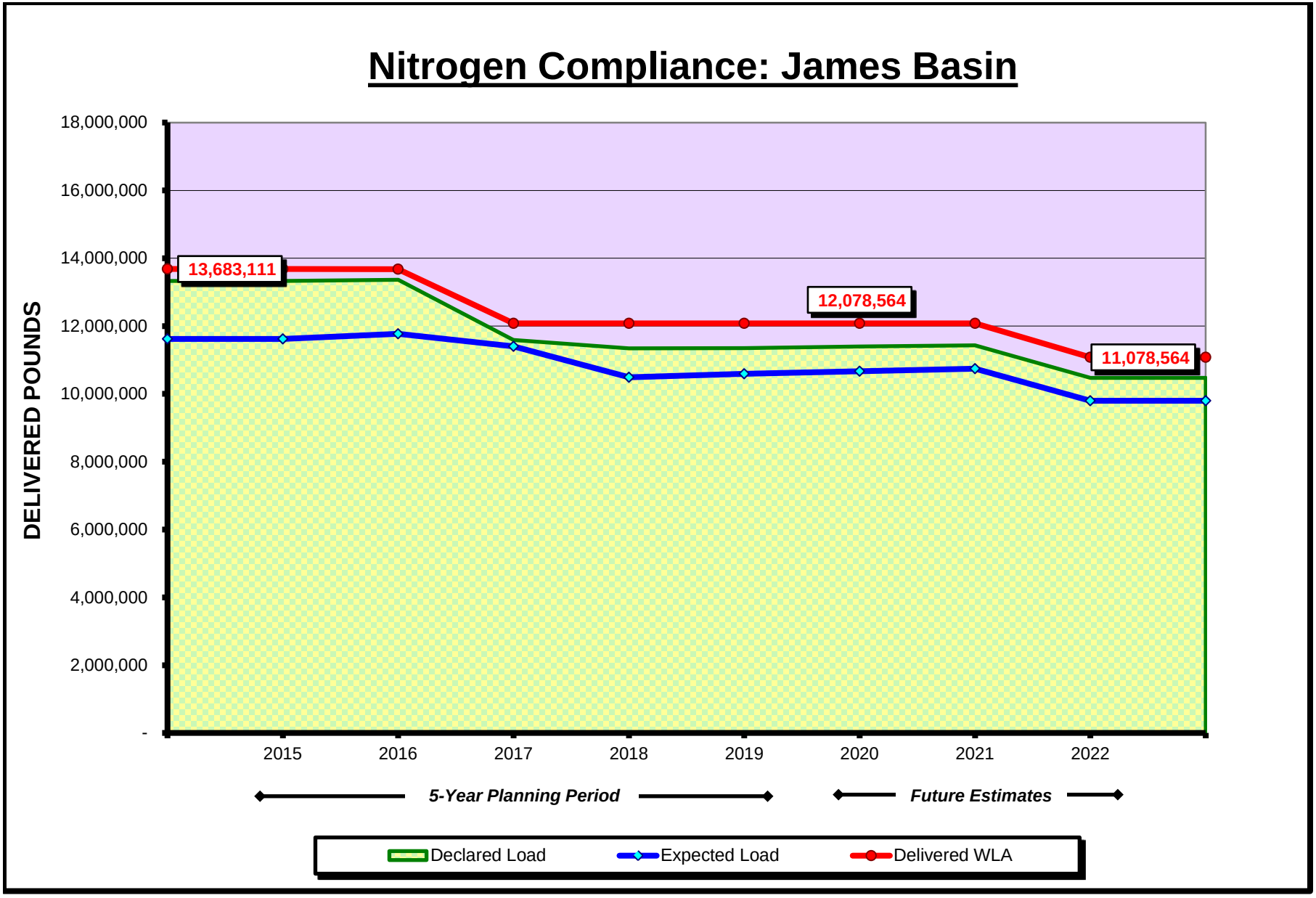


EXHIBIT 5-2
Nitrogen Plan Summary: Upper James River Basin

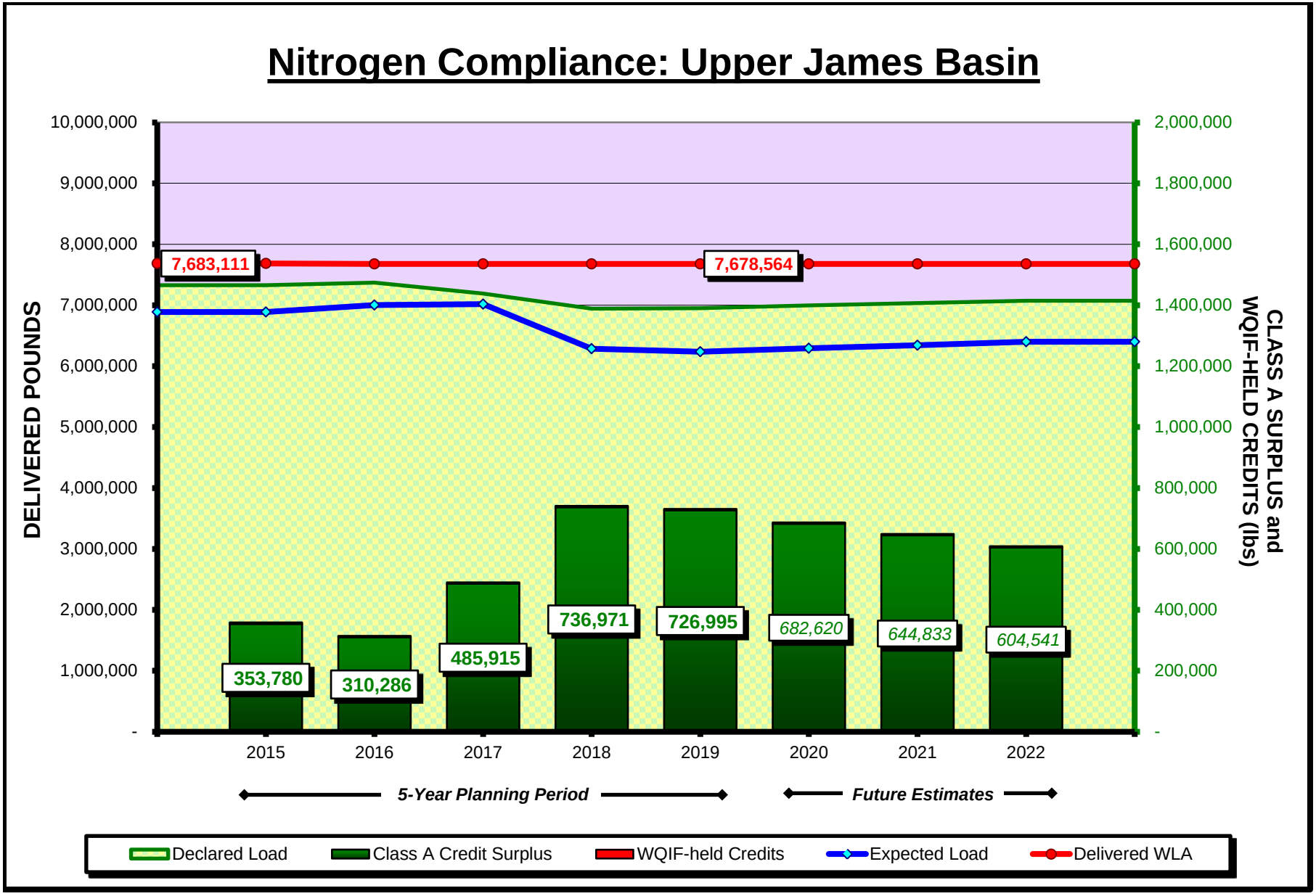


EXHIBIT 5-3
Nitrogen Plan Summary: Lower James River Basin

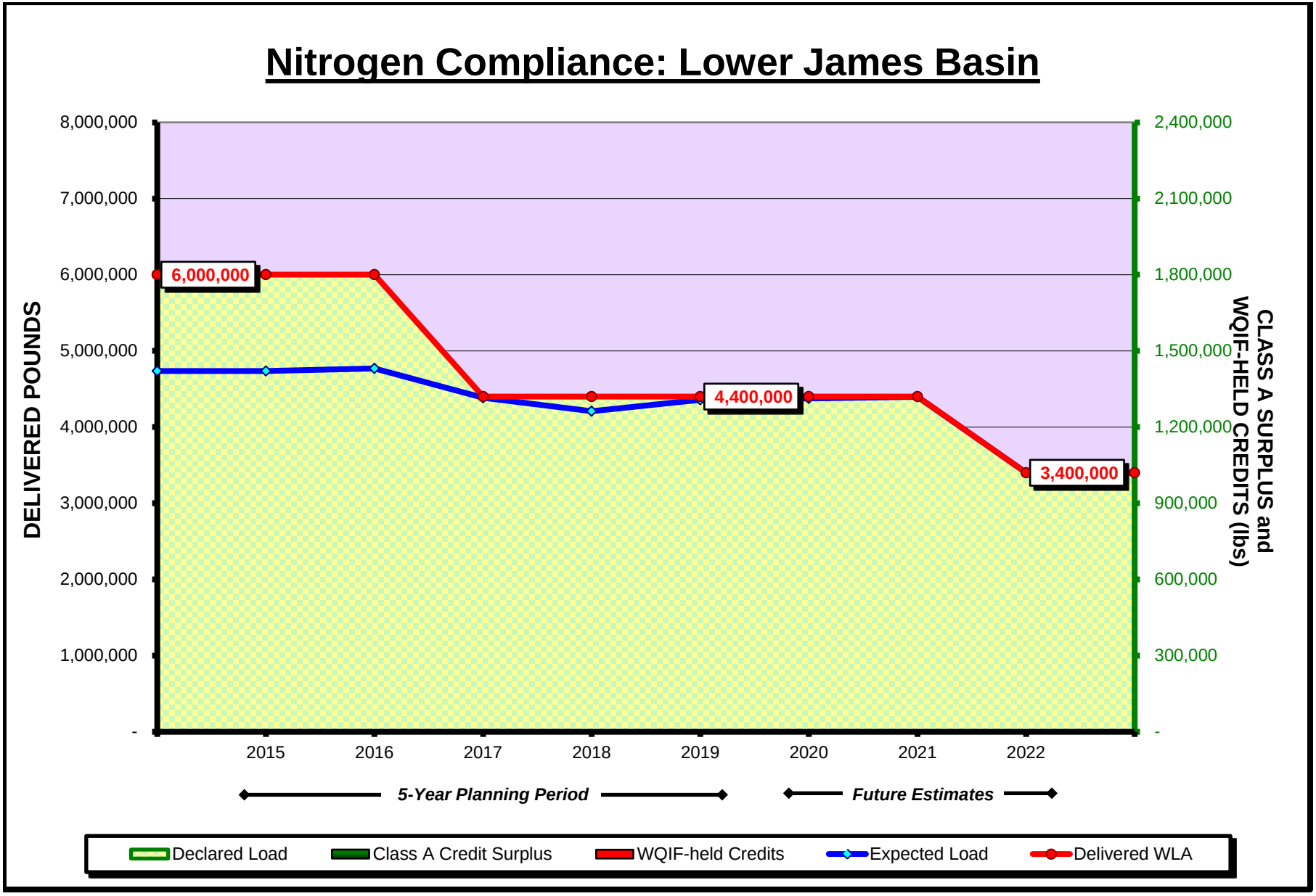


EXHIBIT 5-4
2015 Nitrogen Trading Ledger: James River Basin

JAMES Basin: Nitrogen Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.60	$ 3.05	$ 0.06
UPPER JAMES BASIN	**7,683,111**	**6,889,089**	**794,022**	**-**	**-**	**(4,934)**	**789,088**	**453,580**	**(99,800)**	**435,308**
Alleghany Co-L. Jackson	19,187	10,507	8,680	-	-	(4,934)	3,746	-	-	3,746
Alleghany Co-Low Moor	2,741	2,120	621	-	-	-	621	-	-	621
Amherst (Town)	6,688	4,463	2,225	-	-	-	2,225	1,113	-	1,112
Aqua Virginia-L. Monticello	11,091	38,456	(27,365)	-	-	-	(27,365)	-	(27,365)	-
Babcock & Wilcox, N.O.G.	114,070	99,986	14,084	-	-	-	14,084	-	-	14,084
Buena Vista	12,335	14,100	(1,765)	-	-	-	(1,765)	-	(2,821)	1,056
Chesterfield-Falling Cr.	153,801	151,303	2,498	-	-	-	2,498	-	-	2,498
Chesterfield-Proctors Cr.	411,151	244,223	166,928	-	(165,000)	-	1,928	-	-	1,928
Covington	16,446	21,380	(4,934)	-	-	-	(4,934)	-	(4,934)	-
Crewe	3,472	1,033	2,439	-	-	-	2,439	2,439	-	-
Dominion-Chesterfield	352,036	344,955	7,081	-	-	-	7,081	-	-	7,081
DuPont-Spruance	201,080	216,430	(15,350)	-	-	-	(15,350)	-	(64,680)	49,330
Georgia-Pacific	36,747	29,749	6,998	-	-	-	6,998	6,000	-	998
Greif Packaging	44,680	44,680	-	-	-	-	-	-	-	-
Henrico Co	1,142,085	825,703	316,382	-	(85,404)	-	230,978	207,880	-	23,098
Honeywell-Hopewell	1,090,798	837,529	253,269	-	(158,816)	-	94,453	-	-	94,453
Hopewell RWTF	1,827,336	1,986,152	(158,816)	-	158,816	-	-	-	-	-
Lynchburg	326,971	227,579	99,392	-	-	-	99,392	89,453	-	9,939
MeadWestvaco	118,320	97,991	20,329	-	-	-	20,329	20,329	-	-
MSA-Lexington	16,446	8,607	7,839	-	-	-	7,839	7,839	-	-
Philip Morris	139,724	67,733	71,991	-	-	-	71,991	57,592	-	14,399
Richmond	1,093,652	1,093,652	-	-	-	-	-	-	-	-
RWSA-Moores Creek	172,463	61,827	110,636	-	-	-	110,636	60,935	-	49,701
South Central WWA	350,239	440,658	(90,419)	-	250,404	-	159,985	-	-	159,985
Tyson Foods-Glen Allen	19,552	18,273	1,279	-	-	-	1,279	-	-	1,279
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**6,000,000**	**4,734,867**	**1,265,133**	**-**	**-**	**-**	**1,265,133**	**-**	**-**	**1,265,133**
HRSD-Army Base	610,000	172,268	437,732	-	-	-	437,732	-	-	437,732
HRSD-Boat Harbor	740,000	1,104,646	(364,646)	364,646	-	-	-	-	-	-
HRSD-Ches/Eliz	1,100,000	1,224,022	(124,022)	124,022	-	-	-	-	-	-
HRSD-James River	1,250,000	505,024	744,976	(584,072)	-	-	160,904	-	-	160,904
HRSD-Nansemond	750,000	452,462	297,538	-	-	-	297,538	-	-	297,538
HRSD-VIP	750,000	845,404	(95,404)	95,404	-	-	-	-	-	-
HRSD-Williamsburg	800,000	431,041	368,959	-	-	-	368,959	-	-	368,959

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-5
2016 Nitrogen Trading Ledger: James River Basin

JAMES Basin: Nitrogen Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.65	$ 3.50	$ 0.07
UPPER JAMES BASIN	**7,678,564**	**7,001,830**	**676,734**	**-**	**-**	**(4,276)**	**672,458**	**391,266**	**(80,980)**	**362,172**
Alleghany Co-L. Jackson	16,629	9,265	7,364	-	-	(4,276)	3,088	-	-	3,088
Alleghany Co-Low Moor	2,376	1,964	412	-	-	-	412	-	-	412
Amherst (Town)	3,728	2,246	1,482	-	-	-	1,482	741	-	741
Aqua Virginia-L. Monticello	12,182	42,239	(30,057)	-	-	-	(30,057)	-	(30,057)	-
Babcock & Wilcox, N.O.G.	121,550	106,543	15,007	-	-	-	15,007	-	-	15,007
Buena Vista	23,024	27,995	(4,971)	-	-	-	(4,971)	-	(4,971)	-
Chesterfield-Falling Cr.	153,801	151,326	2,475	-	-	-	2,475	-	-	2,475
Chesterfield-Proctors Cr.	411,151	242,526	168,625	-	(165,000)	-	3,625	-	-	3,625
Covington	11,512	14,966	(3,454)	-	-	-	(3,454)	-	(3,454)	-
Crewe	2,650	755	1,895	-	-	-	1,895	1,895	-	-
Dominion-Chesterfield	352,036	344,955	7,081	-	-	-	7,081	-	-	7,081
DuPont-Spruance	201,080	243,578	(42,498)	-	-	-	(42,498)	-	(42,498)	-
Georgia-Pacific	73,493	60,083	13,410	-	-	-	13,410	10,000	-	3,410
Greif Packaging	47,610	47,610	-	-	-	-	-	-	-	-
Henrico Co	1,142,085	850,476	291,609	-	(118,352)	-	173,257	155,931	-	17,326
Honeywell-Hopewell	1,090,798	875,599	215,199	-	(181,985)	-	33,214	-	-	33,214
Hopewell RWTF	1,827,336	2,009,321	(181,985)	-	181,985	-	-	-	-	-
Lynchburg	348,412	251,164	97,248	-	-	-	97,248	87,523	-	9,725
MeadWestvaco	43,384	35,930	7,454	-	-	-	7,454	7,454	-	-
MSA-Lexington	17,542	9,648	7,894	-	-	-	7,894	7,894	-	-
Philip Morris	139,724	67,733	71,991	-	-	-	71,991	57,592	-	14,399
Richmond	1,093,652	1,093,652	-	-	-	-	-	-	-	-
RWSA-Moores Creek	189,442	68,562	120,880	-	-	-	120,880	62,236	-	58,644
South Central WWA	350,239	440,566	(90,327)	-	283,352	-	193,025	-	-	193,025
Tyson Foods-Glen Allen	3,128	3,128	-	-	-	-	-	-	-	-
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**6,000,000**	**4,770,185**	**1,229,815**	**-**	**-**	**-**	**1,229,815**	**-**	**-**	**1,229,815**
HRSD-Army Base	610,000	172,344	437,656	-	-	-	437,656	-	-	437,656
HRSD-Boat Harbor	740,000	1,109,031	(369,031)	369,031	-	-	-	-	-	-
HRSD-Ches/Eliz	1,100,000	1,232,234	(132,234)	132,234	-	-	-	-	-	-
HRSD-James River	1,250,000	508,297	741,703	(598,620)	-	-	143,083	-	-	143,083
HRSD-Nansemond	750,000	461,582	288,418	-	-	-	288,418	-	-	288,418
HRSD-VIP	750,000	847,355	(97,355)	97,355	-	-	-	-	-	-
HRSD-Williamsburg	800,000	439,342	360,658	-	-	-	360,658	-	-	360,658

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-6
2017 Nitrogen Trading Ledger: James River Basin

JAMES Basin: Nitrogen Credit Ledger

Compliance Year:	2017	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.37	$ 3.75	$ 0.16
UPPER JAMES BASIN	**7,678,564**	**7,017,096**	**661,468**	**-**	**(35,810)**	**(4,276)**	**621,382**	**545,897**	**(59,982)**	**135,467**
Alleghany Co-L. Jackson	16,629	7,127	9,502	-	-	(4,276)	5,226	-	-	5,226
Alleghany Co-Low Moor	2,376	2,178	198	-	-	-	198	-	-	198
Amherst (Town)	3,728	2,042	1,686	-	-	-	1,686	843	-	843
Aqua Virginia-L. Monticello	12,182	8,448	3,734	-	-	-	3,734	-	-	3,734
Babcock & Wilcox, N.O.G.	121,550	106,543	15,007	-	-	-	15,007	15,007	-	-
Buena Vista	23,024	27,995	(4,971)	-	-	-	(4,971)	-	(4,971)	-
Chesterfield-Falling Cr.	153,801	151,243	2,558	-	-	-	2,558	-	-	2,558
Chesterfield-Proctors Cr.	411,151	240,721	170,430	-	(120,810)	-	49,620	-	-	49,620
Covington	11,512	14,966	(3,454)	-	-	-	(3,454)	-	(3,454)	-
Crewe	2,650	772	1,878	-	-	-	1,878	1,878	-	-
Dominion-Chesterfield	352,036	344,955	7,081	-	-	-	7,081	-	-	7,081
DuPont-Spruance	201,080	252,637	(51,557)	-	-	-	(51,557)	-	(51,557)	-
Georgia-Pacific	73,493	60,668	12,825	-	-	-	12,825	10,000	-	2,825
Greif Packaging	47,610	47,610	-	-	-	-	-	-	-	-
Henrico Co	1,142,085	875,994	266,091	-	-	-	266,091	239,482	-	26,609
Honeywell-Hopewell	1,090,798	875,599	215,199	-	(205,154)	-	10,045	-	-	10,045
Hopewell RWTF	1,827,336	2,032,490	(205,154)	-	205,154	-	-	-	-	-
Lynchburg	348,412	252,896	95,516	-	-	-	95,516	84,000	-	11,516
MeadWestvaco	43,384	35,930	7,454	-	-	-	7,454	7,454	-	-
MSA-Lexington	17,542	8,128	9,414	-	-	-	9,414	9,414	-	-
Philip Morris	139,724	67,733	71,991	-	-	-	71,991	57,592	-	14,399
Richmond	1,093,652	1,093,652	-	-	-	-	-	-	-	-
RWSA-Moores Creek	189,442	69,215	120,227	-	-	-	120,227	120,227	-	-
South Central WWA	350,239	434,426	(84,187)	-	85,000	-	813	-	-	813
Tyson Foods-Glen Allen	3,128	3,128	-	-	-	-	-	-	-	-
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**4,400,000**	**4,384,768**	**15,232**	**-**	**-**	**-**	**15,232**	**-**	**-**	**15,232**
HRSD-Army Base	441,226	150,658	290,568	(290,568)	-	-	-	-	-	-
HRSD-Boat Harbor	612,813	1,126,658	(513,845)	513,845	-	-	-	-	-	-
HRSD-Ches/Eliz	588,301	1,314,422	(726,121)	726,121	-	-	-	-	-	-
HRSD-James River	490,251	412,579	77,672	(77,672)	-	-	-	-	-	-
HRSD-Nansemond	735,376	414,074	321,302	(321,302)	-	-	-	-	-	-
HRSD-VIP	980,501	601,789	378,712	(378,712)	-	-	-	-	-	-
HRSD-Williamsburg	551,532	364,588	186,944	(171,712)	-	-	15,232	-	-	15,232

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-7
2018 Nitrogen Trading Ledger: James River Basin

JAMES Basin: Nitrogen Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.27	$ 3.78	$ 0.04
UPPER JAMES BASIN	**7,678,564**	**6,284,262**	**1,394,302**	**-**	**(71,620)**	**(4,276)**	**1,318,406**	**801,631**	**(64,660)**	**581,435**
Alleghany Co-L. Jackson	16,629	7,127	9,502	-	-	(4,276)	5,226	-	-	5,226
Alleghany Co-Low Moor	2,376	2,178	198	-	-	-	198	-	-	198
Amherst (Town)	3,728	2,042	1,686	-	-	-	1,686	843	-	843
Aqua Virginia-L. Monticello	12,182	8,448	3,734	-	-	-	3,734	-	-	3,734
Babcock & Wilcox, N.O.G.	121,550	106,543	15,007	-	-	-	15,007	15,007	-	-
Buena Vista	23,024	27,995	(4,971)	-	-	-	(4,971)	-	(4,971)	-
Chesterfield-Falling Cr.	153,801	151,052	2,749	-	-	-	2,749	-	-	2,749
Chesterfield-Proctors Cr.	411,151	238,810	172,341	-	(156,620)	-	15,721	-	-	15,721
Covington	11,512	14,966	(3,454)	-	-	-	(3,454)	-	(3,454)	-
Crewe	2,650	772	1,878	-	-	-	1,878	1,878	-	-
Dominion-Chesterfield	352,036	344,955	7,081	-	-	-	7,081	-	-	7,081
DuPont-Spruance	201,080	257,315	(56,235)	-	-	-	(56,235)	-	(56,235)	-
Georgia-Pacific	73,493	61,325	12,168	-	-	-	12,168	9,000	-	3,168
Greif Packaging	47,610	47,610	-	-	-	-	-	-	-	-
Henrico Co	1,142,085	902,259	239,826	-	-	-	239,826	215,843	-	23,983
Honeywell-Hopewell	1,090,798	875,599	215,199	-	(2,522)	-	212,677	-	-	212,677
Hopewell RWTF	1,827,336	1,279,988	547,348	-	2,522	-	549,870	274,935	-	274,935
Lynchburg	348,412	246,007	102,405	-	-	-	102,405	90,000	-	12,405
MeadWestvaco	43,384	35,930	7,454	-	-	-	7,454	7,454	-	-
MSA-Lexington	17,542	3,963	13,579	-	-	-	13,579	9,505	-	4,074
Philip Morris	139,724	67,733	71,991	-	-	-	71,991	57,592	-	14,399
Richmond	1,093,652	1,093,652	-	-	-	-	-	-	-	-
RWSA-Moores Creek	189,442	69,868	119,574	-	-	-	119,574	119,574	-	-
South Central WWA	350,239	434,997	(84,758)	-	85,000	-	242	-	-	242
Tyson Foods-Glen Allen	3,128	3,128	-	-	-	-	-	-	-	-
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**4,400,000**	**4,208,202**	**191,798**	**-**	**-**	**-**	**191,798**	**-**	**-**	**191,798**
HRSD-Army Base	441,226	148,759	292,467	(292,467)	-	-	-	-	-	-
HRSD-Boat Harbor	612,813	1,125,924	(513,111)	513,111	-	-	-	-	-	-
HRSD-Ches/Eliz	588,301	1,433,318	(845,017)	845,017	-	-	-	-	-	-
HRSD-James River	490,251	368,692	121,559	(121,559)	-	-	-	-	-	-
HRSD-Nansemond	735,376	417,605	317,771	(317,771)	-	-	-	-	-	-
HRSD-VIP	980,501	423,571	556,930	(556,930)	-	-	-	-	-	-
HRSD-Williamsburg	551,532	290,333	261,199	(69,401)	-	-	191,798	-	-	191,798

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-8
2019 Nitrogen Trading Ledger: James River Basin

JAMES Basin: Nitrogen Credit Ledger

Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 0.29	$ 3.82	$ 0.04
UPPER JAMES BASIN	**7,678,564**	**6,236,968**	**1,441,596**	**-**	**(71,620)**	**(4,276)**	**1,365,700**		**796,249**	**(69,254)**	**638,705**
Alleghany Co-L. Jackson	16,629	6,271	10,358	-	-	(4,276)	6,082		-	-	6,082
Alleghany Co-Low Moor	2,376	2,178	198	-	-	-	198		-	-	198
Amherst (Town)	3,728	2,042	1,686	-	-	-	1,686		843	-	843
Aqua Virginia-L. Monticello	12,182	8,448	3,734	-	-	-	3,734		-	-	3,734
Babcock & Wilcox, N.O.G.	121,550	104,524	17,026	-	-	-	17,026		15,000	-	2,026
Buena Vista	23,024	27,995	(4,971)	-	-	-	(4,971)		-	(4,971)	-
Chesterfield-Falling Cr.	153,801	150,755	3,046	-	-	-	3,046		-	-	3,046
Chesterfield-Proctors Cr.	411,151	236,792	174,359	-	(156,620)	-	17,739		-	-	17,739
Covington	11,512	15,751	(4,239)	-	-	-	(4,239)		-	(4,239)	-
Crewe	2,650	772	1,878	-	-	-	1,878		1,878	-	-
Dominion-Chesterfield	352,036	344,955	7,081	-	-	-	7,081		-	-	7,081
DuPont-Spruance	201,080	261,124	(60,044)	-	-	-	(60,044)		-	(60,044)	-
Georgia-Pacific	73,493	61,662	11,831	-	-	-	11,831		9,000	-	2,831
Greif Packaging	47,610	47,610	-	-	-	-	-		-	-	-
Henrico Co	1,142,085	929,270	212,815	-	-	-	212,815		191,533	-	21,282
Honeywell-Hopewell	1,090,798	852,757	238,041	-	-	-	238,041		-	-	238,041
Hopewell RWTF	1,827,336	1,224,315	603,021	-	-	-	603,021		301,511	-	301,510
Lynchburg	348,412	254,628	93,784	-	-	-	93,784		83,000	-	10,784
MeadWestvaco	43,384	35,930	7,454	-	-	-	7,454		7,454	-	-
MSA-Lexington	17,542	3,602	13,940	-	-	-	13,940		9,517	-	4,423
Philip Morris	139,724	63,500	76,224	-	-	-	76,224		57,592	-	18,632
Richmond	1,093,652	1,093,652	-	-	-	-	-		-	-	-
RWSA-Moores Creek	189,442	70,521	118,921	-	-	-	118,921		118,921	-	-
South Central WWA	350,239	434,786	(84,547)	-	85,000	-	453		-	-	453
Tyson Foods-Glen Allen	3,128	3,128	-	-	-	-	-		-	-	-
								PRICE:	No Sale	No Sale	No Sale
LOWER JAMES BASIN	**4,400,000**	**4,356,488**	**43,512**	**-**	**-**	**-**	**43,512**		**-**	**-**	**43,512**
HRSD-Army Base	441,226	156,998	284,228	(284,228)	-	-	-		-	-	-
HRSD-Boat Harbor	612,813	1,189,051	(576,238)	576,238	-	-	-		-	-	-
HRSD-Ches/Eliz	588,301	1,483,495	(895,194)	895,194	-	-	-		-	-	-
HRSD-James River	490,251	380,358	109,893	(109,893)	-	-	-		-	-	-
HRSD-Nansemond	735,376	422,875	312,501	(312,501)	-	-	-		-	-	-
HRSD-VIP	980,501	432,863	547,638	(547,638)	-	-	-		-	-	-
HRSD-Williamsburg	551,532	290,848	260,684	(217,172)	-	-	43,512		-	-	43,512

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-9
Phosphorus Summary Plan: James River Basin

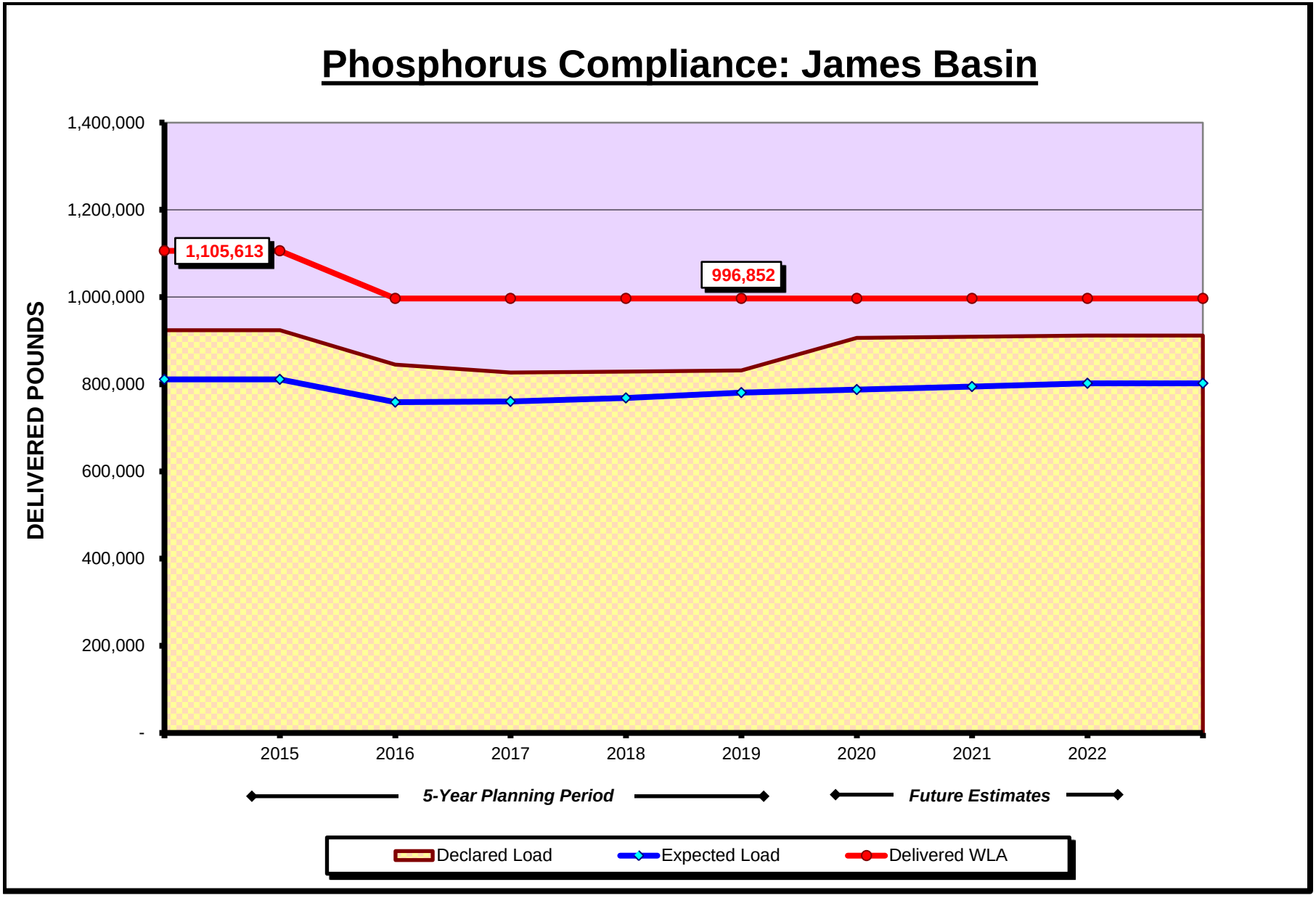


EXHIBIT 5-10
Phosphorus Summary Plan: Upper James River Basin

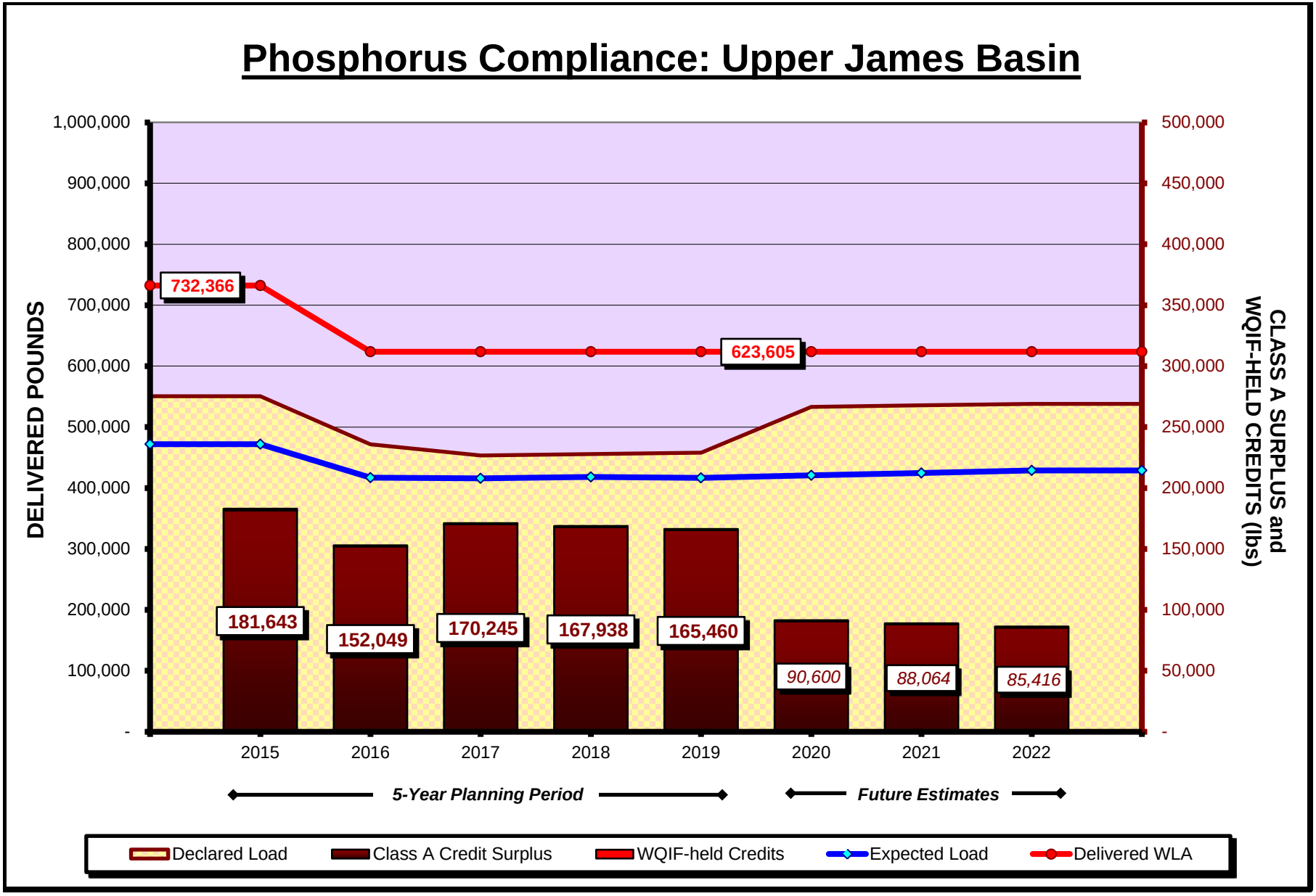


EXHIBIT 5-11
Phosphorus Summary Plan: Lower James River Basin

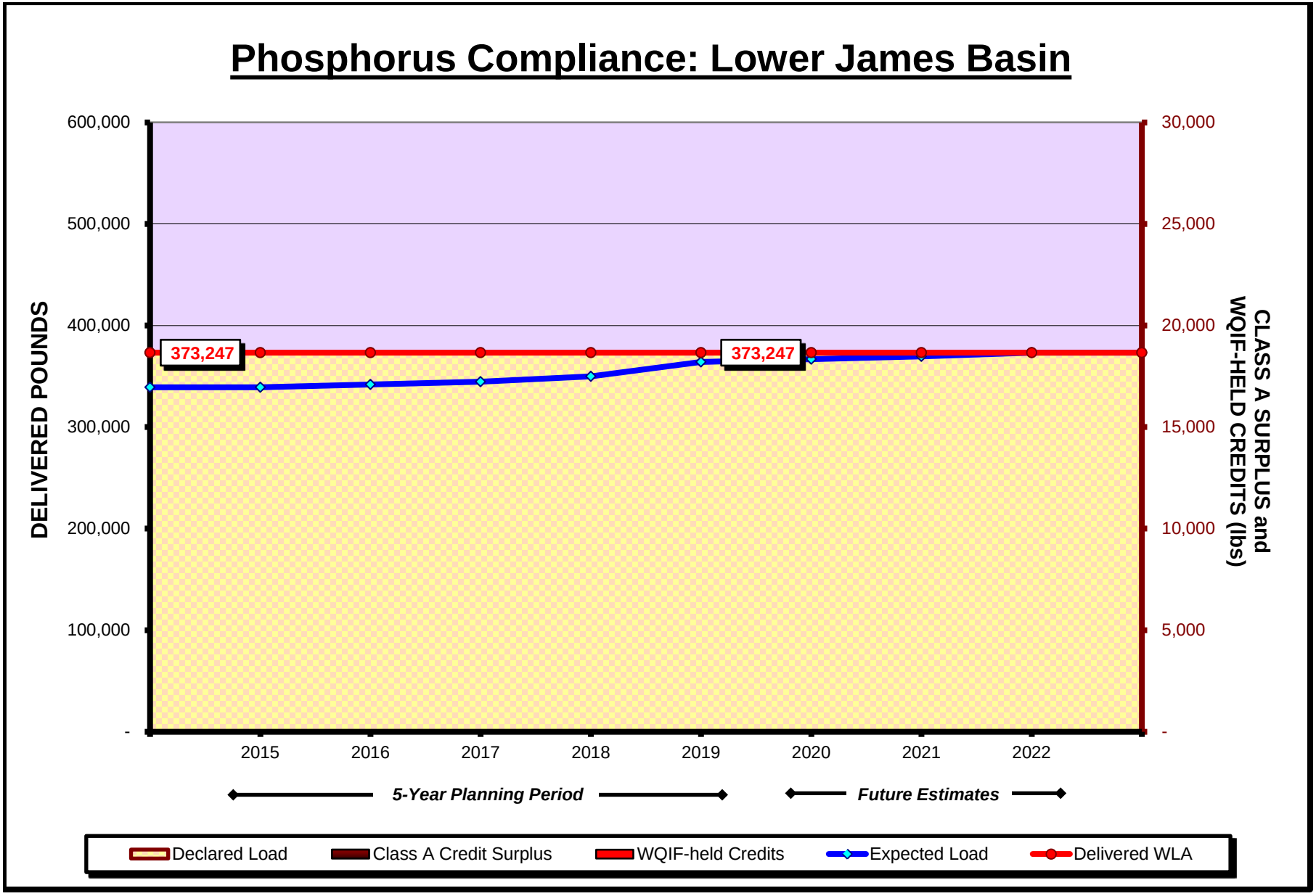


EXHIBIT 5-12
2015 Phosphorus Trading Ledger: James River Basin

JAMES Basin: Phosphorus Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.49	$ 4.93	$ 0.14
UPPER JAMES BASIN	**732,366**	**471,961**	**260,405**	**-**	**-**	**(1,371)**	**259,034**	**204,541**	**(22,898)**	**77,391**
Alleghany Co-L. Jackson	5,330	2,101	3,229	(122)	-	(1,371)	1,736	-	-	1,736
Alleghany Co-Low Moor	761	883	(122)	122	-	-	-	-	-	-
Amherst (Town)	914	2,801	(1,887)	-	-	-	(1,887)	-	(1,887)	-
Aqua Virginia-L. Monticello	1,515	9,036	(7,521)	-	-	-	(7,521)	-	(7,521)	-
Babcock & Wilcox, N.O.G.	1,523	601	922	-	-	-	922	-	-	922
Buena Vista	3,426	8,897	(5,471)	-	-	-	(5,471)	-	(7,526)	2,055
Chesterfield-Falling Cr.	15,380	16,811	(1,431)	1,431	-	-	-	-	-	-
Chesterfield-Proctors Cr.	41,115	27,136	13,979	(1,431)	(2,000)	-	10,548	-	-	10,548
Covington	4,568	4,550	18	-	-	-	18	-	-	18
Crewe	327	22	305	-	-	-	305	305	-	-
Dominion-Chesterfield	210	210	-	-	-	-	-	-	-	-
DuPont-Spruance	7,816	11,973	(4,157)	-	-	-	(4,157)	-	(5,964)	1,807
Georgia-Pacific	49,658	12,395	37,263	-	-	-	37,263	30,000	-	7,263
Greif Packaging	29,694	23,755	5,939	-	-	-	5,939	2,970	-	2,969
Henrico Co	114,209	58,979	55,230	-	(14,293)	-	40,937	36,843	-	4,094
Honeywell-Hopewell	51,592	38,070	13,522	-	-	-	13,522	-	-	13,522
Hopewell RWTF	76,139	55,391	20,748	-	-	-	20,748	7,126	-	13,622
Lynchburg	33,501	31,978	1,523	-	-	-	1,523	1,371	-	152
MeadWestvaco	159,892	49,490	110,402	-	-	-	110,402	110,402	-	-
MSA-Lexington	4,568	1,434	3,134	-	-	-	3,134	3,134	-	-
Philip Morris	2,650	2,436	214	-	-	-	214	-	-	214
Richmond	68,250	68,250	-	-	-	-	-	-	-	-
RWSA-Moores Creek	23,895	9,502	14,393	-	-	-	14,393	12,390	-	2,003
South Central WWA	35,024	34,955	69	-	16,293	-	16,362	-	-	16,362
Tyson Foods-Glen Allen	409	305	104	-	-	-	104	-	-	104
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**373,247**	**339,251**	**33,996**	**-**	**-**	**-**	**33,996**	**-**	**-**	**33,996**
HRSD-Army Base	38,332	24,118	14,214	(14,214)	-	-	-	-	-	-
HRSD-Boat Harbor	53,240	67,631	(14,391)	14,391	-	-	-	-	-	-
HRSD-Ches/Eliz	51,110	69,284	(18,174)	18,174	-	-	-	-	-	-
HRSD-James River	42,591	42,085	506	(506)	-	-	-	-	-	-
HRSD-Nansemond	63,887	39,590	24,297	(719)	-	-	23,578	-	-	23,578
HRSD-VIP	76,172	65,754	10,418	-	-	-	10,418	-	-	10,418
HRSD-Williamsburg	47,915	30,789	17,126	(17,126)	-	-	-	-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-13
2016 Phosphorus Trading Ledger: James River Basin

JAMES Basin: Phosphorus Credit Ledger

Compliance Year:	2016	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.38	$ 5.27	$ 0.13
UPPER JAMES BASIN	**623,605**	**417,124**	**206,481**	**-**	**-**	**(904)**	**205,577**	**165,400**	**(13,351)**	**53,528**
Alleghany Co-L. Jackson	3,518	1,411	2,107	(121)	-	(904)	1,082	-	-	1,082
Alleghany Co-Low Moor	502	623	(121)	121	-	-	-	-	-	-
Amherst (Town)	603	1,044	(441)	-	-	-	(441)	-	(441)	-
Aqua Virginia-L. Monticello	1,000	5,964	(4,964)	-	-	-	(4,964)	-	(4,964)	-
Babcock & Wilcox, N.O.G.	1,005	397	608	-	-	-	608	-	-	608
Buena Vista	2,261	5,740	(3,479)	-	-	-	(3,479)	-	(3,611)	132
Chesterfield-Falling Cr.	15,380	17,131	(1,751)	1,751	-	-	-	-	-	-
Chesterfield-Proctors Cr.	41,115	27,456	13,659	(1,751)	(2,000)	-	9,908	-	-	9,908
Covington	3,015	3,003	12	-	-	-	12	-	-	12
Crewe	350	25	325	-	-	-	325	325	-	-
Dominion-Chesterfield	210	210	-	-	-	-	-	-	-	-
DuPont-Spruance	7,816	12,151	(4,335)	-	-	-	(4,335)	-	(4,335)	-
Georgia-Pacific	32,774	8,261	24,513	-	-	-	24,513	22,000	-	2,513
Greif Packaging	19,598	13,065	6,533	-	-	-	6,533	6,533	-	-
Henrico Co	114,209	60,748	53,461	-	(15,576)	-	37,885	34,097	-	3,788
Honeywell-Hopewell	51,592	38,070	13,522	-	-	-	13,522	-	-	13,522
Hopewell RWTF	76,139	55,814	20,325	-	-	-	20,325	18,293	-	2,032
Lynchburg	22,111	20,402	1,709	-	-	-	1,709	1,367	-	342
MeadWestvaco	105,529	32,664	72,865	-	-	-	72,865	72,865	-	-
MSA-Lexington	3,015	995	2,020	-	-	-	2,020	2,020	-	-
Philip Morris	2,650	2,436	214	-	-	-	214	-	-	214
Richmond	68,250	68,250	-	-	-	-	-	-	-	-
RWSA-Moores Creek	15,751	6,332	9,419	-	-	-	9,419	7,900	-	1,519
South Central WWA	35,024	34,782	242	-	17,576	-	17,818	-	-	17,818
Tyson Foods-Glen Allen	188	150	38	-	-	-	38	-	-	38
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**373,247**	**341,810**	**31,437**	**-**	**-**	**-**	**31,437**	**-**	**-**	**31,437**
HRSD-Army Base	38,332	24,128	14,204	(14,204)	-	-	-	-	-	-
HRSD-Boat Harbor	53,240	67,900	(14,660)	14,660	-	-	-	-	-	-
HRSD-Ches/Eliz	51,110	69,749	(18,639)	18,639	-	-	-	-	-	-
HRSD-James River	42,591	42,358	233	(233)	-	-	-	-	-	-
HRSD-Nansemond	63,887	40,388	23,499	(2,329)	-	-	21,170	-	-	21,170
HRSD-VIP	76,172	65,905	10,267	-	-	-	10,267	-	-	10,267
HRSD-Williamsburg	47,915	31,382	16,533	(16,533)	-	-	-	-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-14
2017 Phosphorus Trading Ledger: James River Basin

JAMES Basin: Phosphorus Credit Ledger

Compliance Year:	2017	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.23	$ 5.65	$ 0.12
UPPER JAMES BASIN	**623,605**	**415,871**	**207,734**	**-**	**-**	**(904)**	**206,830**	**178,587**	**(8,342)**	**36,585**
Alleghany Co-L. Jackson	3,518	905	2,613	(754)	-	(904)	955	-	-	955
Alleghany Co-Low Moor	502	1,256	(754)	754	-	-	-	-	-	-
Amherst (Town)	603	949	(346)	-	-	-	(346)	-	(346)	-
Aqua Virginia-L. Monticello	1,000	693	307	-	-	-	307	-	-	307
Babcock & Wilcox, N.O.G.	1,005	397	608	-	-	-	608	300	-	308
Buena Vista	2,261	5,740	(3,479)	-	-	-	(3,479)	-	(3,479)	-
Chesterfield-Falling Cr.	15,380	17,451	(2,071)	2,071	-	-	-	-	-	-
Chesterfield-Proctors Cr.	41,115	27,776	13,339	(2,071)	-	-	11,268	-	-	11,268
Covington	3,015	3,003	12	-	-	-	12	-	-	12
Crewe	350	26	324	-	-	-	324	324	-	-
Dominion-Chesterfield	210	210	-	-	-	-	-	-	-	-
DuPont-Spruance	7,816	12,333	(4,517)	-	-	-	(4,517)	-	(4,517)	-
Georgia-Pacific	32,774	8,342	24,432	-	-	-	24,432	22,000	-	2,432
Greif Packaging	19,598	13,065	6,533	-	-	-	6,533	6,533	-	-
Henrico Co	114,209	62,571	51,638	-	-	-	51,638	46,474	-	5,164
Honeywell-Hopewell	51,592	38,070	13,522	-	-	-	13,522	-	-	13,522
Hopewell RWTF	76,139	56,235	19,904	-	-	-	19,904	17,914	-	1,990
Lynchburg	22,111	20,543	1,568	-	-	-	1,568	1,200	-	368
MeadWestvaco	105,529	32,664	72,865	-	-	-	72,865	72,865	-	-
MSA-Lexington	3,015	1,397	1,618	-	-	-	1,618	1,618	-	-
Philip Morris	2,650	2,436	214	-	-	-	214	-	-	214
Richmond	68,250	68,250	-	-	-	-	-	-	-	-
RWSA-Moores Creek	15,751	6,392	9,359	-	-	-	9,359	9,359	-	-
South Central WWA	35,024	34,980	44	-	-	-	44	-	-	44
Tyson Foods-Glen Allen	188	187	1	-	-	-	1	-	-	1
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**373,247**	**344,758**	**28,489**	**-**	**-**	**-**	**28,489**	**-**	**-**	**28,489**
HRSD-Army Base	38,332	33,480	4,852	(4,852)	-	-	-	-	-	-
HRSD-Boat Harbor	53,240	43,333	9,907	(9,907)	-	-	-	-	-	-
HRSD-Ches/Eliz	51,110	48,682	2,428	(2,428)	-	-	-	-	-	-
HRSD-James River	42,591	41,258	1,333	(1,333)	-	-	-	-	-	-
HRSD-Nansemond	63,887	82,815	(18,928)	18,928	-	-	-	-	-	-
HRSD-VIP	76,172	64,808	11,364	-	-	-	11,364	-	-	11,364
HRSD-Williamsburg	47,915	30,382	17,533	(408)	-	-	17,125	-	-	17,125

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-15
2018 Phosphorus Trading Ledger: James River Basin

JAMES Basin: Phosphorus Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.24	$ 5.70	$ 0.13
UPPER JAMES BASIN	**623,605**	**418,306**	**205,299**	**-**	**-**	**(904)**	**204,395**	**176,370**	**(8,432)**	**36,457**
Alleghany Co-L. Jackson	3,518	905	2,613	(754)	-	(904)	955	-	-	955
Alleghany Co-Low Moor	502	1,256	(754)	754	-	-	-	-	-	-
Amherst (Town)	603	949	(346)	-	-	-	(346)	-	(346)	-
Aqua Virginia-L. Monticello	1,000	693	307	-	-	-	307	-	-	307
Babcock & Wilcox, N.O.G.	1,005	397	608	-	-	-	608	300	-	308
Buena Vista	2,261	5,740	(3,479)	-	-	-	(3,479)	-	(3,479)	-
Chesterfield-Falling Cr.	15,380	17,771	(2,391)	2,391	-	-	-	-	-	-
Chesterfield-Proctors Cr.	41,115	28,095	13,020	(2,391)	-	-	10,629	-	-	10,629
Covington	3,015	3,003	12	-	-	-	12	-	-	12
Crewe	350	48	302	-	-	-	302	302	-	-
Dominion-Chesterfield	210	210	-	-	-	-	-	-	-	-
DuPont-Spruance	7,816	12,423	(4,607)	-	-	-	(4,607)	-	(4,607)	-
Georgia-Pacific	32,774	8,432	24,342	-	-	-	24,342	22,000	-	2,342
Greif Packaging	19,598	13,065	6,533	-	-	-	6,533	6,533	-	-
Henrico Co	114,209	64,447	49,762	-	-	-	49,762	44,786	-	4,976
Honeywell-Hopewell	51,592	38,070	13,522	-	-	-	13,522	-	-	13,522
Hopewell RWTF	76,139	56,708	19,431	-	-	-	19,431	17,488	-	1,943
Lynchburg	22,111	20,571	1,540	-	-	-	1,540	1,200	-	340
MeadWestvaco	105,529	32,664	72,865	-	-	-	72,865	72,865	-	-
MSA-Lexington	3,015	734	2,281	-	-	-	2,281	1,597	-	684
Philip Morris	2,650	2,436	214	-	-	-	214	-	-	214
Richmond	68,250	68,250	-	-	-	-	-	-	-	-
RWSA-Moores Creek	15,751	6,452	9,299	-	-	-	9,299	9,299	-	-
South Central WWA	35,024	34,800	224	-	-	-	224	-	-	224
Tyson Foods-Glen Allen	188	187	1	-	-	-	1	-	-	1
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**373,247**	**349,859**	**23,388**	**-**	**-**	**-**	**23,388**	**-**	**-**	**23,388**
HRSD-Army Base	38,332	33,058	5,274	(5,274)	-	-	-	-	-	-
HRSD-Boat Harbor	53,240	43,305	9,935	(9,935)	-	-	-	-	-	-
HRSD-Ches/Eliz	51,110	54,087	(2,977)	2,977	-	-	-	-	-	-
HRSD-James River	42,591	40,966	1,625	(1,625)	-	-	-	-	-	-
HRSD-Nansemond	63,887	83,521	(19,634)	19,634	-	-	-	-	-	-
HRSD-VIP	76,172	65,889	10,283	-	-	-	10,283	-	-	10,283
HRSD-Williamsburg	47,915	29,033	18,882	(5,777)	-	-	13,105	-	-	13,105

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 5-16
2019 Phosphorus Trading Ledger: James River Basin

JAMES Basin: Phosphorus Credit Ledger

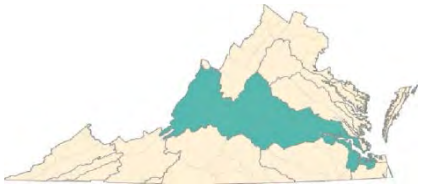
Compliance Year:	2019	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits	Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE: $ 0.25	$ 5.76	$ 0.12
UPPER JAMES BASIN	**623,605**	**416,577**	**207,028**	**-**	**-**	**(904)**	**206,124**	**174,080**	**(8,620)**	**40,664**
Alleghany Co-L. Jackson	3,518	796	2,722	(754)	-	(904)	1,064	-	-	1,064
Alleghany Co-Low Moor	502	1,256	(754)	754	-	-	-	-	-	-
Amherst (Town)	603	949	(346)	-	-	-	(346)	-	(346)	-
Aqua Virginia-L. Monticello	1,000	693	307	-	-	-	307	-	-	307
Babcock & Wilcox, N.O.G.	1,005	425	580	-	-	-	580	300	-	280
Buena Vista	2,261	5,740	(3,479)	-	-	-	(3,479)	-	(3,479)	-
Chesterfield-Falling Cr.	15,380	18,091	(2,711)	2,711	-	-	-	-	-	-
Chesterfield-Proctors Cr.	41,115	28,415	12,700	(2,711)	-	-	9,989	-	-	9,989
Covington	3,015	2,456	559	-	-	-	559	500	-	59
Crewe	350	26	324	-	-	-	324	324	-	-
Dominion-Chesterfield	210	210	-	-	-	-	-	-	-	-
DuPont-Spruance	7,816	12,611	(4,795)	-	-	-	(4,795)	-	(4,795)	-
Georgia-Pacific	32,774	8,925	23,849	-	-	-	23,849	22,000	-	1,849
Greif Packaging	19,598	12,935	6,663	-	-	-	6,663	6,000	-	663
Henrico Co	114,209	66,376	47,833	-	-	-	47,833	43,050	-	4,783
Honeywell-Hopewell	51,592	34,110	17,482	-	-	-	17,482	-	-	17,482
Hopewell RWTF	76,139	57,135	19,004	-	-	-	19,004	17,104	-	1,900
Lynchburg	22,111	20,684	1,427	-	-	-	1,427	1,100	-	327
MeadWestvaco	105,529	32,664	72,865	-	-	-	72,865	72,865	-	-
MSA-Lexington	3,015	382	2,633	-	-	-	2,633	1,599	-	1,034
Philip Morris	2,650	2,513	137	-	-	-	137	-	-	137
Richmond	68,250	68,250	-	-	-	-	-	-	-	-
RWSA-Moores Creek	15,751	6,513	9,238	-	-	-	9,238	9,238	-	-
South Central WWA	35,024	34,235	789	-	-	-	789	-	-	789
Tyson Foods-Glen Allen	188	187	1	-	-	-	1	-	-	1
								PRICE: No Sale	No Sale	No Sale
LOWER JAMES BASIN	**373,247**	**364,158**	**9,089**	**-**	**-**	**-**	**9,089**	**-**	**-**	**9,089**
HRSD-Army Base	38,332	27,911	10,421	(10,421)	-	-	-	-	-	-
HRSD-Boat Harbor	53,240	45,733	7,507	(7,507)	-	-	-	-	-	-
HRSD-Ches/Eliz	51,110	55,981	(4,871)	4,871	-	-	-	-	-	-
HRSD-James River	42,591	42,262	329	(329)	-	-	-	-	-	-
HRSD-Nansemond	63,887	95,852	(31,965)	31,965	-	-	-	-	-	-
HRSD-VIP	76,172	67,334	8,838	(8,838)	-	-	-	-	-	-
HRSD-Williamsburg	47,915	29,085	18,830	(9,741)	-	-	9,089	-	-	9,089

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

James River Basin

Supplemental Information for Individual Facilities



Owner Bubble: Alleghany County

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

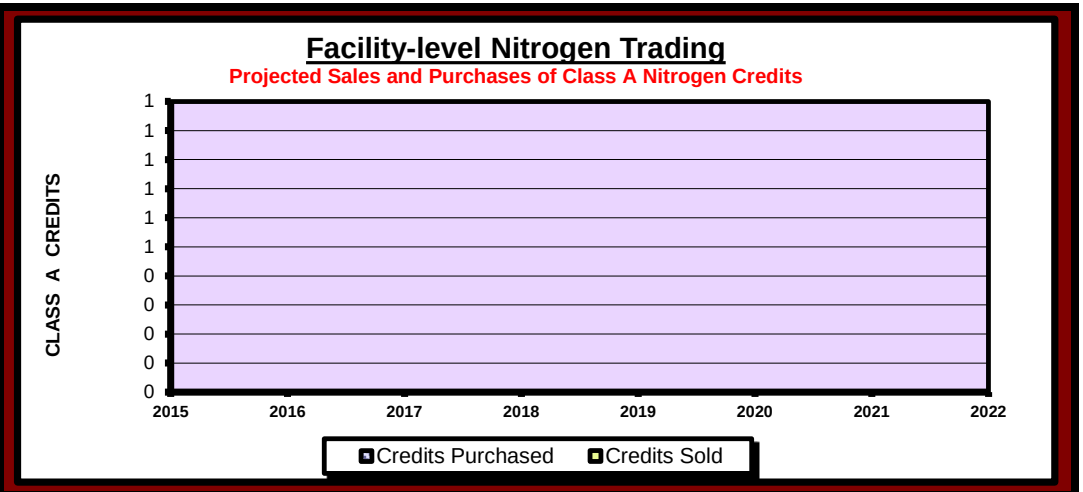
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Lower Jackson	-	-	-	-	-	(63)	(237)	(411)
Low Moor	-	-	-	-	-	63	237	411
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Lower Jackson	3,746	3,088	5,226	5,226	6,082	6,019	5,845	5,671
Low Moor	621	412	198	198	198	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**4,367**	**3,500**	**5,424**	**5,424**	**6,280**	**6,019**	**5,845**	**5,671**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*4,367*	*3,500*	*5,424*	*5,424*	*6,280*	*6,019*	*5,845*	*5,671*
WQIF-Held Credits	*4,934*	*4,276*	*4,276*	*4,276*	*4,276*	*4,276*	*4,276*	*4,276*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Lower Jackson	(122)	(121)	(754)	(754)	(754)	(905)	(1,006)	(1,106)
Low Moor	122	121	754	754	754	905	1,006	1,106
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Lower Jackson	1,736	1,082	955	955	1,064	913	812	712
Low Moor	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Net Credits	**1,736**	**1,082**	**955**	**955**	**1,064**	**913**	**812**	**712**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*1,736*	*1,082*	*955*	*955*	*1,064*	*913*	*812*	*712*
WQIF-Held Credits	*1,371*	*904*	*904*	*904*	*904*	*904*	*904*	*904*

NITROGEN FACILITY SUMMARY

Alleghany Co-L. Jackson

UPPER JAMES Trading Basin

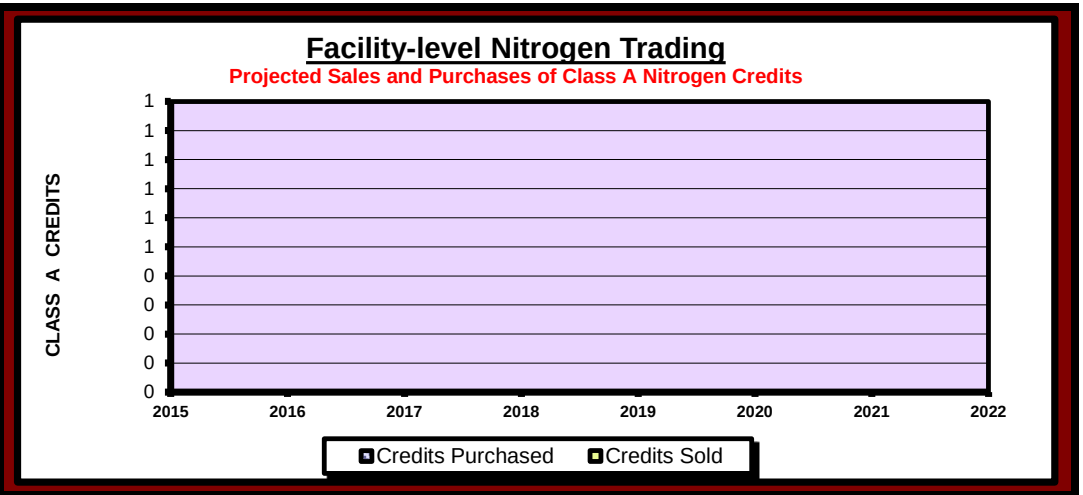


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
Projected Flow (mgd)	2.30	2.34	1.50	1.50	1.32	1.32	1.32	1.32
Projected Avg. Annual Concentration (mg/L)	5.00	5.00	6.00	6.00	6.00	6.00	6.00	6.00
Discharged Load (end of pipe)	35,024	35,633	27,410	27,410	24,121	24,121	24,121	24,121
Delivery Factor	0.30	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Expected Load	10,507	9,265	7,127	7,127	6,271	6,271	6,271	6,271
Delivered WLA	19,187	16,629	16,629	16,629	16,629	16,629	16,629	16,629
Expected Credits (delivered)	8,680	7,364	9,502	9,502	10,358	10,358	10,358	10,358
Transfers In (Out) within Owner Bubble	0	0	0	0	0	(63)	(237)	(411)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(4,934)	(4,276)	(4,276)	(4,276)	(4,276)	(4,276)	(4,276)	(4,276)
Expected Net Credits	**3,746**	**3,088**	**5,226**	**5,226**	**6,082**	**6,019**	**5,845**	**5,671**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**3,746**	**3,088**	**5,226**	**5,226**	**6,082**	**6,019**	**5,845**	**5,671**

NITROGEN FACILITY SUMMARY

Alleghany Co-Low Moor

UPPER JAMES Trading Basin

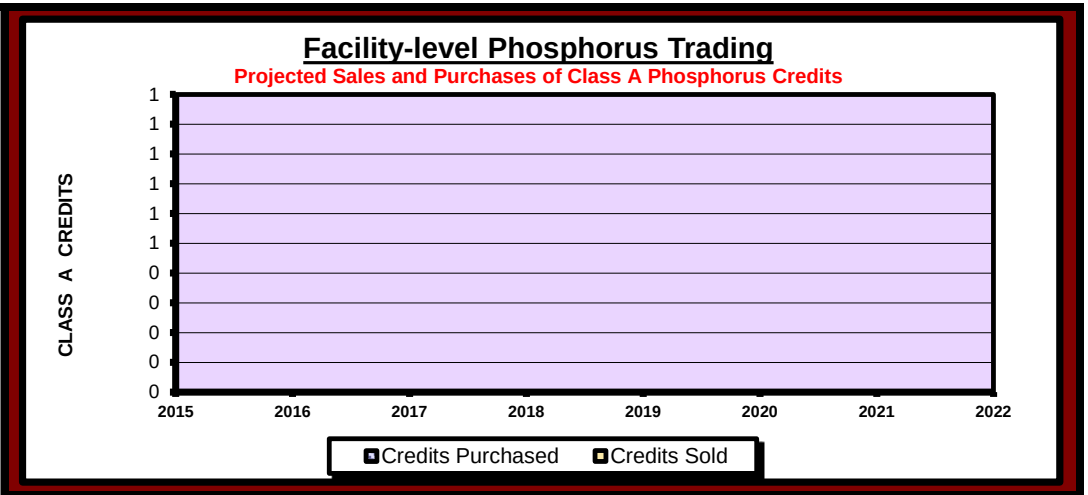


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.29	0.31	0.25	0.25	0.25	0.28	0.30	0.32
Projected Avg. Annual Concentration (mg/L)	8.00	8.00	11.00	11.00	11.00	11.00	11.00	11.00
Discharged Load (end of pipe)	7,066	7,553	8,375	8,375	8,375	9,380	10,050	10,720
Delivery Factor	0.30	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Expected Load	2,120	1,964	2,178	2,178	2,178	2,439	2,613	2,787
Delivered WLA	2,741	2,376	2,376	2,376	2,376	2,376	2,376	2,376
Expected Credits (delivered)	621	412	198	198	198	(63)	(237)	(411)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	63	237	411
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**621**	**412**	**198**	**198**	**198**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**621**	**412**	**198**	**198**	**198**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Alleghany Co-L. Jackson

UPPER JAMES Trading Basin

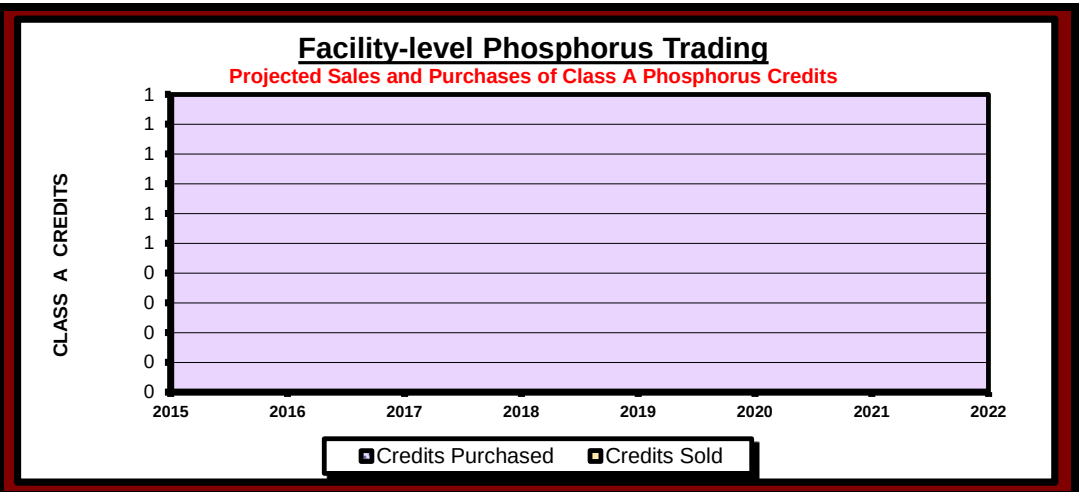


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
Projected Flow (mgd)	2.30	2.34	1.50	1.50	1.32	1.32	1.32	1.32
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	2,101	2,138	1,371	1,371	1,206	1,206	1,206	1,206
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	2,101	1,411	905	905	796	796	796	796
Delivered WLA	5,330	3,518	3,518	3,518	3,518	3,518	3,518	3,518
Expected Credits (delivered)	3,229	2,107	2,613	2,613	2,722	2,722	2,722	2,722
Transfers In (Out) within Owner Bubble	(122)	(121)	(754)	(754)	(754)	(905)	(1,006)	(1,106)
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	(1,371)	(904)	(904)	(904)	(904)	(904)	(904)	(904)
Expected Net Credits	**1,736**	**1,082**	**955**	**955**	**1,064**	**913**	**812**	**712**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**1,736**	**1,082**	**955**	**955**	**1,064**	**913**	**812**	**712**

PHOSPHORUS FACILITY SUMMARY

Alleghany Co-Low Moor

UPPER JAMES Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.29	0.31	0.25	0.25	0.25	0.28	0.30	0.32
Projected Avg. Annual Concentration (mg/L)	1.00	1.00	2.50	2.50	2.50	2.50	2.50	2.50
Discharged Load (end of pipe)	883	944	1,903	1,903	1,903	2,132	2,284	2,436
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	883	623	1,256	1,256	1,256	1,407	1,508	1,608
Delivered WLA	761	502	502	502	502	502	502	502
Expected Credits (delivered)	(122)	(121)	(754)	(754)	(754)	(905)	(1,006)	(1,106)
Transfers In (Out) within Owner Bubble	122	121	754	754	754	905	1,006	1,106
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Alleghany County - Additional Information

Under an Agreement dated September 18, 2007, the Town of Clifton Forge's Plant was converted to a regional pump station and wastewater from that facility is pumped to the new regional Lower Jackson Plant owned and operated by Alleghany County. Flows from the Town of Clifton Forge's Plant ceased on October 8, 2011, the same day that the new regional Lower Jackson Plant began to discharge.

The County applied to DEQ for aggregated mass load limits in accordance with Part I B 3 (Facility Consolidation) of the Watershed General Permit. On February 13, 2012, DEQ notified the County that the request to consolidate load limits was accepted, effective January 1, 2012. This Annual Update and the preceding nitrogen and phosphorus facility summaries for the regional Lower Jackson Plant reflect the following combined wasteload allocations, consistent with the updated registration list for the James Basin:

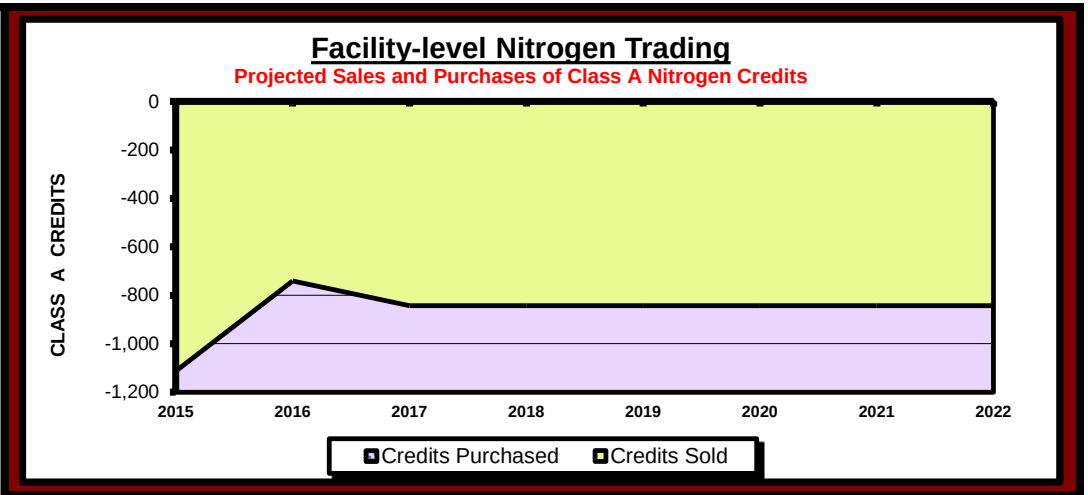
- TN: 8,223 (Lower Jackson Plant) + 10,964 (Clifton Forge) = 19,187 delivered pounds
- TP: 2,284 (Lower Jackson Plant) + 3,046 (Clifton Forge) = 5,330 delivered pounds

These consolidated wasteload allocations are based on a combined design flow of 3.5 mgd. The regional Lower Jackson Plant has been constructed and received a CTO for a design flow of 2.6 mgd. Accordingly, 4,934 Nitrogen Credits and 1,371 Phosphorus Credits are WQIF-Held in accordance with the Watershed General Permit.

NITROGEN FACILITY SUMMARY

Amherst (Town)

UPPER JAMES Trading Basin

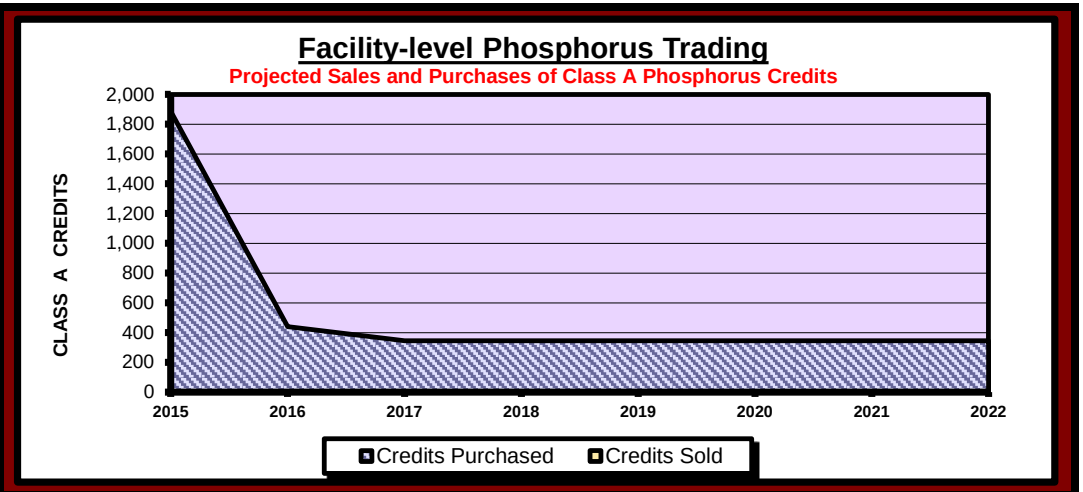


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.44	0.44	0.40	0.40	0.40	0.40	0.40	0.40
Projected Avg. Annual Concentration (mg/L)	5.46	4.93	4.93	4.93	4.93	4.93	4.93	4.93
Discharged Load (end of pipe)	7,317	6,606	6,006	6,006	6,006	6,006	6,006	6,006
Delivery Factor	0.61	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Expected Load	4,463	2,246	2,042	2,042	2,042	2,042	2,042	2,042
Delivered WLA	6,688	3,728	3,728	3,728	3,728	3,728	3,728	3,728
Expected Credits (delivered)	2,225	1,482	1,686	1,686	1,686	1,686	1,686	1,686
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,225**	**1,482**	**1,686**	**1,686**	**1,686**	**1,686**	**1,686**	**1,686**
Class A Credit Sales (Purchases)	**1,113**	**741**	**843**	**843**	**843**	**843**	**843**	**843**
Expected Class B Credits	**1,112**	**741**	**843**	**843**	**843**	**843**	**843**	**843**

PHOSPHORUS FACILITY SUMMARY

Amherst (Town)

UPPER JAMES Trading Basin

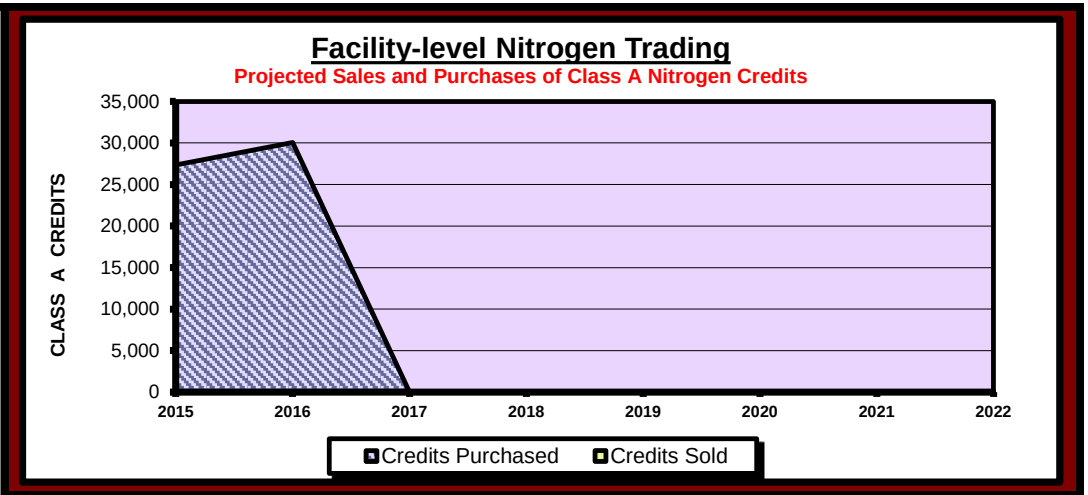


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Projected Flow (mgd)	0.44	0.44	0.40	0.40	0.40	0.40	0.40	0.40
Projected Avg. Annual Concentration (mg/L)	2.09	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Discharged Load (end of pipe)	2,801	1,581	1,438	1,438	1,438	1,438	1,438	1,438
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	2,801	1,044	949	949	949	949	949	949
Delivered WLA	914	603	603	603	603	603	603	603
Expected Credits (delivered)	(1,887)	(441)	(346)	(346)	(346)	(346)	(346)	(346)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(1,887)**	**(441)**	**(346)**	**(346)**	**(346)**	**(346)**	**(346)**	**(346)**
Class A Credit Sales (Purchases)	**(1,887)**	**(441)**	**(346)**	**(346)**	**(346)**	**(346)**	**(346)**	**(346)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Aqua Virginia-L. Monticello

UPPER JAMES Trading Basin

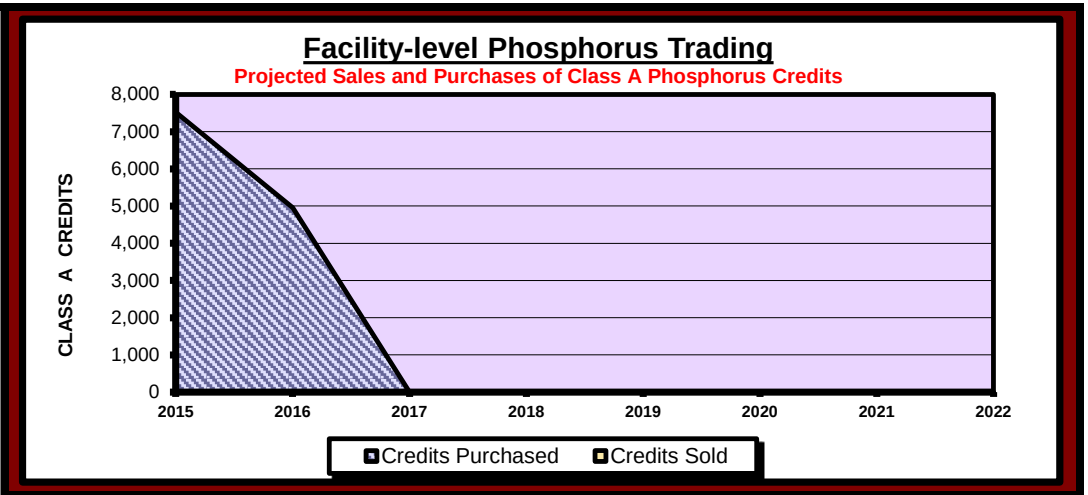


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.69	0.69	0.69	0.69	0.69	0.70	0.71	0.72
Projected Avg. Annual Concentration (mg/L)	30.00	30.00	6.00	6.00	6.00	6.00	6.00	6.00
Discharged Load (end of pipe)	63,043	63,043	12,609	12,609	12,609	12,791	12,974	13,157
Delivery Factor	0.61	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Expected Load	38,456	42,239	8,448	8,448	8,448	8,570	8,693	8,815
Delivered WLA	11,091	12,182	12,182	12,182	12,182	12,182	12,182	12,182
Expected Credits (delivered)	(27,365)	(30,057)	3,734	3,734	3,734	3,612	3,489	3,367
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(27,365)**	**(30,057)**	**3,734**	**3,734**	**3,734**	**3,612**	**3,489**	**3,367**
Class A Credit Sales (Purchases)	**(27,365)**	**(30,057)**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**3,734**	**3,734**	**3,734**	**3,612**	**3,489**	**3,367**

PHOSPHORUS FACILITY SUMMARY

Aqua Virginia-L. Monticello

UPPER JAMES Trading Basin

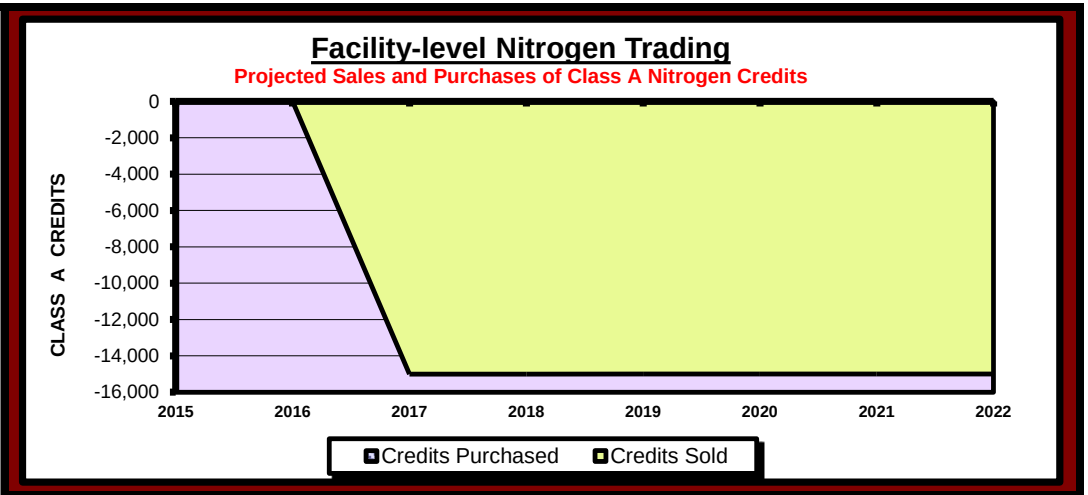


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.69	0.69	0.69	0.69	0.69	0.70	0.71	0.72
Projected Avg. Annual Concentration (mg/L)	4.30	4.30	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	9,036	9,036	1,051	1,051	1,051	1,066	1,081	1,096
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	9,036	5,964	693	693	693	704	714	724
Delivered WLA	1,515	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Expected Credits (delivered)	(7,521)	(4,964)	307	307	307	296	286	276
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(7,521)**	**(4,964)**	**307**	**307**	**307**	**296**	**286**	**276**
Class A Credit Sales (Purchases)	**(7,521)**	**(4,964)**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**307**	**307**	**307**	**296**	**286**	**276**

NITROGEN FACILITY SUMMARY

Babcock & Wilcox, N.O.G.

UPPER JAMES Trading Basin

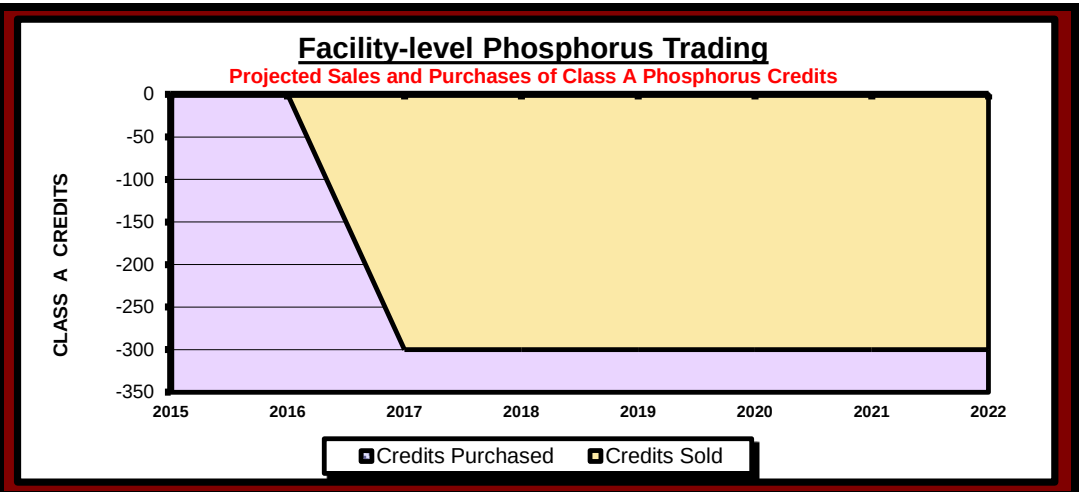


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.45	0.45	0.45	0.45	0.48	0.48	0.48	0.48
Projected Avg. Annual Concentration (mg/L)	120.00	120.00	120.00	120.00	110.00	110.00	110.00	110.00
Discharged Load (end of pipe)	163,912	163,912	163,912	163,912	160,806	160,806	160,806	160,806
Delivery Factor	0.61	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Expected Load	99,986	106,543	106,543	106,543	104,524	104,524	104,524	104,524
Delivered WLA	114,070	121,550	121,550	121,550	121,550	121,550	121,550	121,550
Expected Credits (delivered)	14,084	15,007	15,007	15,007	17,026	17,026	17,026	17,026
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**14,084**	**15,007**	**15,007**	**15,007**	**17,026**	**17,026**	**17,026**	**17,026**
Class A Credit Sales (Purchases)	**0**	**0**	**15,007**	**15,007**	**15,000**	**15,000**	**15,000**	**15,000**
Expected Class B Credits	**14,084**	**15,007**	**0**	**0**	**2,026**	**2,026**	**2,026**	**2,026**

PHOSPHORUS FACILITY SUMMARY

Babcock & Wilcox, N.O.G.

UPPER JAMES Trading Basin

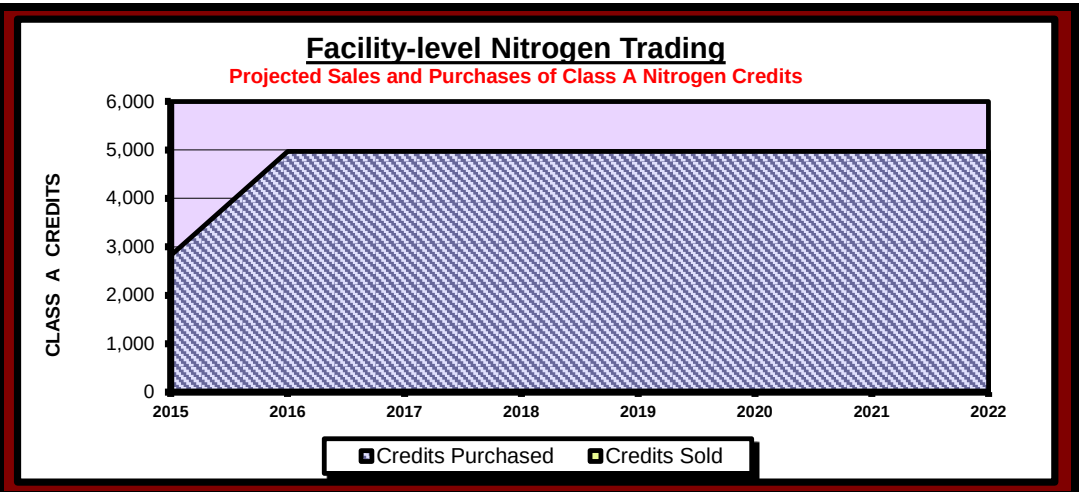


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Projected Flow (mgd)	0.45	0.45	0.45	0.45	0.48	0.48	0.48	0.48
Projected Avg. Annual Concentration (mg/L)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Discharged Load (end of pipe)	601	601	601	601	643	643	643	643
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	601	397	397	397	425	425	425	425
Delivered WLA	1,523	1,005	1,005	1,005	1,005	1,005	1,005	1,005
Expected Credits (delivered)	922	608	608	608	580	580	580	580
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**922**	**608**	**608**	**608**	**580**	**580**	**580**	**580**
Class A Credit Sales (Purchases)	**0**	**0**	**300**	**300**	**300**	**300**	**300**	**300**
Expected Class B Credits	**922**	**608**	**308**	**308**	**280**	**280**	**280**	**280**

NITROGEN FACILITY SUMMARY

Buena Vista

UPPER JAMES Trading Basin

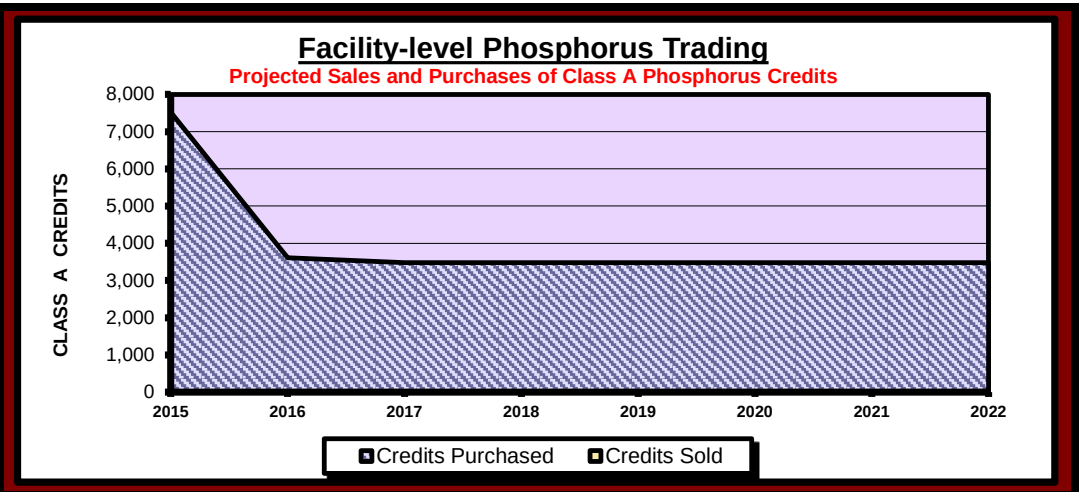


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Projected Flow (mgd)	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Projected Avg. Annual Concentration (mg/L)	11.78	12.53	12.53	12.53	12.53	12.53	12.53	12.53
Discharged Load (end of pipe)	46,998	49,991	49,991	49,991	49,991	49,991	49,991	49,991
Delivery Factor	0.30	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Expected Load	14,100	27,995	27,995	27,995	27,995	27,995	27,995	27,995
Delivered WLA	12,335	23,024	23,024	23,024	23,024	23,024	23,024	23,024
Expected Credits (delivered)	(1,765)	(4,971)	(4,971)	(4,971)	(4,971)	(4,971)	(4,971)	(4,971)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(1,765)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**
Class A Credit Sales (Purchases)	**(2,821)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**	**(4,971)**
Expected Class B Credits	**1,056**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Buena Vista

UPPER JAMES Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Projected Flow (mgd)	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Projected Avg. Annual Concentration (mg/L)	2.23	2.18	2.18	2.18	2.18	2.18	2.18	2.18
Discharged Load (end of pipe)	8,897	8,698	8,698	8,698	8,698	8,698	8,698	8,698
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	8,897	5,740	5,740	5,740	5,740	5,740	5,740	5,740
Delivered WLA	3,426	2,261	2,261	2,261	2,261	2,261	2,261	2,261
Expected Credits (delivered)	(5,471)	(3,479)	(3,479)	(3,479)	(3,479)	(3,479)	(3,479)	(3,479)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(5,471)**	**(3,479)**	**(3,479)**	**(3,479)**	**(3,479)**	**(3,479)**	**(3,479)**	**(3,479)**
Class A Credit Sales (Purchases)	**(7,526)**	**(3,611)**	**(3,479)**	**(3,479)**	**(3,479)**	**(3,479)**	**(3,479)**	**(3,479)**
Expected Class B Credits	**2,055**	**132**	**0**	**0**	**0**	**0**	**0**	**0**

Owner Bubble: Chesterfield County

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

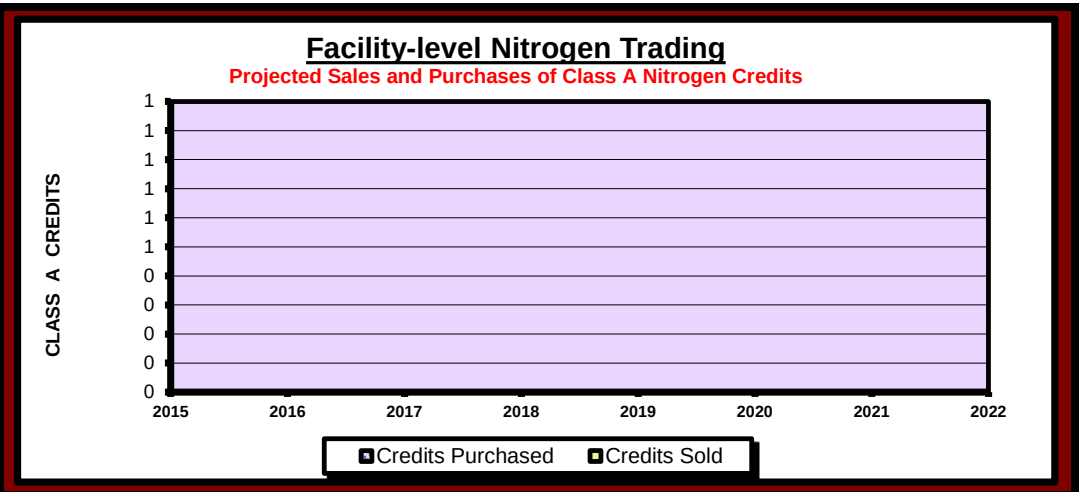
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Falling Creek	-	-	-	-	-	-	2,284	4,949
Proctors Creek	-	-	-	-	-	-	(2,284)	(4,949)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Falling Creek	2,498	2,475	2,558	2,749	3,046	381	-	-
Proctors Creek	166,928	168,625	170,430	172,341	174,359	171,694	166,745	161,415
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Credits	**169,426**	**171,100**	**172,988**	**175,090**	**177,405**	**172,075**	**166,745**	**161,415**
Private Exchanges	(165,000)	(165,000)	(120,810)	(156,620)	(156,620)	(172,075)	(166,745)	(161,415)
Expected Net Credits	**4,426**	**6,100**	**52,178**	**18,470**	**20,785**	**-**	**-**	**-**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*4,426*	*6,100*	*52,178*	*18,470*	*20,785*	*0*	*0*	*0*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Falling Creek	1,431	1,751	2,071	2,391	2,711	3,030	3,350	3,670
Proctors Creek	(1,431)	(1,751)	(2,071)	(2,391)	(2,711)	(3,030)	(3,350)	(3,670)
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Falling Creek	-	-	-	-	-	-	-	-
Proctors Creek	12,548	11,908	11,268	10,629	9,989	9,350	8,710	8,071
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Expected Credits	**12,548**	**11,908**	**11,268**	**10,629**	**9,989**	**9,350**	**8,710**	**8,071**
Private Exchanges	(2,000)	(2,000)	-	-	-	-	-	-
Expected Net Credits	**10,548**	**9,908**	**11,268**	**10,629**	**9,989**	**9,350**	**8,710**	**8,071**
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	*10,548*	*9,908*	*11,268*	*10,629*	*9,989*	*9,350*	*8,710*	*8,071*
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

NITROGEN FACILITY SUMMARY

Chesterfield-Falling Cr.

UPPER JAMES Trading Basin



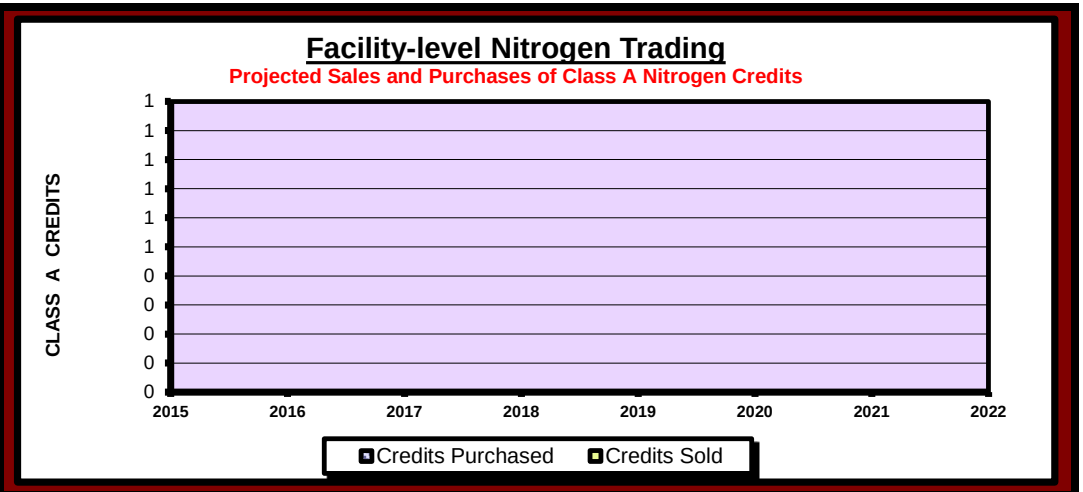
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Projected Flow (mgd)	9.20	9.38	9.55	9.73	9.90	10.08	10.25	10.43
Projected Avg. Annual Concentration (mg/L)	5.40	5.30	5.20	5.10	5.00	5.00	5.00	5.00
Discharged Load (end of pipe)	151,303	151,326	151,243	151,052	150,755	153,420	156,085	158,750
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	151,303	151,326	151,243	151,052	150,755	153,420	156,085	158,750
Delivered WLA	153,801	153,801	153,801	153,801	153,801	153,801	153,801	153,801
Expected Credits (delivered)	2,498	2,475	2,558	2,749	3,046	381	(2,284)	(4,949)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	2,284	4,949
Transfers In (Out) from Private Exchange*	0	0	0	0	0	(381)	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,498**	**2,475**	**2,558**	**2,749**	**3,046**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**2,498**	**2,475**	**2,558**	**2,749**	**3,046**	**0**	**0**	**0**

** Represents a Private Exchange of Credits with the Tranlin Paper Company (Non-Participant)*

NITROGEN FACILITY SUMMARY

Chesterfield-Proctors Cr.

UPPER JAMES Trading Basin



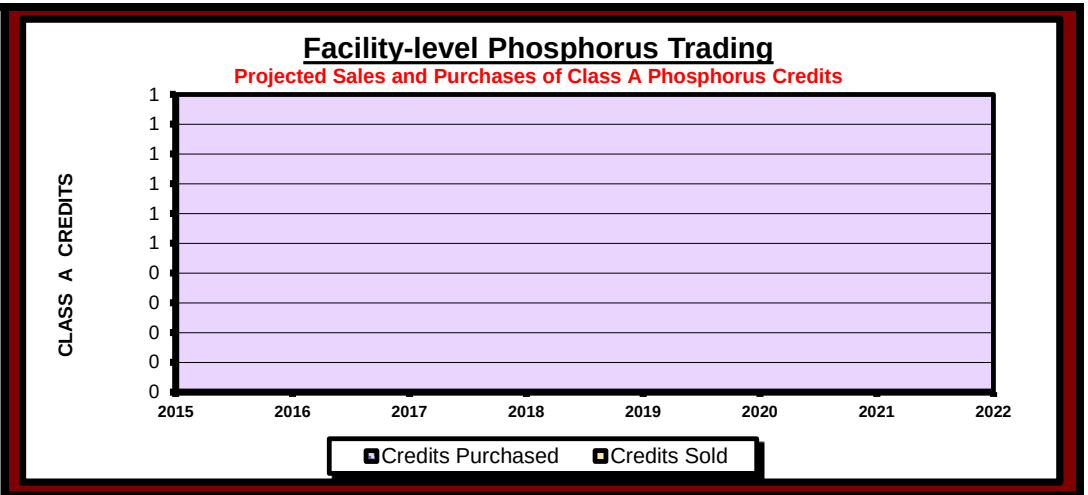
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00
Projected Flow (mgd)	14.85	15.03	15.20	15.38	15.55	15.73	15.90	16.08
Projected Avg. Annual Concentration (mg/L)	5.40	5.30	5.20	5.10	5.00	5.00	5.00	5.00
Discharged Load (end of pipe)	244,223	242,526	240,721	238,810	236,792	239,457	242,122	244,787
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	244,223	242,526	240,721	238,810	236,792	239,457	242,122	244,787
Delivered WLA	411,151	411,151	411,151	411,151	411,151	411,151	411,151	411,151
Expected Credits (delivered)	166,928	168,625	170,430	172,341	174,359	171,694	169,029	166,364
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	(2,284)	(4,949)
Transfers In (Out) from Private Exchange*	(165,000)	(165,000)	(120,810)	(156,620)	(156,620)	(171,694)	(166,745)	(161,415)
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,928**	**3,625**	**49,620**	**15,721**	**17,739**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**1,928**	**3,625**	**49,620**	**15,721**	**17,739**	**0**	**0**	**0**

** Represents a Private Exchange of Credits with two organizations: South Central Wastewater Authority from 2015 through 2019 (Exchange Participant) and Tranlin Paper Company from 2017 through 2022 (Non-Participant)*

PHOSPHORUS FACILITY SUMMARY

Chesterfield-Falling Cr.

UPPER JAMES Trading Basin

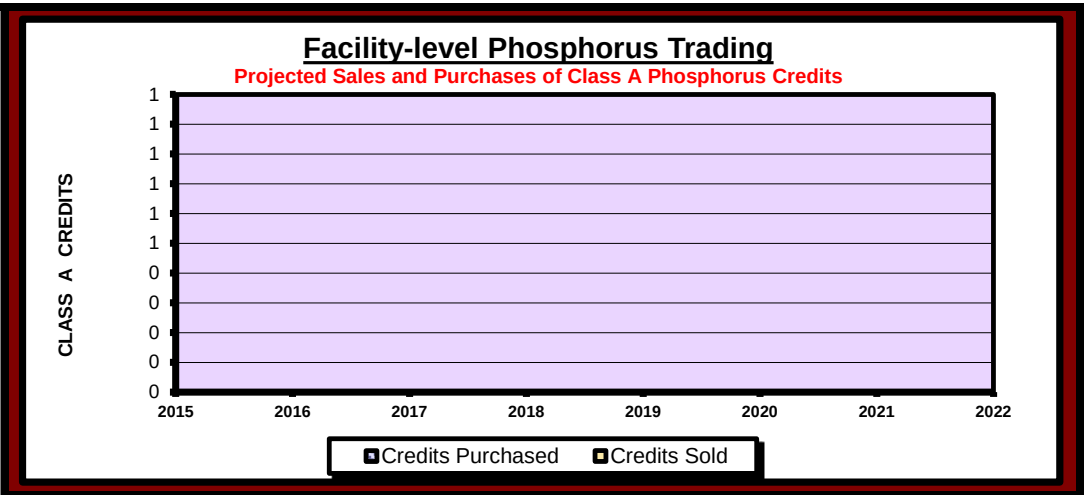


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Projected Flow (mgd)	9.20	9.38	9.55	9.73	9.90	10.08	10.25	10.43
Projected Avg. Annual Concentration (mg/L)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Discharged Load (end of pipe)	16,811	17,131	17,451	17,771	18,091	18,410	18,730	19,050
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	16,811	17,131	17,451	17,771	18,091	18,410	18,730	19,050
Delivered WLA	15,380	15,380	15,380	15,380	15,380	15,380	15,380	15,380
Expected Credits (delivered)	(1,431)	(1,751)	(2,071)	(2,391)	(2,711)	(3,030)	(3,350)	(3,670)
Transfers In (Out) within Owner Bubble	1,431	1,751	2,071	2,391	2,711	3,030	3,350	3,670
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Chesterfield-Proctors Cr.

UPPER JAMES Trading Basin



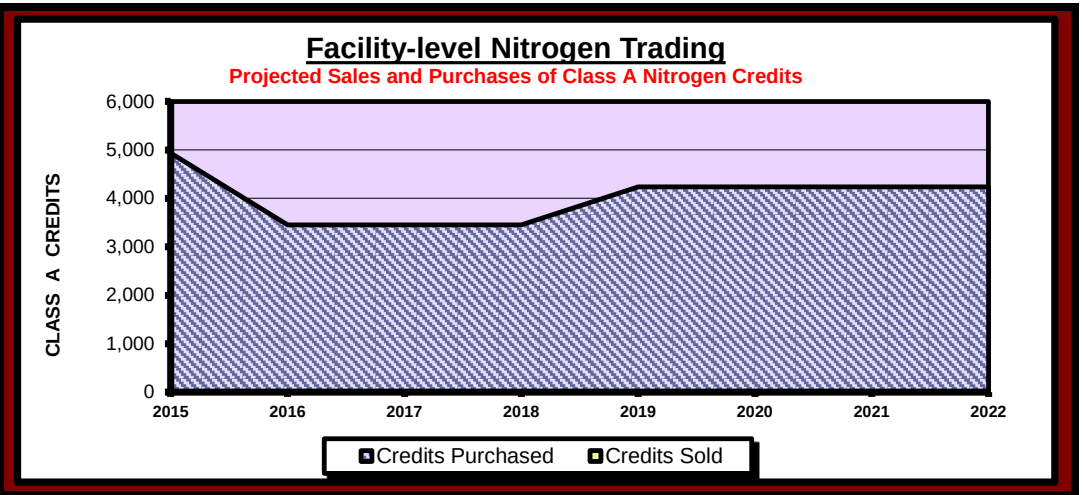
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00
Projected Flow (mgd)	14.85	15.03	15.20	15.38	15.55	15.73	15.90	16.08
Projected Avg. Annual Concentration (mg/L)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Discharged Load (end of pipe)	27,136	27,456	27,776	28,095	28,415	28,735	29,055	29,374
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	27,136	27,456	27,776	28,095	28,415	28,735	29,055	29,374
Delivered WLA	41,115	41,115	41,115	41,115	41,115	41,115	41,115	41,115
Expected Credits (delivered)	13,979	13,659	13,339	13,020	12,700	12,380	12,060	11,741
Transfers In (Out) within Owner Bubble	(1,431)	(1,751)	(2,071)	(2,391)	(2,711)	(3,030)	(3,350)	(3,670)
Transfers In (Out) from Private Exchange*	(2,000)	(2,000)	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**10,548**	**9,908**	**11,268**	**10,629**	**9,989**	**9,350**	**8,710**	**8,071**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**10,548**	**9,908**	**11,268**	**10,629**	**9,989**	**9,350**	**8,710**	**8,071**

** Represents a Private Exchange of Credits with the South Central Wastewater Authority*

NITROGEN FACILITY SUMMARY

Covington

UPPER JAMES Trading Basin

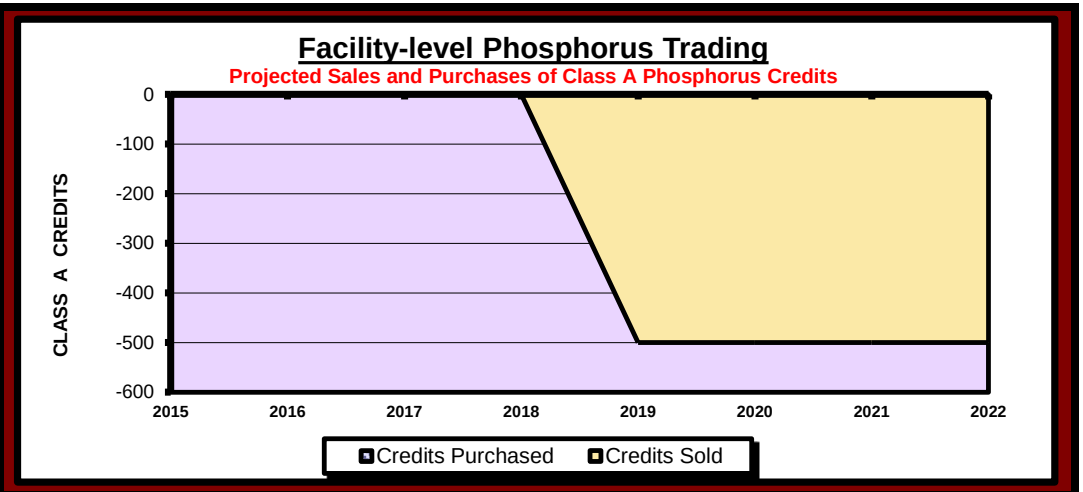


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Projected Flow (mgd)	1.80	1.80	1.80	1.80	1.88	1.88	1.88	1.88
Projected Avg. Annual Concentration (mg/L)	13.00	13.00	13.00	13.00	13.10	13.10	13.10	13.10
Discharged Load (end of pipe)	71,266	71,266	71,266	71,266	75,006	75,006	75,006	75,006
Delivery Factor	0.30	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Expected Load	21,380	14,966	14,966	14,966	15,751	15,751	15,751	15,751
Delivered WLA	16,446	11,512	11,512	11,512	11,512	11,512	11,512	11,512
Expected Credits (delivered)	(4,934)	(3,454)	(3,454)	(3,454)	(4,239)	(4,239)	(4,239)	(4,239)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(4,934)**	**(3,454)**	**(3,454)**	**(3,454)**	**(4,239)**	**(4,239)**	**(4,239)**	**(4,239)**
Class A Credit Sales (Purchases)	**(4,934)**	**(3,454)**	**(3,454)**	**(3,454)**	**(4,239)**	**(4,239)**	**(4,239)**	**(4,239)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Covington

UPPER JAMES Trading Basin

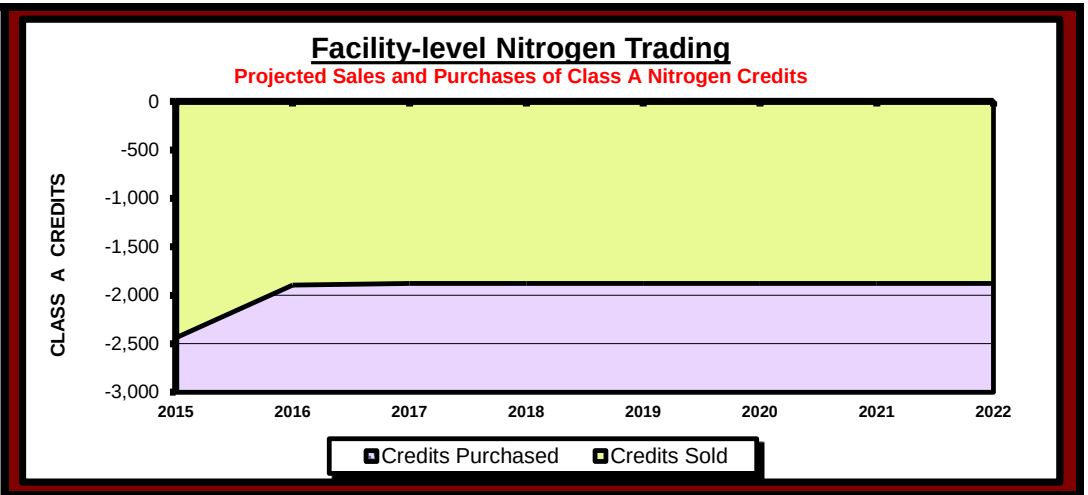


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Projected Flow (mgd)	1.80	1.80	1.80	1.80	1.88	1.88	1.88	1.88
Projected Avg. Annual Concentration (mg/L)	0.83	0.83	0.83	0.83	0.65	0.65	0.65	0.65
Discharged Load (end of pipe)	4,550	4,550	4,550	4,550	3,722	3,722	3,722	3,722
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	4,550	3,003	3,003	3,003	2,456	2,456	2,456	2,456
Delivered WLA	4,568	3,015	3,015	3,015	3,015	3,015	3,015	3,015
Expected Credits (delivered)	18	12	12	12	559	559	559	559
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**18**	**12**	**12**	**12**	**559**	**559**	**559**	**559**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**500**	**500**	**500**	**500**
Expected Class B Credits	**18**	**12**	**12**	**12**	**59**	**59**	**59**	**59**

NITROGEN FACILITY SUMMARY

Crewe

UPPER JAMES Trading Basin

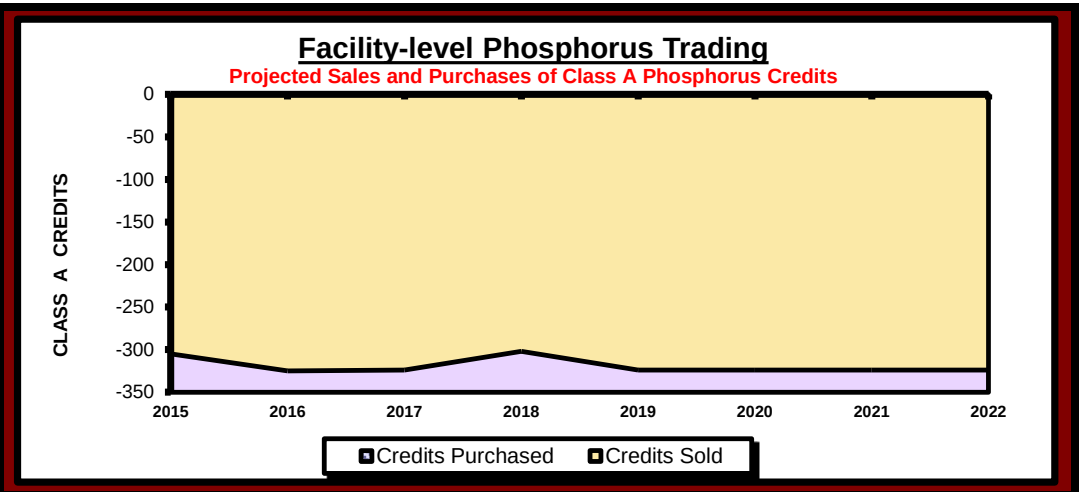


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.21	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Projected Avg. Annual Concentration (mg/L)	4.25	3.80	3.80	3.80	3.80	3.80	3.80	3.80
Discharged Load (end of pipe)	2,718	2,604	2,662	2,662	2,662	2,662	2,662	2,662
Delivery Factor	0.38	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Expected Load	1,033	755	772	772	772	772	772	772
Delivered WLA	3,472	2,650	2,650	2,650	2,650	2,650	2,650	2,650
Expected Credits (delivered)	2,439	1,895	1,878	1,878	1,878	1,878	1,878	1,878
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,439**	**1,895**	**1,878**	**1,878**	**1,878**	**1,878**	**1,878**	**1,878**
Class A Credit Sales (Purchases)	**2,439**	**1,895**	**1,878**	**1,878**	**1,878**	**1,878**	**1,878**	**1,878**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Crewe

UPPER JAMES Trading Basin

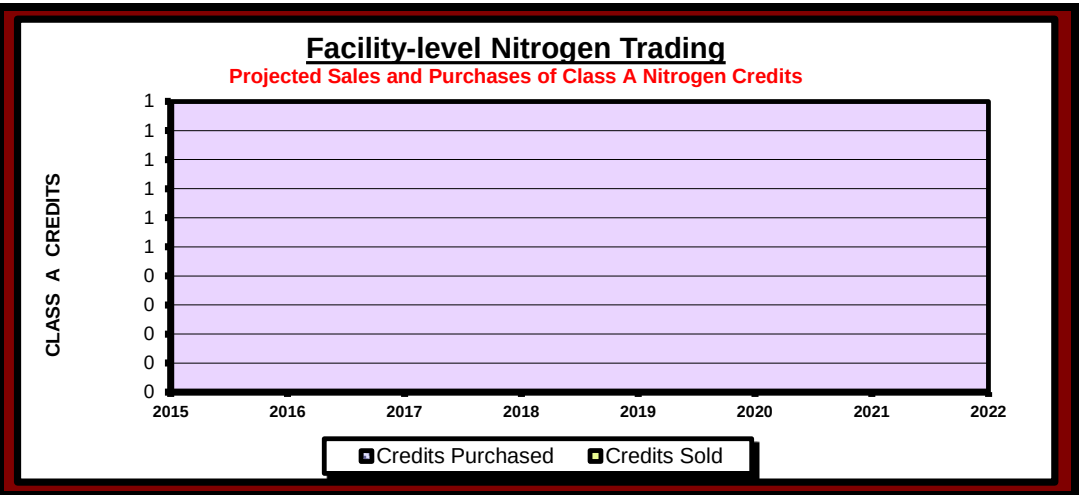


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.21	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Projected Avg. Annual Concentration (mg/L)	0.08	0.08	0.08	0.15	0.08	0.08	0.08	0.08
Discharged Load (end of pipe)	51	55	56	105	56	56	56	56
Delivery Factor	0.43	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Expected Load	22	25	26	48	26	26	26	26
Delivered WLA	327	350	350	350	350	350	350	350
Expected Credits (delivered)	305	325	324	302	324	324	324	324
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**305**	**325**	**324**	**302**	**324**	**324**	**324**	**324**
Class A Credit Sales (Purchases)	**305**	**325**	**324**	**302**	**324**	**324**	**324**	**324**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Dominion-Chesterfield

UPPER JAMES Trading Basin

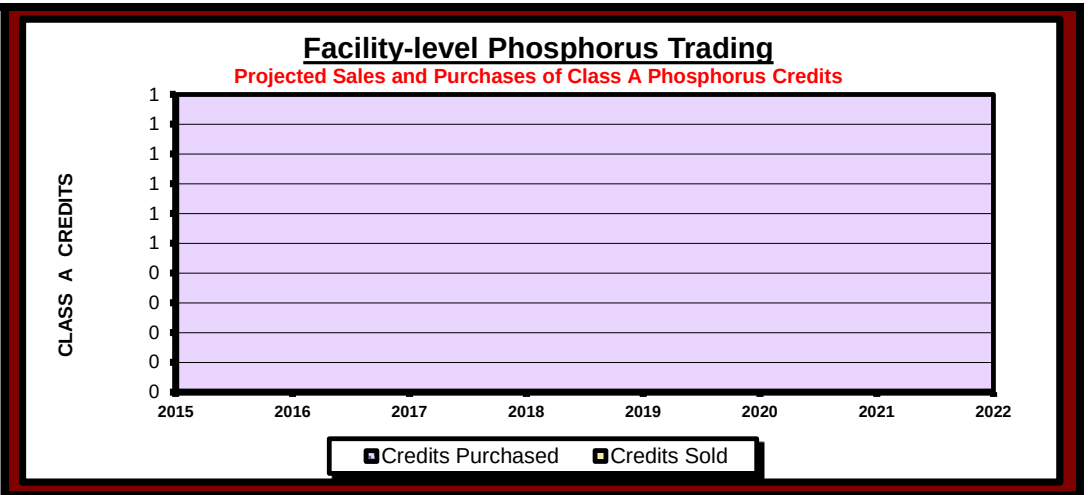


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
Projected Flow (mgd)	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
Projected Avg. Annual Concentration (mg/L)	8.39	8.39	8.39	8.39	8.39	8.39	8.39	8.39
Discharged Load (end of pipe)	344,955	344,955	344,955	344,955	344,955	344,955	344,955	344,955
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	344,955	344,955	344,955	344,955	344,955	344,955	344,955	344,955
Delivered WLA	352,036	352,036	352,036	352,036	352,036	352,036	352,036	352,036
Expected Credits (delivered)	7,081	7,081	7,081	7,081	7,081	7,081	7,081	7,081
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**	**7,081**

PHOSPHORUS FACILITY SUMMARY

Dominion-Chesterfield

UPPER JAMES Trading Basin

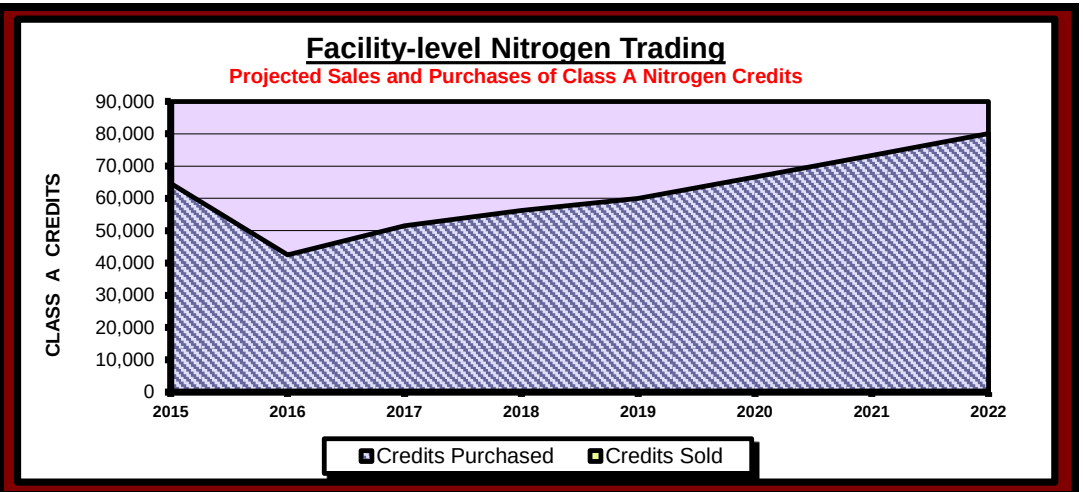


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
Projected Flow (mgd)	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
Projected Avg. Annual Concentration (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Discharged Load (end of pipe)	210	210	210	210	210	210	210	210
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	210	210	210	210	210	210	210	210
Delivered WLA	210	210	210	210	210	210	210	210
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

DuPont-Spruance

UPPER JAMES Trading Basin

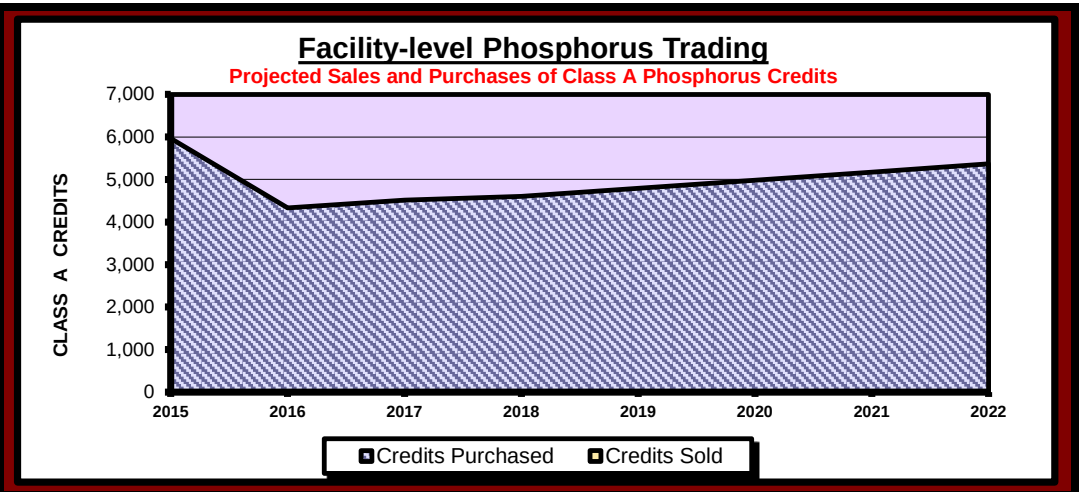


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33
Projected Flow (mgd)	30.24	30.69	31.15	31.62	32.10	32.58	33.07	33.56
Projected Avg. Annual Concentration (mg/L)	2.35	2.61	2.66	2.67	2.67	2.70	2.72	2.75
Discharged Load (end of pipe)	216,430	243,578	252,637	257,315	261,124	267,707	274,352	281,177
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	216,430	243,578	252,637	257,315	261,124	267,707	274,352	281,177
Delivered WLA	201,080	201,080	201,080	201,080	201,080	201,080	201,080	201,080
Expected Credits (delivered)	(15,350)	(42,498)	(51,557)	(56,235)	(60,044)	(66,627)	(73,272)	(80,097)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(15,350)**	**(42,498)**	**(51,557)**	**(56,235)**	**(60,044)**	**(66,627)**	**(73,272)**	**(80,097)**
Class A Credit Sales (Purchases)	**(64,680)**	**(42,498)**	**(51,557)**	**(56,235)**	**(60,044)**	**(66,627)**	**(73,272)**	**(80,097)**
Expected Class B Credits	**49,330**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

DuPont-Spruance

UPPER JAMES Trading Basin

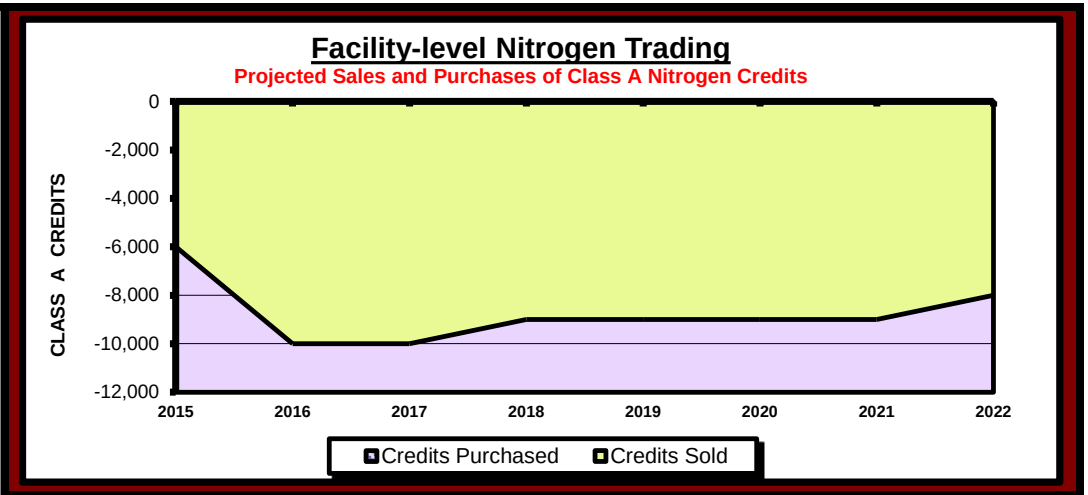


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	23.33	23.33	23.33	23.33	23.33	23.33	23.33	23.33
Projected Flow (mgd)	30.24	30.69	31.15	31.62	32.10	32.58	33.07	33.56
Projected Avg. Annual Concentration (mg/L)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Discharged Load (end of pipe)	11,973	12,151	12,333	12,423	12,611	12,800	12,992	13,185
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	11,973	12,151	12,333	12,423	12,611	12,800	12,992	13,185
Delivered WLA	7,816	7,816	7,816	7,816	7,816	7,816	7,816	7,816
Expected Credits (delivered)	(4,157)	(4,335)	(4,517)	(4,607)	(4,795)	(4,984)	(5,176)	(5,369)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(4,157)**	**(4,335)**	**(4,517)**	**(4,607)**	**(4,795)**	**(4,984)**	**(5,176)**	**(5,369)**
Class A Credit Sales (Purchases)	**(5,964)**	**(4,335)**	**(4,517)**	**(4,607)**	**(4,795)**	**(4,984)**	**(5,176)**	**(5,369)**
Expected Class B Credits	**1,807**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Georgia-Pacific

UPPER JAMES Trading Basin

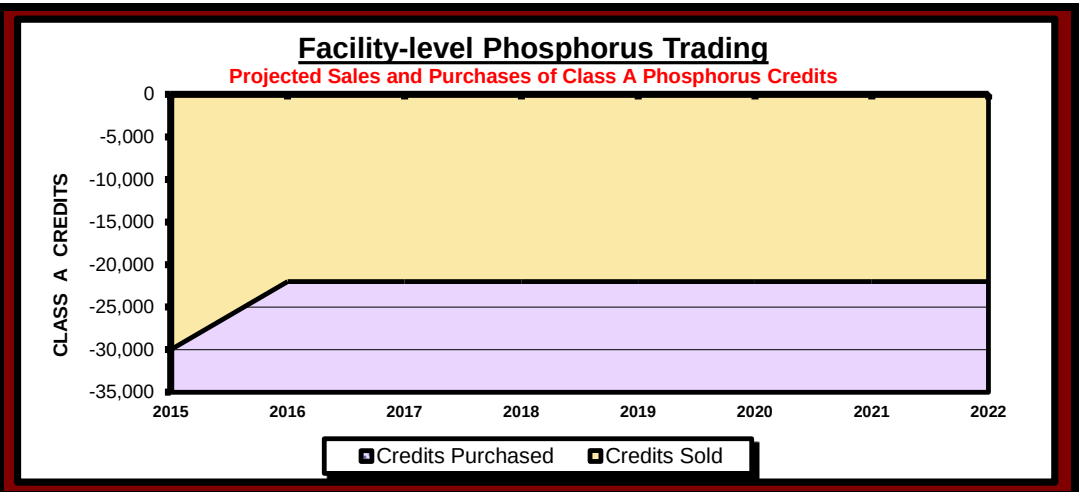


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	10.87	10.87	10.87	10.87	10.87	10.87	10.87	10.87
Projected Flow (mgd)	8.14	8.22	8.30	8.39	8.88	8.97	9.06	9.15
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	3.80	3.80	3.80	3.80
Discharged Load (end of pipe)	99,163	100,138	101,113	102,209	102,769	103,811	104,853	105,894
Delivery Factor	0.30	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Expected Load	29,749	60,083	60,668	61,325	61,662	62,287	62,912	63,536
Delivered WLA	36,747	73,493	73,493	73,493	73,493	73,493	73,493	73,493
Expected Credits (delivered)	6,998	13,410	12,825	12,168	11,831	11,206	10,581	9,957
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**6,998**	**13,410**	**12,825**	**12,168**	**11,831**	**11,206**	**10,581**	**9,957**
Class A Credit Sales (Purchases)	**6,000**	**10,000**	**10,000**	**9,000**	**9,000**	**9,000**	**9,000**	**8,000**
Expected Class B Credits	**998**	**3,410**	**2,825**	**3,168**	**2,831**	**2,206**	**1,581**	**1,957**

PHOSPHORUS FACILITY SUMMARY

Georgia-Pacific

UPPER JAMES Trading Basin

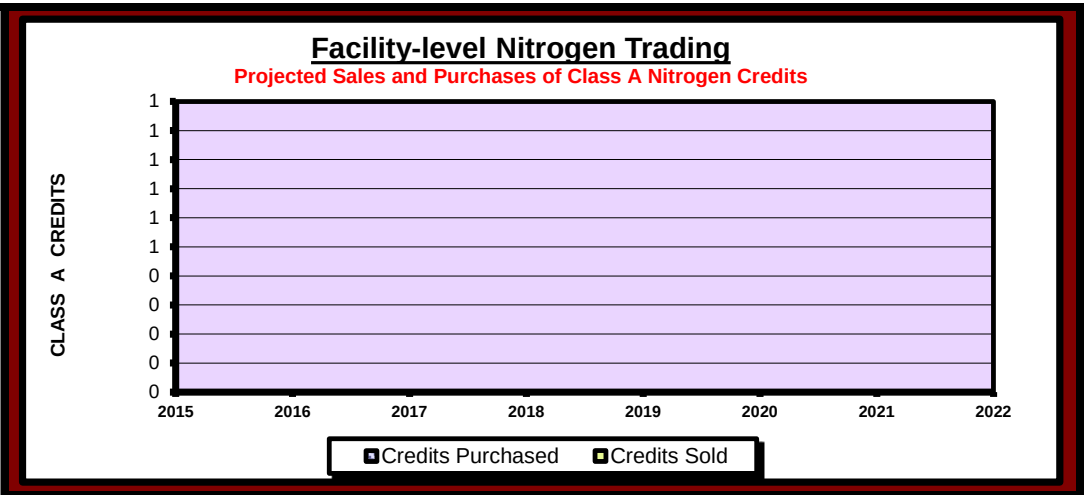


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	10.87	10.87	10.87	10.87	10.87	10.87	10.87	10.87
Projected Flow (mgd)	8.14	8.22	8.30	8.39	8.88	8.97	9.06	9.15
Projected Avg. Annual Concentration (mg/L)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	12,395	12,517	12,639	12,776	13,522	13,659	13,796	13,933
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	12,395	8,261	8,342	8,432	8,925	9,015	9,106	9,196
Delivered WLA	49,658	32,774	32,774	32,774	32,774	32,774	32,774	32,774
Expected Credits (delivered)	37,263	24,513	24,432	24,342	23,849	23,759	23,668	23,578
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**37,263**	**24,513**	**24,432**	**24,342**	**23,849**	**23,759**	**23,668**	**23,578**
Class A Credit Sales (Purchases)	**30,000**	**22,000**	**22,000**	**22,000**	**22,000**	**22,000**	**22,000**	**22,000**
Expected Class B Credits	**7,263**	**2,513**	**2,432**	**2,342**	**1,849**	**1,759**	**1,668**	**1,578**

NITROGEN FACILITY SUMMARY

Greif Packaging

UPPER JAMES Trading Basin

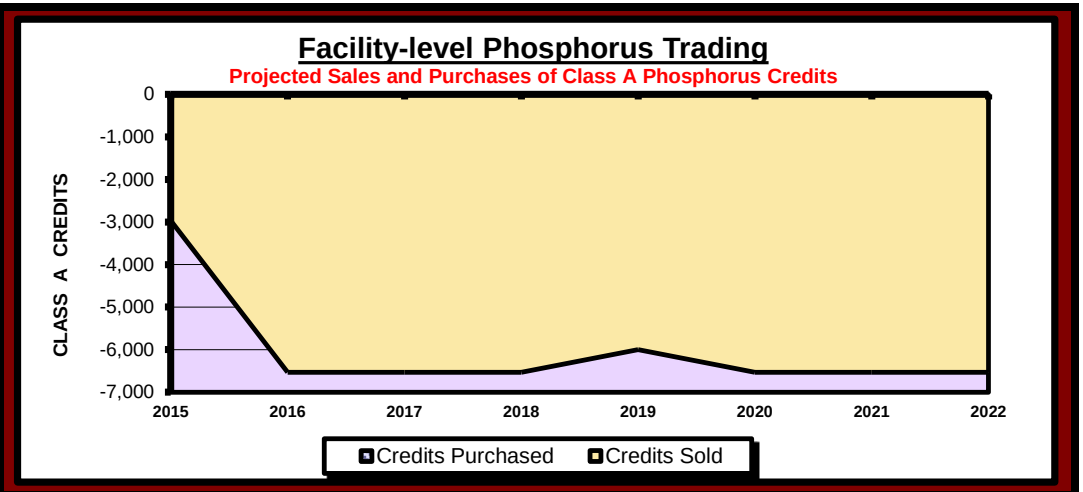


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Projected Flow (mgd)	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Projected Avg. Annual Concentration (mg/L)	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
Discharged Load (end of pipe)	73,246	73,246	73,246	73,246	73,246	73,246	73,246	73,246
Delivery Factor	0.61	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Expected Load	44,680	47,610	47,610	47,610	47,610	47,610	47,610	47,610
Delivered WLA	44,680	47,610	47,610	47,610	47,610	47,610	47,610	47,610
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Greif Packaging

UPPER JAMES Trading Basin

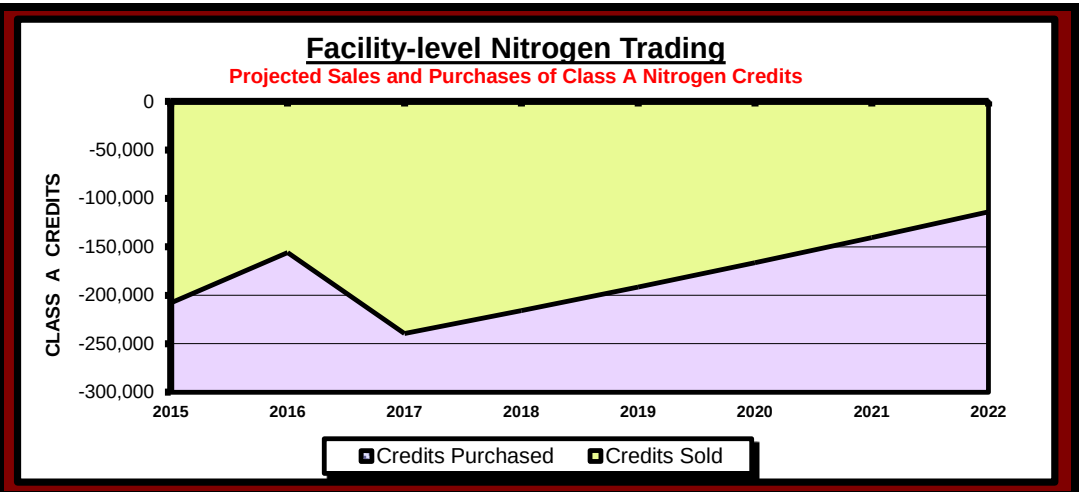


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Projected Flow (mgd)	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Projected Avg. Annual Concentration (mg/L)	1.20	1.00	1.00	1.00	0.99	0.99	0.99	0.99
Discharged Load (end of pipe)	23,755	19,796	19,796	19,796	19,598	19,598	19,598	19,598
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	23,755	13,065	13,065	13,065	12,935	12,935	12,935	12,935
Delivered WLA	29,694	19,598	19,598	19,598	19,598	19,598	19,598	19,598
Expected Credits (delivered)	5,939	6,533	6,533	6,533	6,663	6,663	6,663	6,663
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**5,939**	**6,533**	**6,533**	**6,533**	**6,663**	**6,663**	**6,663**	**6,663**
Class A Credit Sales (Purchases)	**2,970**	**6,533**	**6,533**	**6,533**	**6,000**	**6,533**	**6,533**	**6,533**
Expected Class B Credits	**2,969**	**0**	**0**	**0**	**663**	**130**	**130**	**130**

NITROGEN FACILITY SUMMARY

Henrico Co

UPPER JAMES Trading Basin



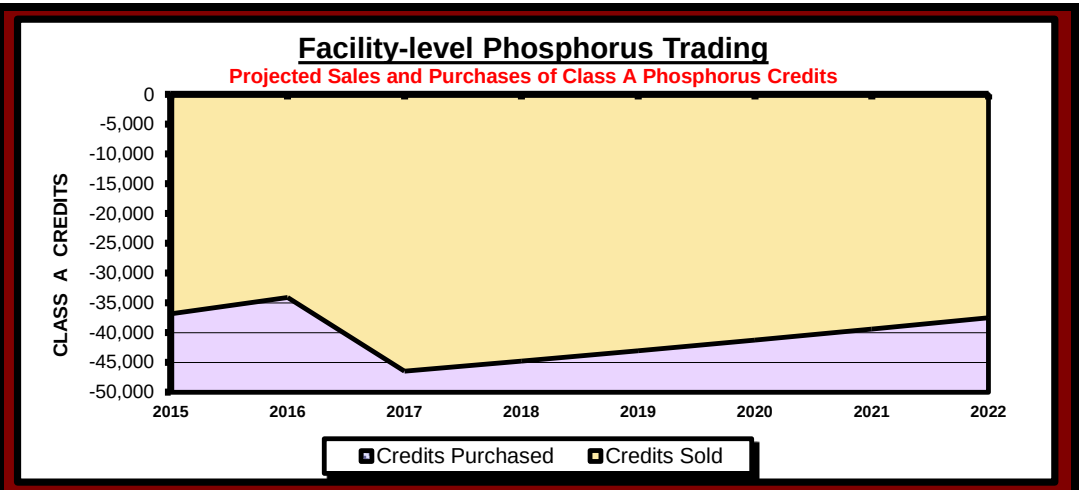
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Projected Flow (mgd)	55.33	56.99	58.70	60.46	62.27	64.14	66.07	68.05
Projected Avg. Annual Concentration (mg/L)	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
Discharged Load (end of pipe)	825,703	850,476	875,994	902,259	929,270	957,177	985,979	1,015,527
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	825,703	850,476	875,994	902,259	929,270	957,177	985,979	1,015,527
Delivered WLA	1,142,085	1,142,085	1,142,085	1,142,085	1,142,085	1,142,085	1,142,085	1,142,085
Expected Credits (delivered)	316,382	291,609	266,091	239,826	212,815	184,908	156,106	126,558
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange*	(85,404)	(118,352)	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**230,978**	**173,257**	**266,091**	**239,826**	**212,815**	**184,908**	**156,106**	**126,558**
Class A Credit Sales (Purchases)	**207,880**	**155,931**	**239,482**	**215,843**	**191,533**	**166,417**	**140,495**	**113,902**
Expected Class B Credits	**23,098**	**17,326**	**26,609**	**23,983**	**21,282**	**18,491**	**15,611**	**12,656**

** Represents a Private Exchange of Credits with the South Central Wastewater Authority*

PHOSPHORUS FACILITY SUMMARY

Henrico Co

UPPER JAMES Trading Basin



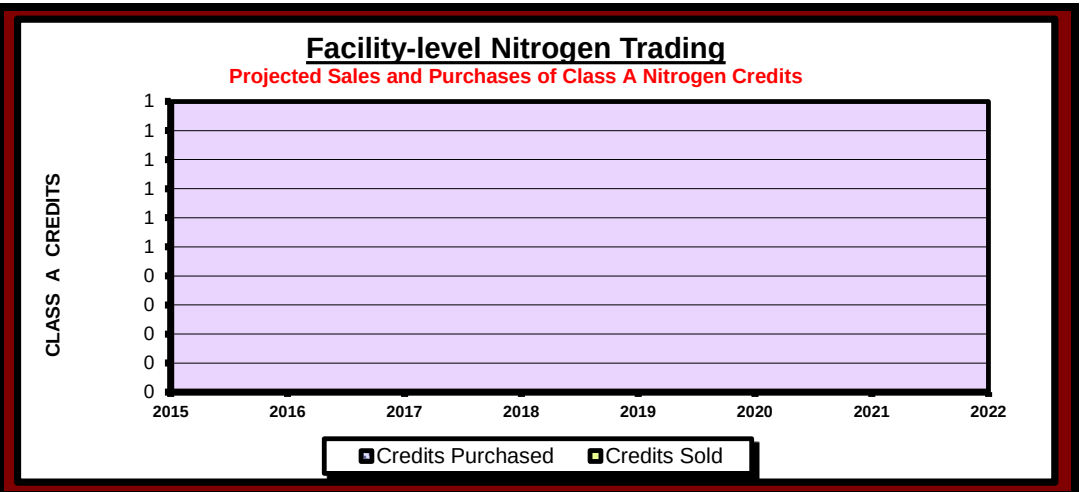
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Projected Flow (mgd)	55.33	56.99	58.70	60.46	62.27	64.14	66.07	68.05
Projected Avg. Annual Concentration (mg/L)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Discharged Load (end of pipe)	58,979	60,748	62,571	64,447	66,376	68,370	70,427	72,538
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	58,979	60,748	62,571	64,447	66,376	68,370	70,427	72,538
Delivered WLA	114,209	114,209	114,209	114,209	114,209	114,209	114,209	114,209
Expected Credits (delivered)	55,230	53,461	51,638	49,762	47,833	45,839	43,782	41,671
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange*	(14,293)	(15,576)	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**40,937**	**37,885**	**51,638**	**49,762**	**47,833**	**45,839**	**43,782**	**41,671**
Class A Credit Sales (Purchases)	**36,843**	**34,097**	**46,474**	**44,786**	**43,050**	**41,255**	**39,404**	**37,504**
Expected Class B Credits	**4,094**	**3,788**	**5,164**	**4,976**	**4,783**	**4,584**	**4,378**	**4,167**

** Represents a Private Exchange of Credits with the South Central Wastewater Authority*

NITROGEN FACILITY SUMMARY

Honeywell-Hopewell

UPPER JAMES Trading Basin

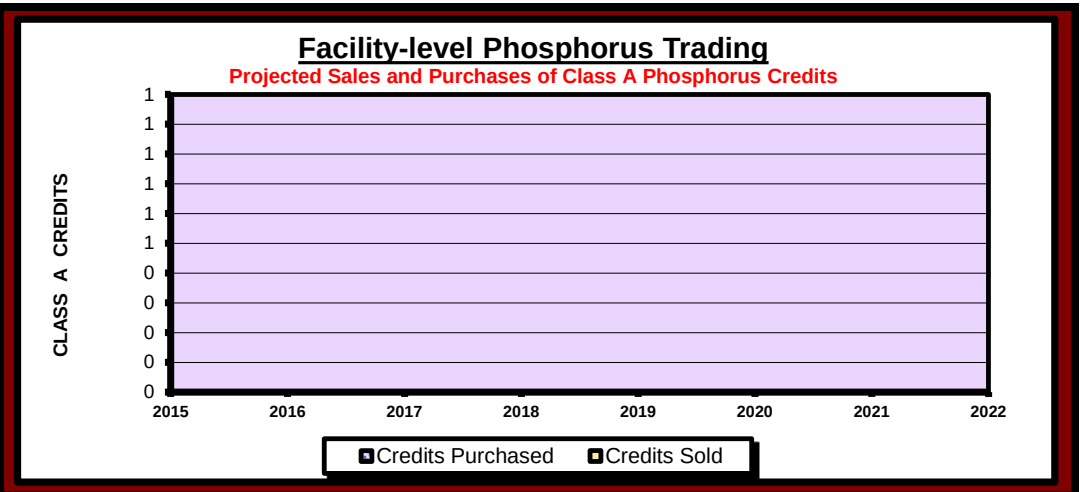


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	121.00	121.00	121.00	121.00	121.00	121.00	121.00	121.00
Projected Flow (mgd)	125.00	125.00	125.00	125.00	112.00	112.00	112.00	112.00
Projected Avg. Annual Concentration (mg/L)	2.20	2.30	2.30	2.30	2.50	2.50	2.50	2.50
Discharged Load (end of pipe)	837,529	875,599	875,599	875,599	852,757	852,757	852,757	852,757
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	837,529	875,599	875,599	875,599	852,757	852,757	852,757	852,757
Delivered WLA	1,090,798	1,090,798	1,090,798	1,090,798	1,090,798	1,090,798	1,090,798	1,090,798
Expected Credits (delivered)	253,269	215,199	215,199	215,199	238,041	238,041	238,041	238,041
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	(158,816)	(181,985)	(205,154)	(2,522)	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**94,453**	**33,214**	**10,045**	**212,677**	**238,041**	**238,041**	**238,041**	**238,041**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**94,453**	**33,214**	**10,045**	**212,677**	**238,041**	**238,041**	**238,041**	**238,041**

PHOSPHORUS FACILITY SUMMARY

Honeywell-Hopewell

UPPER JAMES Trading Basin

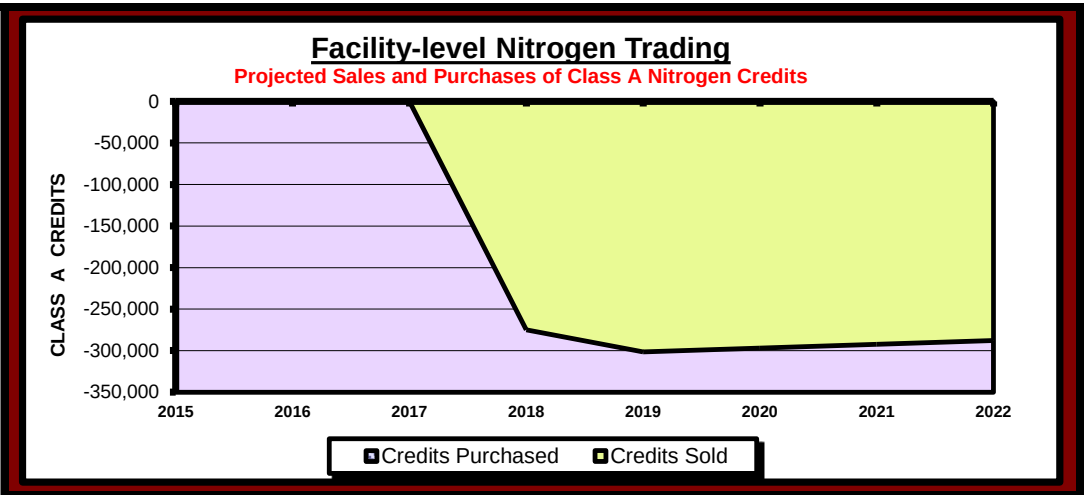


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	121.00	121.00	121.00	121.00	121.00	121.00	121.00	121.00
Projected Flow (mgd)	125.00	125.00	125.00	125.00	112.00	112.00	112.00	112.00
Projected Avg. Annual Concentration (mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Discharged Load (end of pipe)	38,070	38,070	38,070	38,070	34,110	34,110	34,110	34,110
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	38,070	38,070	38,070	38,070	34,110	34,110	34,110	34,110
Delivered WLA	51,592	51,592	51,592	51,592	51,592	51,592	51,592	51,592
Expected Credits (delivered)	13,522	13,522	13,522	13,522	17,482	17,482	17,482	17,482
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**13,522**	**13,522**	**13,522**	**13,522**	**17,482**	**17,482**	**17,482**	**17,482**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**13,522**	**13,522**	**13,522**	**13,522**	**17,482**	**17,482**	**17,482**	**17,482**

NITROGEN FACILITY SUMMARY

Hopewell RWTF

UPPER JAMES Trading Basin

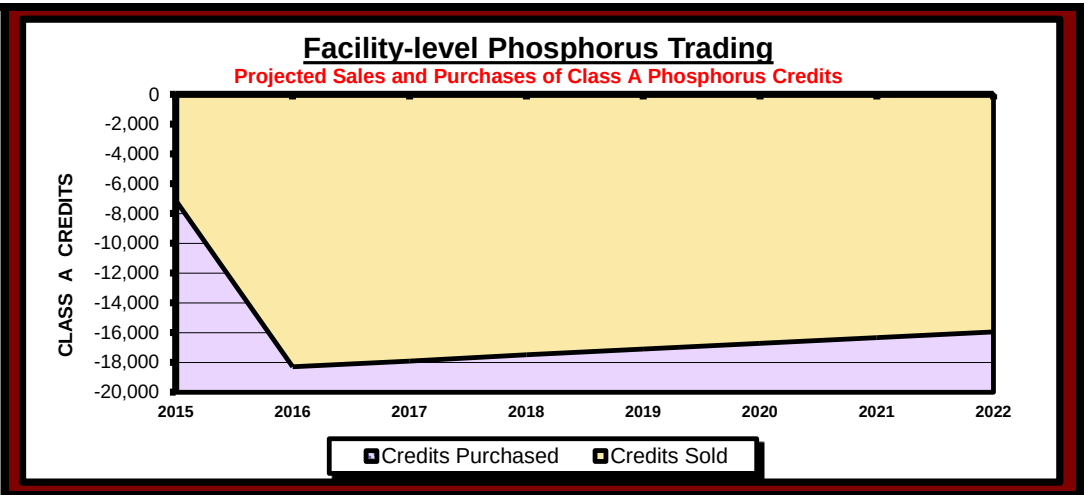


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Projected Flow (mgd)	25.98	26.18	26.38	26.60	26.80	27.00	27.20	27.40
Projected Avg. Annual Concentration (mg/L)	25.10	25.20	25.30	15.80	15.00	15.00	15.00	15.00
Discharged Load (end of pipe)	1,986,152	2,009,321	2,032,490	1,279,988	1,224,315	1,233,452	1,242,588	1,251,725
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	1,986,152	2,009,321	2,032,490	1,279,988	1,224,315	1,233,452	1,242,588	1,251,725
Delivered WLA	1,827,336	1,827,336	1,827,336	1,827,336	1,827,336	1,827,336	1,827,336	1,827,336
Expected Credits (delivered)	(158,816)	(181,985)	(205,154)	547,348	603,021	593,884	584,748	575,611
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	158,816	181,985	205,154	2,522	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**549,870**	**603,021**	**593,884**	**584,748**	**575,611**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**274,935**	**301,511**	**296,942**	**292,374**	**287,806**
Expected Class B Credits	**0**	**0**	**0**	**274,935**	**301,510**	**296,942**	**292,374**	**287,805**

PHOSPHORUS FACILITY SUMMARY

Hopewell RWTF

UPPER JAMES Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Projected Flow (mgd)	25.98	26.18	26.38	26.60	26.80	27.00	27.20	27.40
Projected Avg. Annual Concentration (mg/L)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Discharged Load (end of pipe)	55,391	55,814	56,235	56,708	57,135	57,561	57,987	58,414
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	55,391	55,814	56,235	56,708	57,135	57,561	57,987	58,414
Delivered WLA	76,139	76,139	76,139	76,139	76,139	76,139	76,139	76,139
Expected Credits (delivered)	20,748	20,325	19,904	19,431	19,004	18,578	18,152	17,725
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**20,748**	**20,325**	**19,904**	**19,431**	**19,004**	**18,578**	**18,152**	**17,725**
Class A Credit Sales (Purchases)	**7,126**	**18,293**	**17,914**	**17,488**	**17,104**	**16,720**	**16,337**	**15,953**
Expected Class B Credits	**13,622**	**2,032**	**1,990**	**1,943**	**1,900**	**1,858**	**1,815**	**1,772**

Owner Bubble: Hampton Roads Sanitation District (James)

The facilities listed below have received an aggregated mass load limit pursuant to 9 VAC 25-820-70, Part 1.B.2., which is also referred to as an "owner bubble". Accordingly, compliance is determined solely on an aggregate basis rather than by comparison of individual facility loads with respective individual WLAs.

The "Credit Transferred within Bubble" section of each table forecasts the use of Credits within the owner bubble during each Compliance Year, and must necessarily sum to zero. The specific Credit transfers shown in this table are provided for internal planning purposes only and, accordingly, are not binding and may change based on the actual performance of individual facilities within the bubble.

Expected Net Credits for an owner bubble may be either positive or negative. If Expected Net Credits is positive, the owner may pledge a percentage of such Credits to the Exchange. If Expected Net Credits is negative, Net Expected Credits identifies the number of Credits that must be purchased to comply with the aggregate Delivered WLA of the bubble.

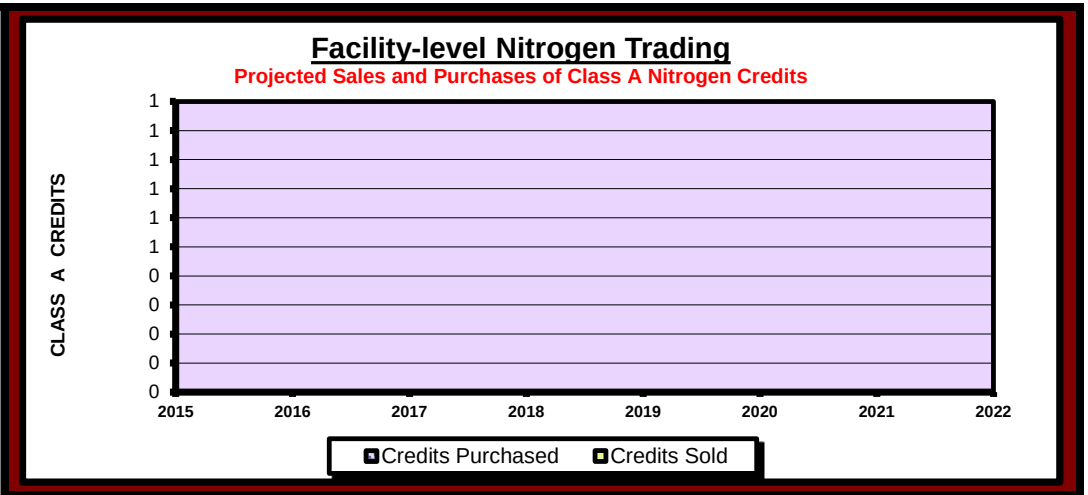
NITROGEN Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Army Base	-	-	(290,568)	(292,467)	(284,228)	(284,069)	(283,910)	
Boat Harbor	364,646	369,031	513,845	513,111	576,238	576,286	576,334	
Ches/Eliz	124,022	132,234	726,121	845,017	895,194	902,579	910,001	
James River	(584,072)	(598,620)	(77,672)	(121,559)	(109,893)	(109,354)	(108,814)	
Nansemond	-	-	(321,302)	(317,771)	(312,501)	(304,471)	(296,288)	
VIP	95,404	97,355	(378,712)	(556,930)	(547,638)	(546,716)	(545,792)	
Williamsburg	-	-	(171,712)	(69,401)	(217,172)	(234,255)	(251,531)	
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Army Base	437,732	437,656	-	-	-	-	-	
Boat Harbor	-	-	-	-	-	-	-	
Ches/Eliz	-	-	-	-	-	-	-	
James River	160,904	143,083	-	-	-	-	-	
Nansemond	297,538	288,418	-	-	-	-	-	
VIP	-	-	-	-	-	-	-	
Williamsburg	368,959	360,658	15,232	191,798	43,512	22,711	1,669	
Expected Net Credits	**1,265,133**	**1,229,815**	**15,232**	**191,798**	**43,512**	**22,711**	**1,669**	
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	*1,265,133*	*1,229,815*	*15,232*	*191,798*	*43,512*	*22,711*	*1,669*	
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	

PHOSPHORUS Credits	Exchange 5-year Planning Period					Future Projections		
Credits Transferred within Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Army Base	(14,214)	(14,204)	(4,852)	(5,274)	(10,421)	(10,393)	(10,365)	
Boat Harbor	14,391	14,660	(9,907)	(9,935)	(7,507)	(7,505)	(7,504)	
Ches/Eliz	18,174	18,639	(2,428)	2,977	4,871	5,150	5,430	
James River	(506)	(233)	(1,333)	(1,625)	(329)	(269)	(209)	
Nansemond	(719)	(2,329)	18,928	19,634	31,965	33,785	35,640	
VIP	-	-	-	-	(8,838)	(8,694)	(8,551)	
Williamsburg	(17,126)	(16,533)	(408)	(5,777)	(9,741)	(12,074)	(14,441)	
TOTAL (must sum to 0)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Credits Available outside Bubble	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Army Base	-	-	-	-	-	-	-	
Boat Harbor	-	-	-	-	-	-	-	
Ches/Eliz	-	-	-	-	-	-	-	
James River	-	-	-	-	-	-	-	
Nansemond	23,578	21,170	-	-	-	-	-	
VIP	10,418	10,267	11,364	10,283	-	-	-	
Williamsburg	-	-	17,125	13,105	9,089	6,384	3,641	
Expected Net Credits	**33,996**	**31,437**	**28,489**	**23,388**	**9,089**	**6,384**	**3,641**	
Class A Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	*33,996*	*31,437*	*28,489*	*23,388*	*9,089*	*6,384*	*3,641*	
WQIF-Held Credits	*0*	*0*	*0*	*0*	*0*	*0*	*0*	

NITROGEN FACILITY SUMMARY

HRSD-Army Base

LOWER JAMES Trading Basin

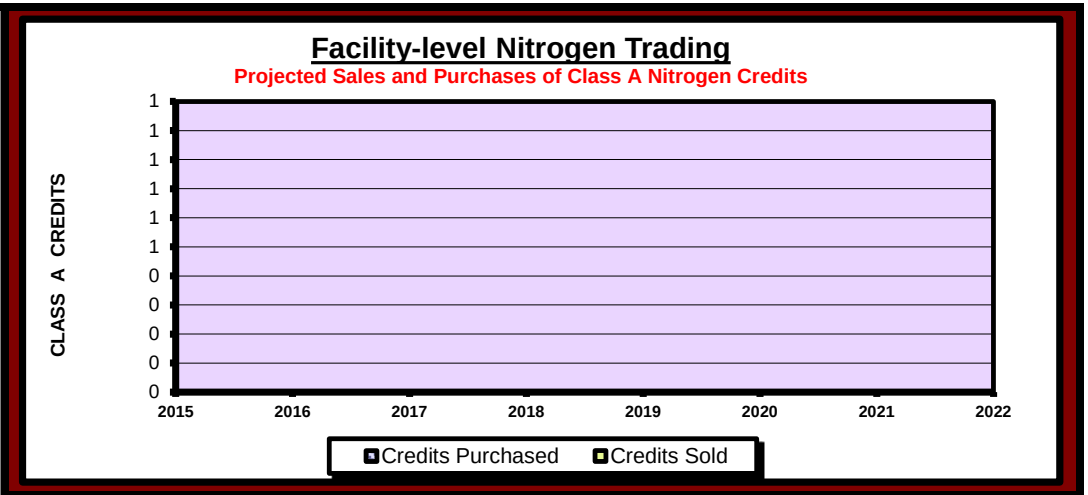


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	18.00	18.00	18.00	18.00	18.00	18.00	18.00	
Projected Flow (mgd)	11.31	11.32	10.99	10.85	11.46	11.47	11.48	
Projected Avg. Annual Concentration (mg/L)	5.00	5.00	4.50	4.50	4.50	4.50	4.50	
Discharged Load (end of pipe)	172,268	172,344	150,658	148,759	156,998	157,157	157,316	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	172,268	172,344	150,658	148,759	156,998	157,157	157,316	
Delivered WLA	610,000	610,000	441,226	441,226	441,226	441,226	441,226	
Expected Credits (delivered)	437,732	437,656	290,568	292,467	284,228	284,069	283,910	
Transfers In (Out) within Owner Bubble	0	0	(290,568)	(292,467)	(284,228)	(284,069)	(283,910)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**437,732**	**437,656**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**437,732**	**437,656**	**0**	**0**	**0**	**0**	**0**	

NITROGEN FACILITY SUMMARY

HRSD-Boat Harbor

LOWER JAMES Trading Basin

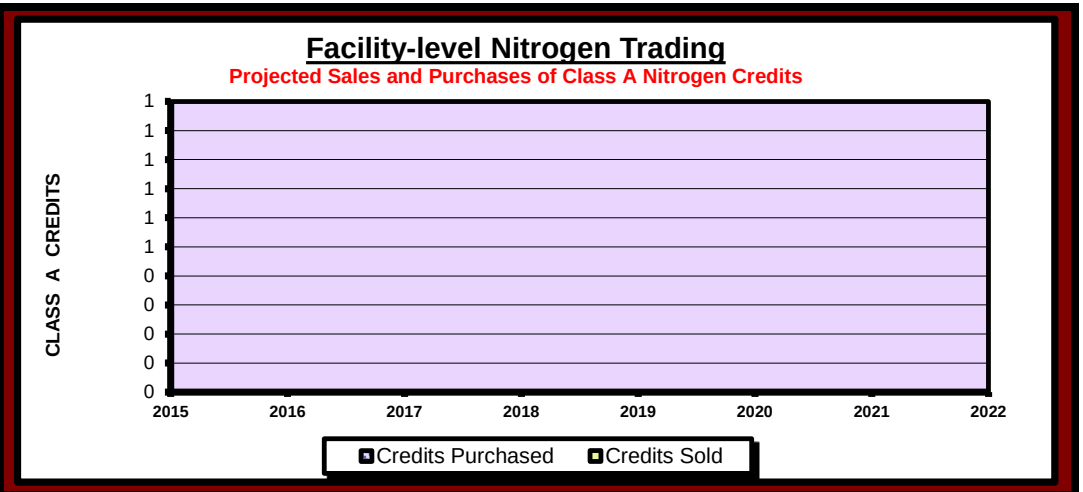


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
Projected Flow (mgd)	14.80	14.86	14.23	14.22	15.02	15.02	15.02	
Projected Avg. Annual Concentration (mg/L)	24.50	24.50	26.00	26.00	26.00	26.00	26.00	
Discharged Load (end of pipe)	1,104,646	1,109,031	1,126,658	1,125,924	1,189,051	1,189,099	1,189,147	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	1,104,646	1,109,031	1,126,658	1,125,924	1,189,051	1,189,099	1,189,147	
Delivered WLA	740,000	740,000	612,813	612,813	612,813	612,813	612,813	
Expected Credits (delivered)	(364,646)	(369,031)	(513,845)	(513,111)	(576,238)	(576,286)	(576,334)	
Transfers In (Out) within Owner Bubble	364,646	369,031	513,845	513,111	576,238	576,286	576,334	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

NITROGEN FACILITY SUMMARY

HRSD-Ches/Eliz

LOWER JAMES Trading Basin

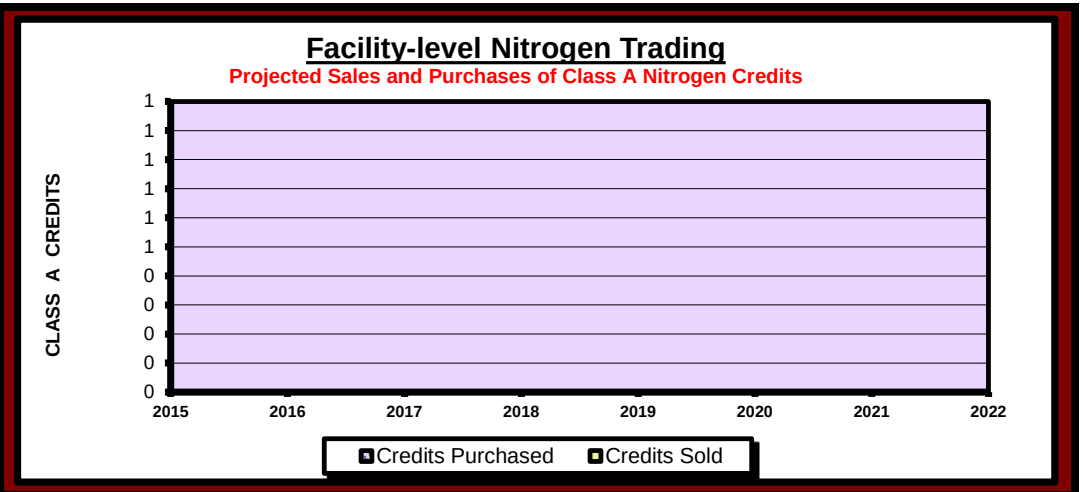


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	
Projected Flow (mgd)	15.17	15.27	15.98	17.76	18.38	18.47	18.56	
Projected Avg. Annual Concentration (mg/L)	26.50	26.50	27.00	26.50	26.50	26.50	26.50	
Discharged Load (end of pipe)	1,224,022	1,232,234	1,314,422	1,433,318	1,483,495	1,490,880	1,498,302	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	1,224,022	1,232,234	1,314,422	1,433,318	1,483,495	1,490,880	1,498,302	
Delivered WLA	1,100,000	1,100,000	588,301	588,301	588,301	588,301	588,301	
Expected Credits (delivered)	(124,022)	(132,234)	(726,121)	(845,017)	(895,194)	(902,579)	(910,001)	
Transfers In (Out) within Owner Bubble	124,022	132,234	726,121	845,017	895,194	902,579	910,001	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

NITROGEN FACILITY SUMMARY

HRSD-James River

LOWER JAMES Trading Basin

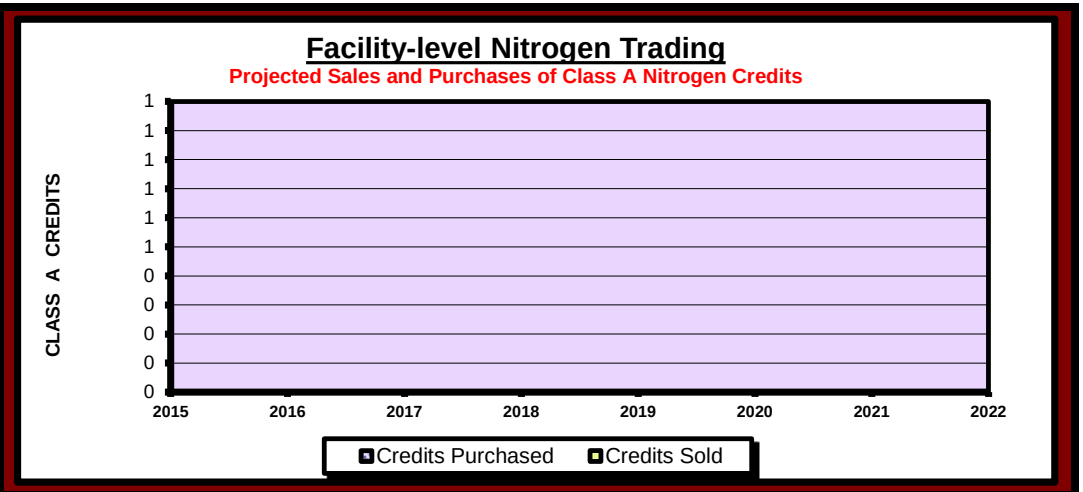


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	
Projected Flow (mgd)	13.82	13.91	13.55	13.45	13.88	13.90	13.92	
Projected Avg. Annual Concentration (mg/L)	12.00	12.00	10.00	9.00	9.00	9.00	9.00	
Discharged Load (end of pipe)	505,024	508,297	412,579	368,692	380,358	380,897	381,437	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	505,024	508,297	412,579	368,692	380,358	380,897	381,437	
Delivered WLA	1,250,000	1,250,000	490,251	490,251	490,251	490,251	490,251	
Expected Credits (delivered)	744,976	741,703	77,672	121,559	109,893	109,354	108,814	
Transfers In (Out) within Owner Bubble	(584,072)	(598,620)	(77,672)	(121,559)	(109,893)	(109,354)	(108,814)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**160,904**	**143,083**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**160,904**	**143,083**	**0**	**0**	**0**	**0**	**0**	

NITROGEN FACILITY SUMMARY

HRSD-Nansemond

LOWER JAMES Trading Basin

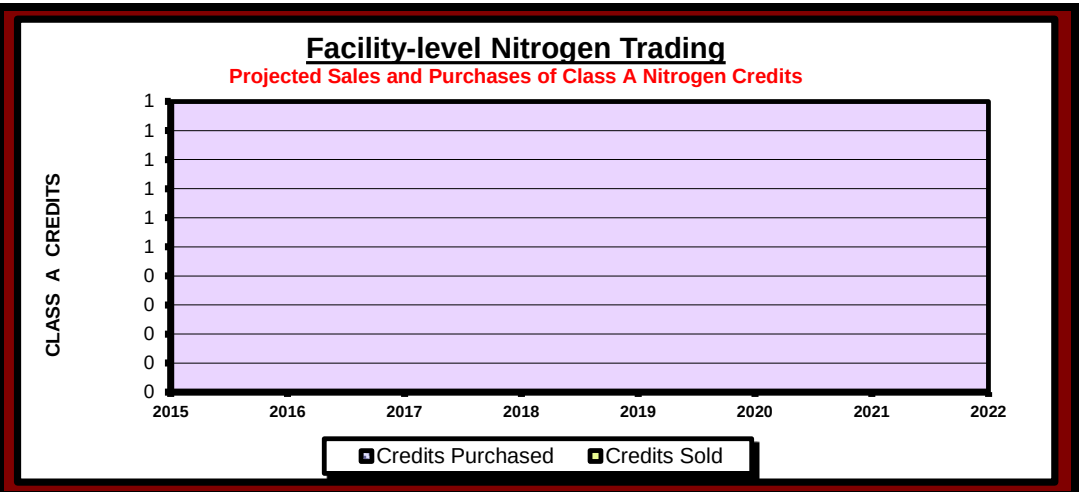


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	30.00	30.00	30.00	30.00	30.00	30.00	30.00	
Projected Flow (mgd)	18.57	18.94	18.13	18.28	18.51	18.86	19.22	
Projected Avg. Annual Concentration (mg/L)	8.00	8.00	7.50	7.50	7.50	7.50	7.50	
Discharged Load (end of pipe)	452,462	461,582	414,074	417,605	422,875	430,905	439,088	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	452,462	461,582	414,074	417,605	422,875	430,905	439,088	
Delivered WLA	750,000	750,000	735,376	735,376	735,376	735,376	735,376	
Expected Credits (delivered)	297,538	288,418	321,302	317,771	312,501	304,471	296,288	
Transfers In (Out) within Owner Bubble	0	0	(321,302)	(317,771)	(312,501)	(304,471)	(296,288)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**297,538**	**288,418**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**297,538**	**288,418**	**0**	**0**	**0**	**0**	**0**	

NITROGEN FACILITY SUMMARY

HRSD-VIP

LOWER JAMES Trading Basin

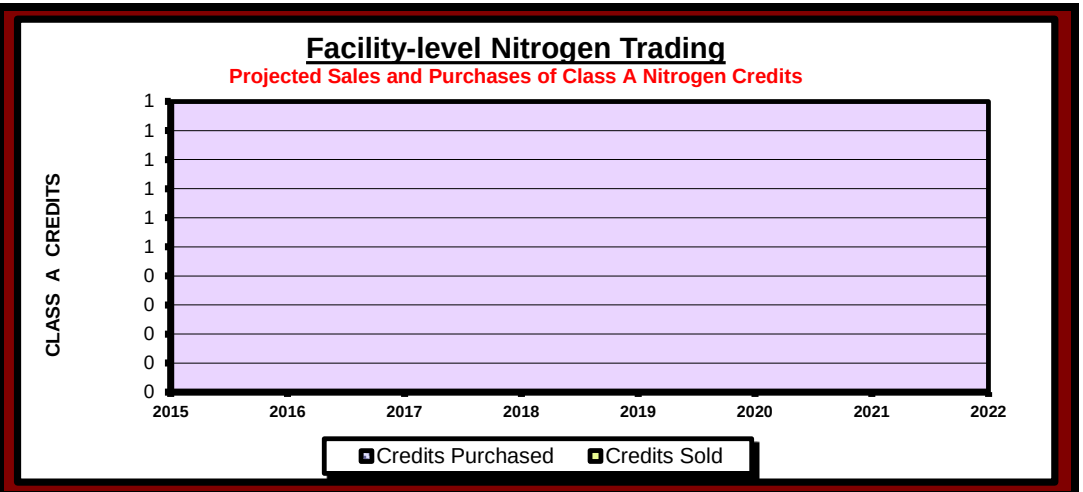


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
Projected Flow (mgd)	30.84	30.91	30.40	30.91	31.58	31.65	31.72	
Projected Avg. Annual Concentration (mg/L)	9.00	9.00	6.50	4.50	4.50	4.50	4.50	
Discharged Load (end of pipe)	845,404	847,355	601,789	423,571	432,863	433,785	434,709	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	845,404	847,355	601,789	423,571	432,863	433,785	434,709	
Delivered WLA	750,000	750,000	980,501	980,501	980,501	980,501	980,501	
Expected Credits (delivered)	(95,404)	(97,355)	378,712	556,930	547,638	546,716	545,792	
Transfers In (Out) within Owner Bubble	95,404	97,355	(378,712)	(556,930)	(547,638)	(546,716)	(545,792)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

NITROGEN FACILITY SUMMARY

HRSD-Williamsburg

LOWER JAMES Trading Basin

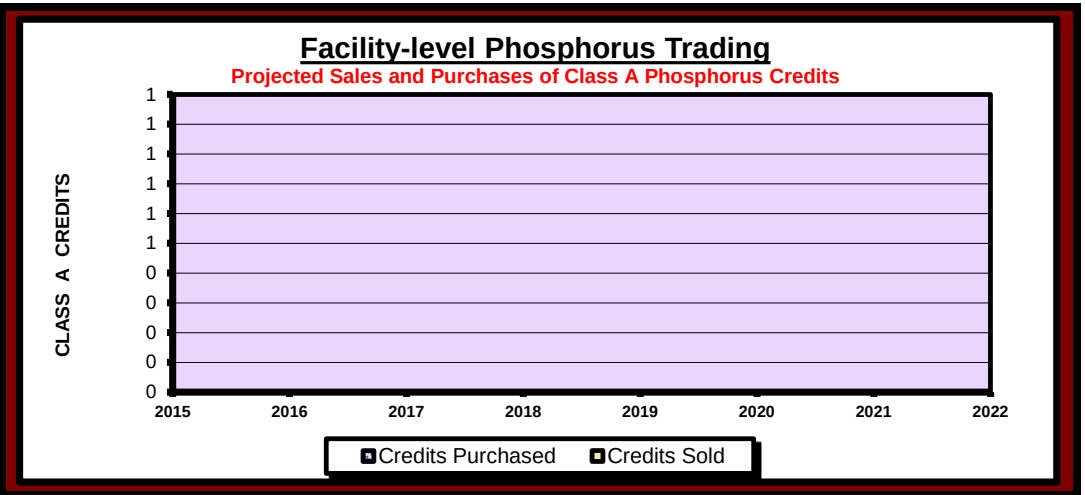


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	22.50	22.50	22.50	22.50	22.50	22.50	22.50	
Projected Flow (mgd)	10.11	10.30	9.98	9.53	9.55	9.67	9.80	
Projected Avg. Annual Concentration (mg/L)	14.00	14.00	12.00	10.00	10.00	10.00	10.00	
Discharged Load (end of pipe)	431,041	439,342	364,588	290,333	290,848	294,566	298,332	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	431,041	439,342	364,588	290,333	290,848	294,566	298,332	
Delivered WLA	800,000	800,000	551,532	551,532	551,532	551,532	551,532	
Expected Credits (delivered)	368,959	360,658	186,944	261,199	260,684	256,966	253,200	
Transfers In (Out) within Owner Bubble	0	0	(171,712)	(69,401)	(217,172)	(234,255)	(251,531)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**368,959**	**360,658**	**15,232**	**191,798**	**43,512**	**22,711**	**1,669**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**368,959**	**360,658**	**15,232**	**191,798**	**43,512**	**22,711**	**1,669**	

PHOSPHORUS FACILITY SUMMARY

HRSD-Army Base

LOWER JAMES Trading Basin

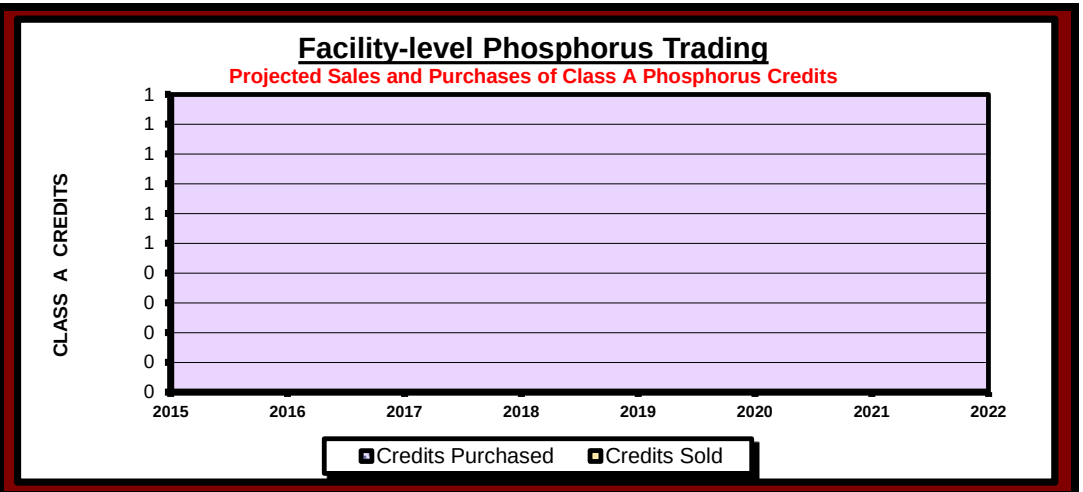


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	18.00	18.00	18.00	18.00	18.00	18.00	18.00	
Projected Flow (mgd)	11.31	11.32	10.99	10.85	11.46	11.47	11.48	
Projected Avg. Annual Concentration (mg/L)	0.70	0.70	1.00	1.00	0.80	0.80	0.80	
Discharged Load (end of pipe)	24,118	24,128	33,480	33,058	27,911	27,939	27,967	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	24,118	24,128	33,480	33,058	27,911	27,939	27,967	
Delivered WLA	38,332	38,332	38,332	38,332	38,332	38,332	38,332	
Expected Credits (delivered)	14,214	14,204	4,852	5,274	10,421	10,393	10,365	
Transfers In (Out) within Owner Bubble	(14,214)	(14,204)	(4,852)	(5,274)	(10,421)	(10,393)	(10,365)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

PHOSPHORUS FACILITY SUMMARY

HRSD-Boat Harbor

LOWER JAMES Trading Basin

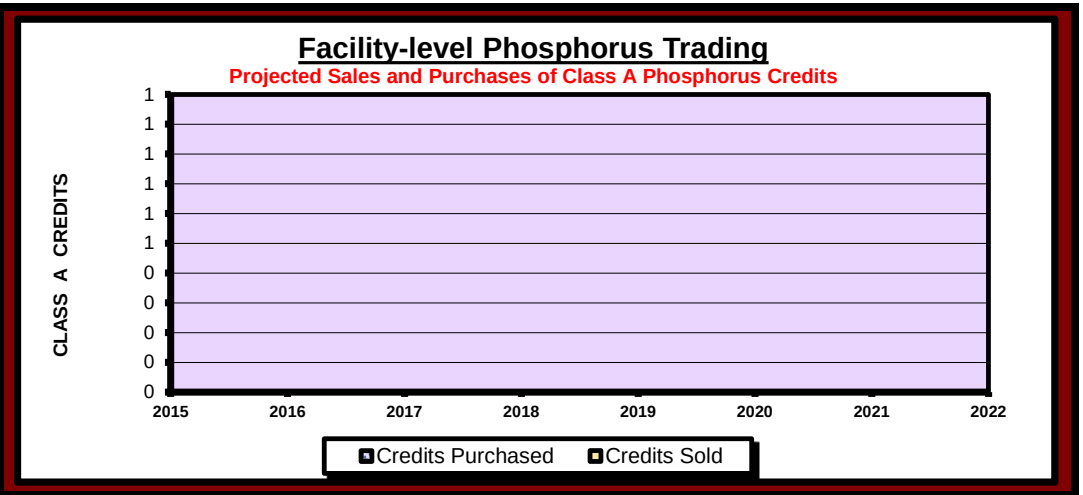


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
Projected Flow (mgd)	14.80	14.86	14.23	14.22	15.02	15.02	15.02	
Projected Avg. Annual Concentration (mg/L)	1.50	1.50	1.00	1.00	1.00	1.00	1.00	
Discharged Load (end of pipe)	67,631	67,900	43,333	43,305	45,733	45,735	45,736	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	67,631	67,900	43,333	43,305	45,733	45,735	45,736	
Delivered WLA	53,240	53,240	53,240	53,240	53,240	53,240	53,240	
Expected Credits (delivered)	(14,391)	(14,660)	9,907	9,935	7,507	7,505	7,504	
Transfers In (Out) within Owner Bubble	14,391	14,660	(9,907)	(9,935)	(7,507)	(7,505)	(7,504)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

PHOSPHORUS FACILITY SUMMARY

HRSD-Ches/Eliz

LOWER JAMES Trading Basin

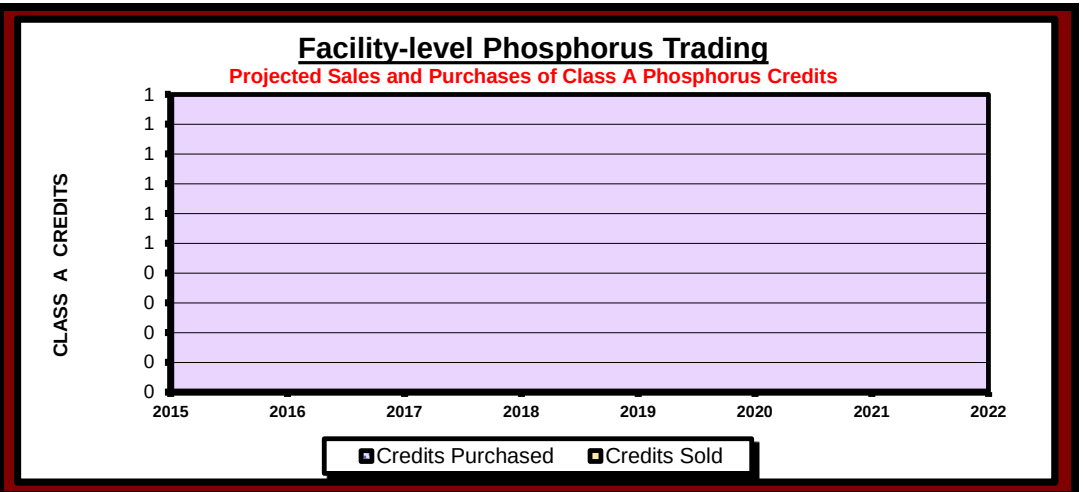


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	
Projected Flow (mgd)	15.17	15.27	15.98	17.76	18.38	18.47	18.56	
Projected Avg. Annual Concentration (mg/L)	1.50	1.50	1.00	1.00	1.00	1.00	1.00	
Discharged Load (end of pipe)	69,284	69,749	48,682	54,087	55,981	56,260	56,540	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	69,284	69,749	48,682	54,087	55,981	56,260	56,540	
Delivered WLA	51,110	51,110	51,110	51,110	51,110	51,110	51,110	
Expected Credits (delivered)	(18,174)	(18,639)	2,428	(2,977)	(4,871)	(5,150)	(5,430)	
Transfers In (Out) within Owner Bubble	18,174	18,639	(2,428)	2,977	4,871	5,150	5,430	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

PHOSPHORUS FACILITY SUMMARY

HRSD-James River

LOWER JAMES Trading Basin

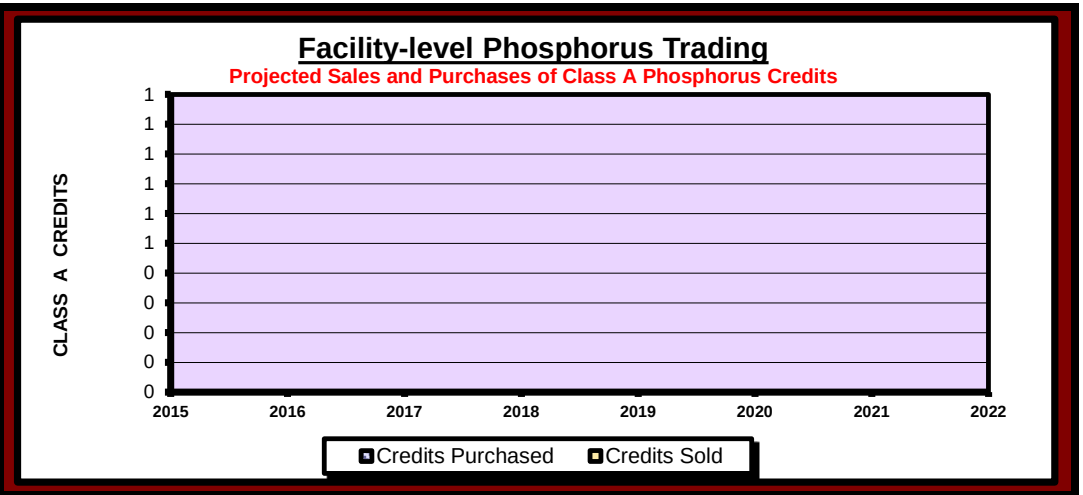


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	
Projected Flow (mgd)	13.82	13.91	13.55	13.45	13.88	13.90	13.92	
Projected Avg. Annual Concentration (mg/L)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Discharged Load (end of pipe)	42,085	42,358	41,258	40,966	42,262	42,322	42,382	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	42,085	42,358	41,258	40,966	42,262	42,322	42,382	
Delivered WLA	42,591	42,591	42,591	42,591	42,591	42,591	42,591	
Expected Credits (delivered)	506	233	1,333	1,625	329	269	209	
Transfers In (Out) within Owner Bubble	(506)	(233)	(1,333)	(1,625)	(329)	(269)	(209)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

PHOSPHORUS FACILITY SUMMARY

HRSD-Nansemond

LOWER JAMES Trading Basin

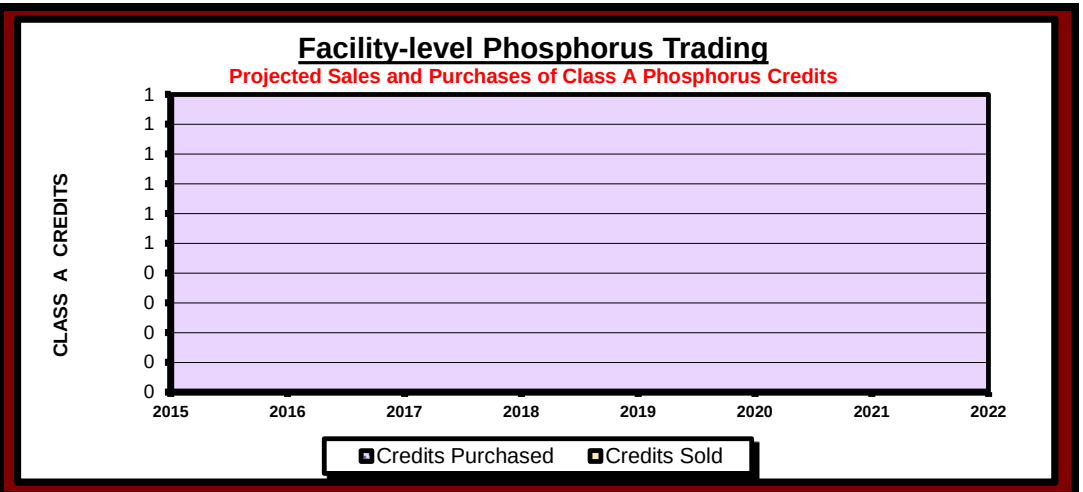


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	30.00	30.00	30.00	30.00	30.00	30.00	30.00	
Projected Flow (mgd)	18.57	18.94	18.13	18.28	18.51	18.86	19.22	
Projected Avg. Annual Concentration (mg/L)	0.70	0.70	1.50	1.50	1.70	1.70	1.70	
Discharged Load (end of pipe)	39,590	40,388	82,815	83,521	95,852	97,672	99,527	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	39,590	40,388	82,815	83,521	95,852	97,672	99,527	
Delivered WLA	63,887	63,887	63,887	63,887	63,887	63,887	63,887	
Expected Credits (delivered)	24,297	23,499	(18,928)	(19,634)	(31,965)	(33,785)	(35,640)	
Transfers In (Out) within Owner Bubble	(719)	(2,329)	18,928	19,634	31,965	33,785	35,640	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**23,578**	**21,170**	**0**	**0**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**23,578**	**21,170**	**0**	**0**	**0**	**0**	**0**	

PHOSPHORUS FACILITY SUMMARY

HRSD-VIP

LOWER JAMES Trading Basin



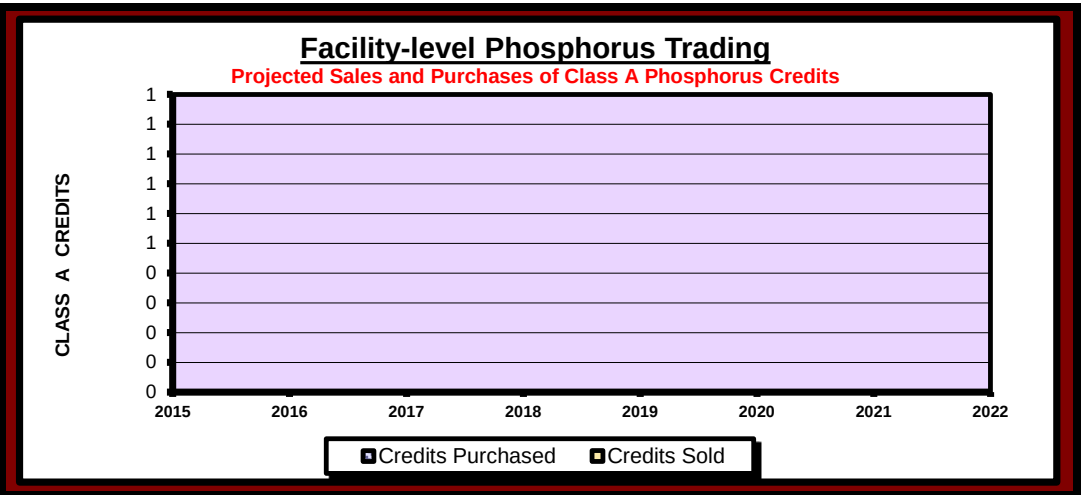
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
Projected Flow (mgd)	30.84	30.91	30.40	30.91	31.58	31.65	31.72	
Projected Avg. Annual Concentration (mg/L)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
Discharged Load (end of pipe)	65,754	65,905	64,808	65,889	67,334	67,478	67,621	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	65,754	65,905	64,808	65,889	67,334	67,478	67,621	
Delivered WLA*	76,172	76,172	76,172	76,172	76,172	76,172	76,172	
Expected Credits (delivered)	10,418	10,267	11,364	10,283	8,838	8,694	8,551	
Transfers In (Out) within Owner Bubble	0	0	0	0	(8,838)	(8,694)	(8,551)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**10,418**	**10,267**	**11,364**	**10,283**	**0**	**0**	**0**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**10,418**	**10,267**	**11,364**	**10,283**	**0**	**0**	**0**	

** Reflects allocation transfer to G. Robert House WTP (City of Suffolk) of 9,011 delivered pounds of TP*

PHOSPHORUS FACILITY SUMMARY

HRSD-Williamsburg

LOWER JAMES Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	22.50	22.50	22.50	22.50	22.50	22.50	22.50	
Projected Flow (mgd)	10.11	10.30	9.98	9.53	9.55	9.67	9.80	
Projected Avg. Annual Concentration (mg/L)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Discharged Load (end of pipe)	30,789	31,382	30,382	29,033	29,085	29,457	29,833	
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Expected Load	30,789	31,382	30,382	29,033	29,085	29,457	29,833	
Delivered WLA	47,915	47,915	47,915	47,915	47,915	47,915	47,915	
Expected Credits (delivered)	17,126	16,533	17,533	18,882	18,830	18,458	18,082	
Transfers In (Out) within Owner Bubble	(17,126)	(16,533)	(408)	(5,777)	(9,741)	(12,074)	(14,441)	
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	
WQIF-Held Credits	0	0	0	0	0	0	0	
Expected Net Credits	**0**	**0**	**17,125**	**13,105**	**9,089**	**6,384**	**3,641**	
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Expected Class B Credits	**0**	**0**	**17,125**	**13,105**	**9,089**	**6,384**	**3,641**	

FACILITY (OR OWNER BUBBLE) NAME: VAN040090 HRSD James River Aggregate

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Check One:
__X__ James River TN Compliance
_____ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

_X__ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
Completion of the Army Base STP and Virginia Initiative STP projects are needed to reliably meet the 2017 aggregate wasteload allocation.

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
__X__ NO _____ YES

2. Is permittee implementing a capital project to comply?
_____ NO __X__ YES
(If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

Army Base STP

Engineer selection	8/22/2006
PER/CER to DEQ	10/1/2007
Plans & Specifications to DEQ	7/1/2009
Commence construction	5/3/2010
Complete construction	4/1/2015
CTO Request to DEQ (POTWs only)	5/1/2015

Virginia Initiative STP

Engineer selection	7/1/2011
PER/CER to DEQ	6/1/2012
Plans & Specifications to DEQ	10/1/2013
Commence construction	5/1/2014
Complete construction	1/1/2018
CTO Request to DEQ (POTWs only)	2/1/2018

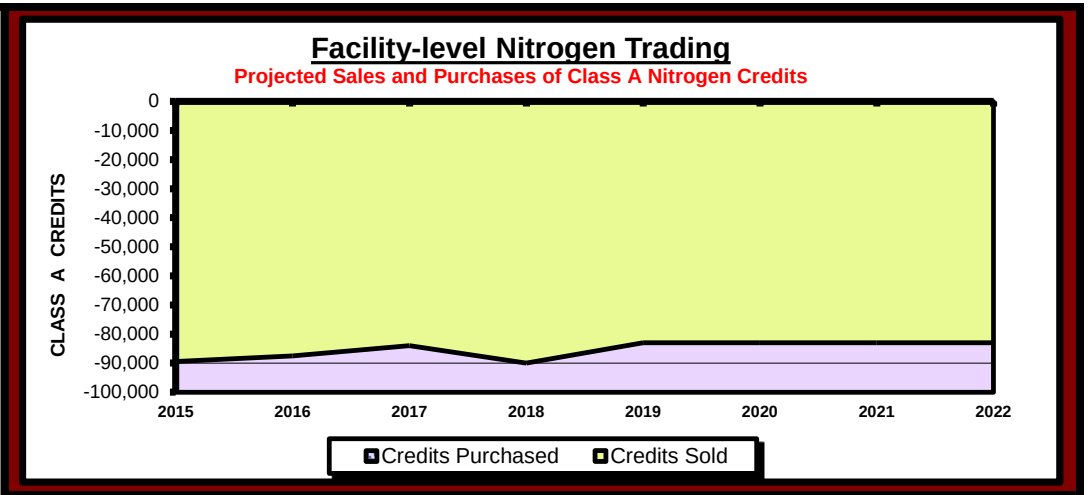
Although the VIP construction extends past 2017, HRSD anticipates compliance with the 2017 allocation without having to purchase credits. As with all upgrade projects, treatment facilities will be placed in service as they become available in order to test their construction and compatibility with current facilities. The partial implementation of the VIP upgrade coupled with the full optimization of the Army Base STP upgrade should result in compliance with the nutrient allocation for 2017.

Completion of the above plan is designed to meet HRSD's James River TN Aggregate WLA through and including the 2017 reduction (TN Aggregate WLA of 4,400,000 lbs/yr) established by the Watershed General Permit and related James River Registration List (1/8/2013) in compliance with applicable water quality standards and consistent with Chesapeake Bay TMDL Appendix X (Staged Implementation Approach for Wastewater Treatment Facilities in the Virginia James River Basin) (December 2010). By 2022 a further reduction is contemplated under the staged implementation approach. Due to lead times associated with completing large complex projects within the HRSD system in order to meet the anticipated 2022 TN Aggregate WLA (3,400,000 lbs/yr TN) HRSD currently intends to leverage the planned consolidation of the Chesapeake-Elizabeth STP within the regional system to support compliance with the 2022 TN Aggregate WLA. This consolidation is expected to require fewer WQIF funds than a facility upgrade alternative. This plan is preliminary and subject to future revision by HRSD.

NITROGEN FACILITY SUMMARY

Lynchburg

UPPER JAMES Trading Basin

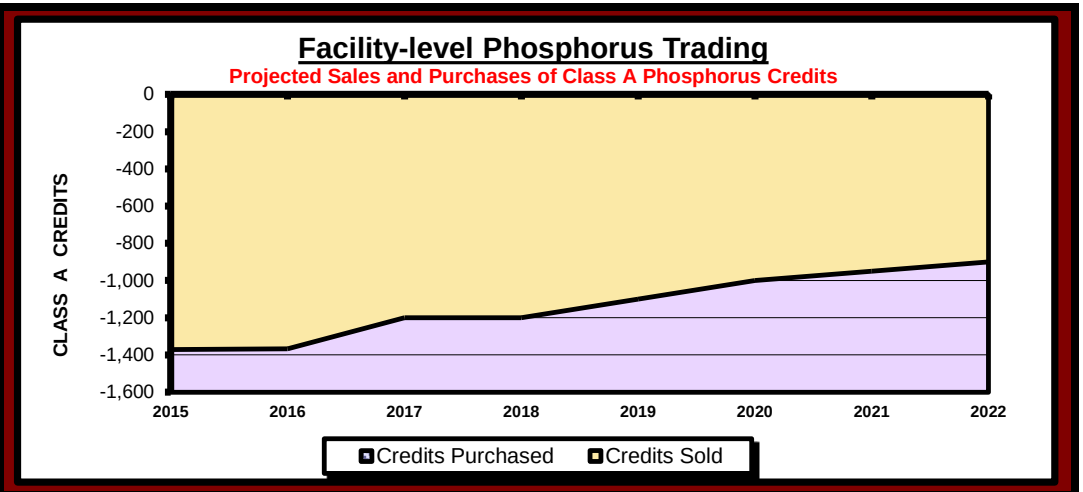


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
Projected Flow (mgd)	14.00	14.50	14.60	14.62	14.70	14.80	14.90	15.00
Projected Avg. Annual Concentration (mg/L)	8.75	8.75	8.75	8.50	8.75	8.75	8.75	8.75
Discharged Load (end of pipe)	373,081	386,405	389,070	378,472	391,735	394,400	397,065	399,730
Delivery Factor	0.61	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Expected Load	227,579	251,164	252,896	246,007	254,628	256,360	258,092	259,824
Delivered WLA	326,971	348,412	348,412	348,412	348,412	348,412	348,412	348,412
Expected Credits (delivered)	99,392	97,248	95,516	102,405	93,784	92,052	90,320	88,588
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**99,392**	**97,248**	**95,516**	**102,405**	**93,784**	**92,052**	**90,320**	**88,588**
Class A Credit Sales (Purchases)	**89,453**	**87,523**	**84,000**	**90,000**	**83,000**	**83,000**	**83,000**	**83,000**
Expected Class B Credits	**9,939**	**9,725**	**11,516**	**12,405**	**10,784**	**9,052**	**7,320**	**5,588**

PHOSPHORUS FACILITY SUMMARY

Lynchburg

UPPER JAMES Trading Basin

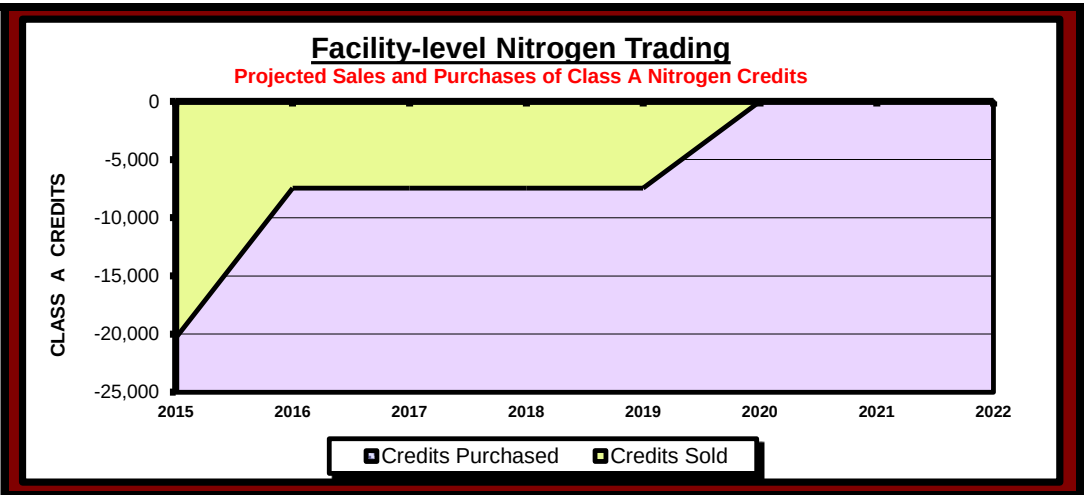


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
Projected Flow (mgd)	14.00	14.50	14.60	14.62	14.70	14.80	14.90	15.00
Projected Avg. Annual Concentration (mg/L)	0.75	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Discharged Load (end of pipe)	31,978	30,912	31,126	31,168	31,339	31,552	31,765	31,978
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	31,978	20,402	20,543	20,571	20,684	20,824	20,965	21,106
Delivered WLA	33,501	22,111	22,111	22,111	22,111	22,111	22,111	22,111
Expected Credits (delivered)	1,523	1,709	1,568	1,540	1,427	1,287	1,146	1,005
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,523**	**1,709**	**1,568**	**1,540**	**1,427**	**1,287**	**1,146**	**1,005**
Class A Credit Sales (Purchases)	**1,371**	**1,367**	**1,200**	**1,200**	**1,100**	**1,000**	**950**	**900**
Expected Class B Credits	**152**	**342**	**368**	**340**	**327**	**287**	**196**	**105**

NITROGEN FACILITY SUMMARY

MeadWestvaco

UPPER JAMES Trading Basin

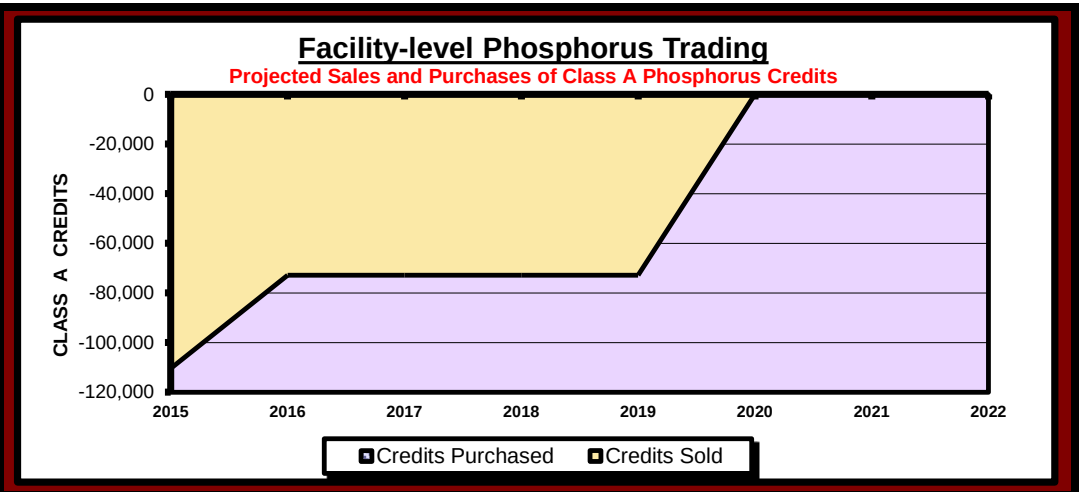


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Projected Flow (mgd)	32.50	32.50	32.50	32.50	32.50	32.50	32.50	32.50
Projected Avg. Annual Concentration (mg/L)	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30
Discharged Load (end of pipe)	326,636	326,636	326,636	326,636	326,636	326,636	326,636	326,636
Delivery Factor	0.30	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Expected Load	97,991	35,930	35,930	35,930	35,930	35,930	35,930	35,930
Delivered WLA	118,320	43,384	43,384	43,384	43,384	43,384	43,384	43,384
Expected Credits (delivered)	20,329	7,454	7,454	7,454	7,454	7,454	7,454	7,454
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**20,329**	**7,454**	**7,454**	**7,454**	**7,454**	**7,454**	**7,454**	**7,454**
Class A Credit Sales (Purchases)	**20,329**	**7,454**	**7,454**	**7,454**	**7,454**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**7,454**	**7,454**	**7,454**

PHOSPHORUS FACILITY SUMMARY

MeadWestvaco

UPPER JAMES Trading Basin

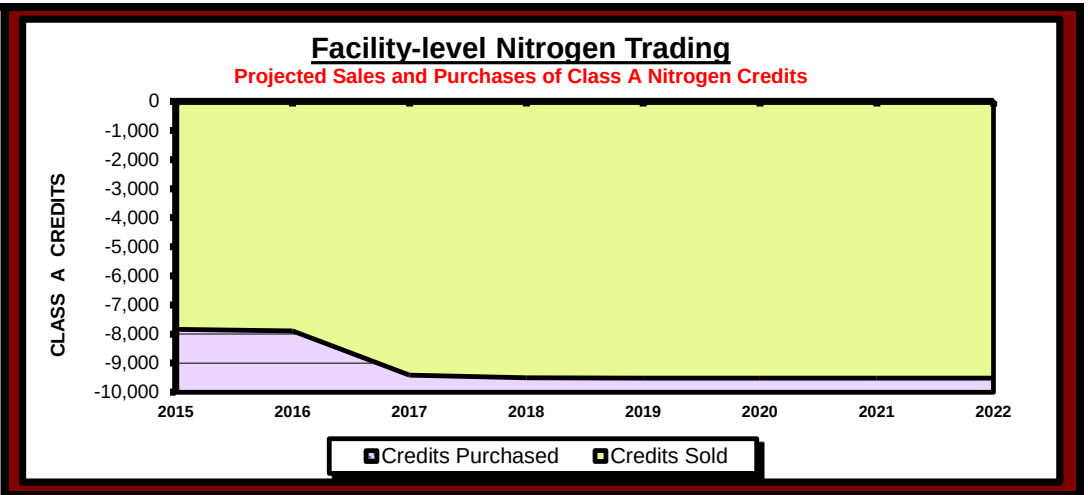


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Projected Flow (mgd)	32.50	32.50	32.50	32.50	32.50	32.50	32.50	32.50
Projected Avg. Annual Concentration (mg/L)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	49,490	49,490	49,490	49,490	49,490	49,490	49,490	49,490
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	49,490	32,664	32,664	32,664	32,664	32,664	32,664	32,664
Delivered WLA	159,892	105,529	105,529	105,529	105,529	105,529	105,529	105,529
Expected Credits (delivered)	110,402	72,865	72,865	72,865	72,865	72,865	72,865	72,865
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**110,402**	**72,865**	**72,865**	**72,865**	**72,865**	**72,865**	**72,865**	**72,865**
Class A Credit Sales (Purchases)	**110,402**	**72,865**	**72,865**	**72,865**	**72,865**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**72,865**	**72,865**	**72,865**

NITROGEN FACILITY SUMMARY

MSA-Lexington

UPPER JAMES Trading Basin

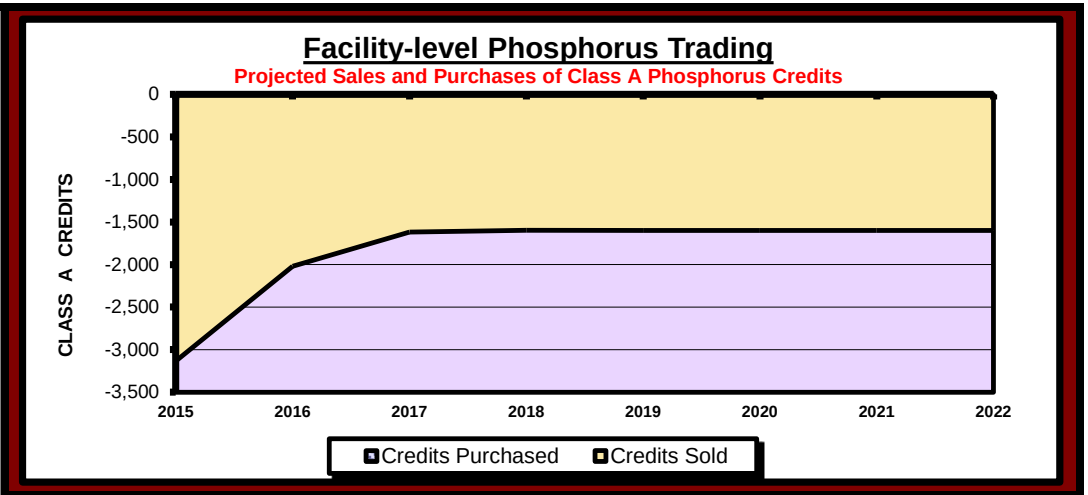


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Projected Flow (mgd)	1.57	1.65	1.39	1.01	0.97	1.01	1.01	1.01
Projected Avg. Annual Concentration (mg/L)	6.00	6.00	6.00	4.01	3.81	4.01	4.01	4.01
Discharged Load (end of pipe)	28,689	30,151	25,400	12,384	11,255	12,335	12,335	12,335
Delivery Factor	0.30	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Expected Load	8,607	9,648	8,128	3,963	3,602	3,947	3,947	3,947
Delivered WLA	16,446	17,542	17,542	17,542	17,542	17,542	17,542	17,542
Expected Credits (delivered)	7,839	7,894	9,414	13,579	13,940	13,595	13,595	13,595
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**7,839**	**7,894**	**9,414**	**13,579**	**13,940**	**13,595**	**13,595**	**13,595**
Class A Credit Sales (Purchases)	**7,839**	**7,894**	**9,414**	**9,505**	**9,517**	**9,517**	**9,517**	**9,517**
Expected Class B Credits	**0**	**0**	**0**	**4,074**	**4,423**	**4,078**	**4,078**	**4,078**

PHOSPHORUS FACILITY SUMMARY

MSA-Lexington

UPPER JAMES Trading Basin

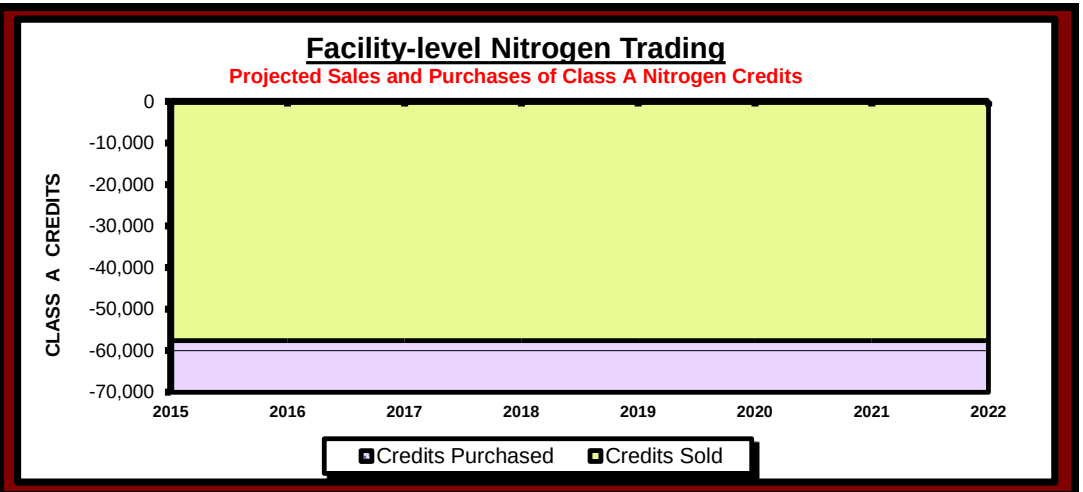


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Projected Flow (mgd)	1.57	1.65	1.39	1.01	0.97	1.01	1.01	1.01
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.50	0.36	0.20	0.36	0.36	0.36
Discharged Load (end of pipe)	1,434	1,508	2,117	1,112	579	1,107	1,107	1,107
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	1,434	995	1,397	734	382	731	731	731
Delivered WLA	4,568	3,015	3,015	3,015	3,015	3,015	3,015	3,015
Expected Credits (delivered)	3,134	2,020	1,618	2,281	2,633	2,284	2,284	2,284
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,134**	**2,020**	**1,618**	**2,281**	**2,633**	**2,284**	**2,284**	**2,284**
Class A Credit Sales (Purchases)	**3,134**	**2,020**	**1,618**	**1,597**	**1,599**	**1,599**	**1,599**	**1,599**
Expected Class B Credits	**0**	**0**	**0**	**684**	**1,034**	**685**	**685**	**685**

NITROGEN FACILITY SUMMARY

Philip Morris

UPPER JAMES Trading Basin

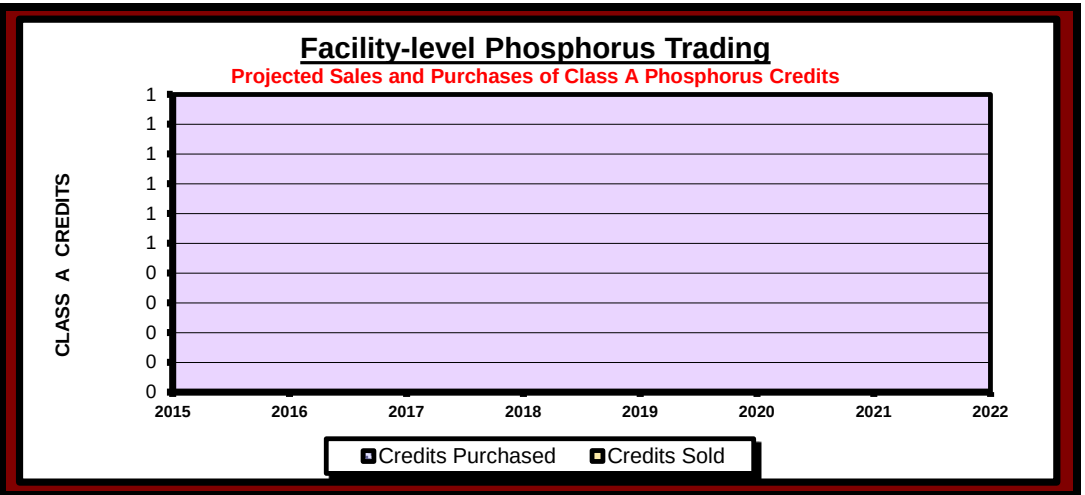


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Projected Flow (mgd)	1.60	1.60	1.60	1.60	1.50	1.40	1.30	1.30
Projected Avg. Annual Concentration (mg/L)	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90
Discharged Load (end of pipe)	67,733	67,733	67,733	67,733	63,500	59,267	55,033	55,033
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	67,733	67,733	67,733	67,733	63,500	59,267	55,033	55,033
Delivered WLA	139,724	139,724	139,724	139,724	139,724	139,724	139,724	139,724
Expected Credits (delivered)	71,991	71,991	71,991	71,991	76,224	80,457	84,691	84,691
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**71,991**	**71,991**	**71,991**	**71,991**	**76,224**	**80,457**	**84,691**	**84,691**
Class A Credit Sales (Purchases)	**57,592**	**57,592**	**57,592**	**57,592**	**57,592**	**57,592**	**57,592**	**57,592**
Expected Class B Credits	**14,399**	**14,399**	**14,399**	**14,399**	**18,632**	**22,865**	**27,099**	**27,099**

PHOSPHORUS FACILITY SUMMARY

Philip Morris

UPPER JAMES Trading Basin

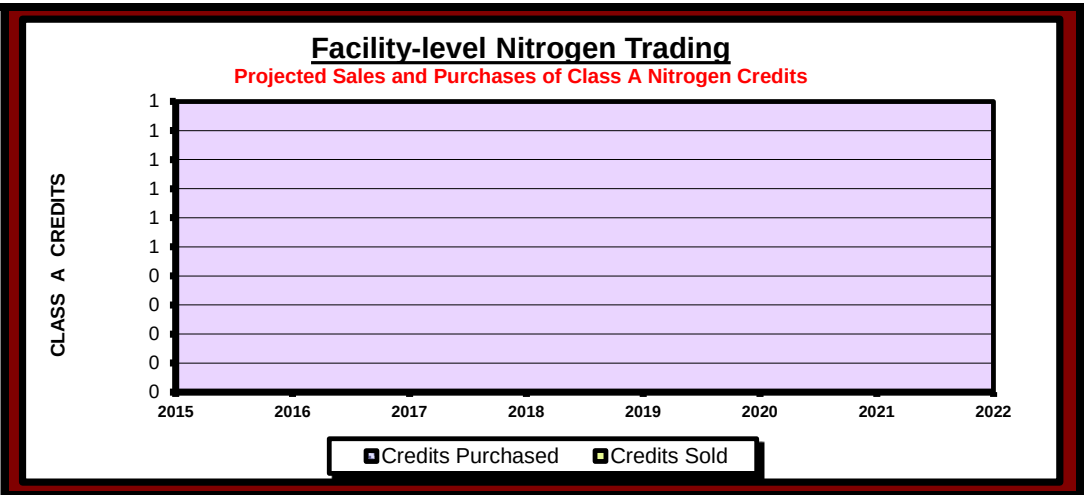


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Projected Flow (mgd)	1.60	1.60	1.60	1.60	1.50	1.40	1.30	1.30
Projected Avg. Annual Concentration (mg/L)	0.50	0.50	0.50	0.50	0.55	0.60	0.65	0.65
Discharged Load (end of pipe)	2,436	2,436	2,436	2,436	2,513	2,558	2,573	2,573
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,436	2,436	2,436	2,436	2,513	2,558	2,573	2,573
Delivered WLA	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
Expected Credits (delivered)	214	214	214	214	137	92	77	77
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**214**	**214**	**214**	**214**	**137**	**92**	**77**	**77**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**214**	**214**	**214**	**214**	**137**	**92**	**77**	**77**

NITROGEN FACILITY SUMMARY

Richmond

UPPER JAMES Trading Basin



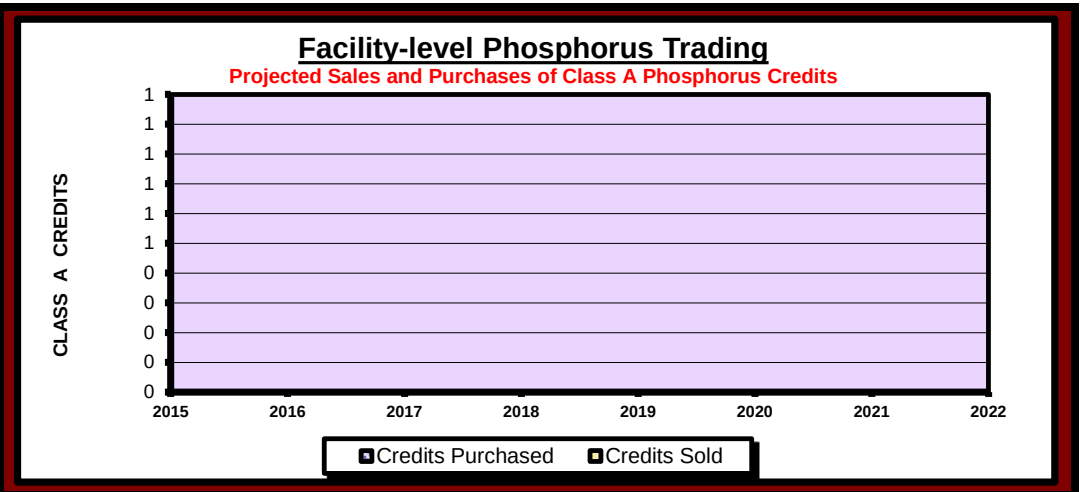
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Projected Flow (mgd)	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Projected Avg. Annual Concentration (mg/L)	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98
Discharged Load (end of pipe)	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652
Delivered WLA*	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652	1,093,652
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

** Reflects allocation transfer to the Oilville WWTP of 2,750 delivered pounds of TN through 2022 based on agreement with Goochland County*

PHOSPHORUS FACILITY SUMMARY

Richmond

UPPER JAMES Trading Basin



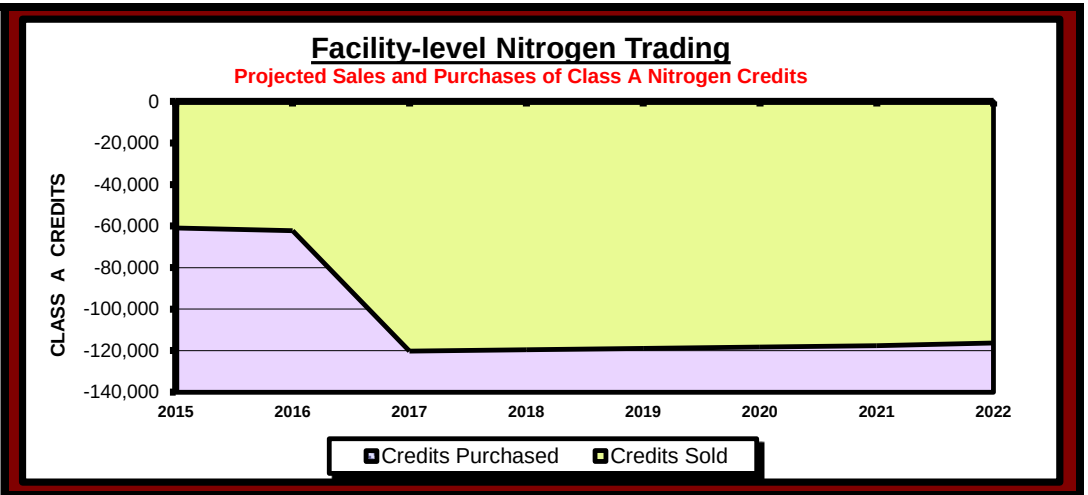
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Projected Flow (mgd)	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Projected Avg. Annual Concentration (mg/L)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Discharged Load (end of pipe)	68,250	68,250	68,250	68,250	68,250	68,250	68,250	68,250
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	68,250	68,250	68,250	68,250	68,250	68,250	68,250	68,250
Delivered WLA*	68,250	68,250	68,250	68,250	68,250	68,250	68,250	68,250
Expected Credits (delivered)	0	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

** Reflects allocation transfer to the Oilville WWTP of 275 delivered pounds of TP through 2022 based on agreement with Goochland County*

NITROGEN FACILITY SUMMARY

RWSA-Moores Creek

UPPER JAMES Trading Basin



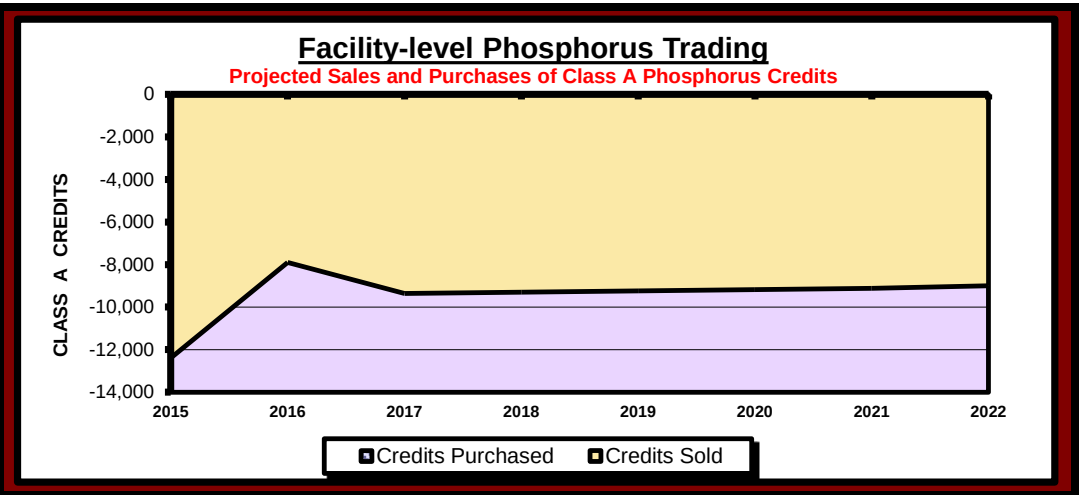
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Projected Flow (mgd)	10.40	10.50	10.60	10.70	10.80	10.90	11.00	11.20
Projected Avg. Annual Concentration (mg/L)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
Discharged Load (end of pipe)	101,356	102,331	103,305	104,280	105,255	106,229	107,204	109,153
Delivery Factor	0.61	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Expected Load	61,827	68,562	69,215	69,868	70,521	71,174	71,826	73,132
Delivered WLA*	172,463	189,442	189,442	189,442	189,442	189,442	189,442	189,442
Expected Credits (delivered)	110,636	120,880	120,227	119,574	118,921	118,268	117,616	116,310
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**110,636**	**120,880**	**120,227**	**119,574**	**118,921**	**118,268**	**117,616**	**116,310**
Class A Credit Sales (Purchases)	**60,935**	**62,236**	**120,227**	**119,574**	**118,921**	**118,268**	**117,616**	**116,310**
Expected Class B Credits	**49,701**	**58,644**	**0**	**0**	**0**	**0**	**0**	**0**

** Reflects allocation transfer to Ryder Enterprises of 163 delivered pounds of TN beginning in Compliance Year 2015*

PHOSPHORUS FACILITY SUMMARY

RWSA-Moores Creek

UPPER JAMES Trading Basin



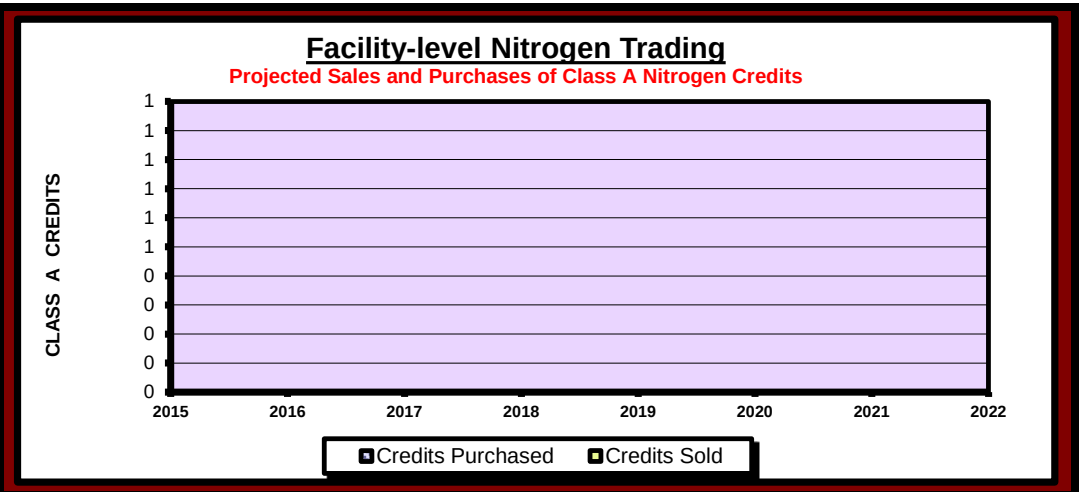
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Projected Flow (mgd)	10.40	10.50	10.60	10.70	10.80	10.90	11.00	11.20
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	9,502	9,594	9,685	9,776	9,868	9,959	10,050	10,233
Delivery Factor	1.00	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Expected Load	9,502	6,332	6,392	6,452	6,513	6,573	6,633	6,754
Delivered WLA*	23,895	15,751	15,751	15,751	15,751	15,751	15,751	15,751
Expected Credits (delivered)	14,393	9,419	9,359	9,299	9,238	9,178	9,118	8,997
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**14,393**	**9,419**	**9,359**	**9,299**	**9,238**	**9,178**	**9,118**	**8,997**
Class A Credit Sales (Purchases)	**12,390**	**7,900**	**9,359**	**9,299**	**9,238**	**9,178**	**9,118**	**8,997**
Expected Class B Credits	**2,003**	**1,519**	**0**	**0**	**0**	**0**	**0**	**0**

** Reflects allocation transfer to Ryder Enterprises of 59 delivered pounds of TP beginning in Compliance Year 2015*

NITROGEN FACILITY SUMMARY

South Central WWA

UPPER JAMES Trading Basin



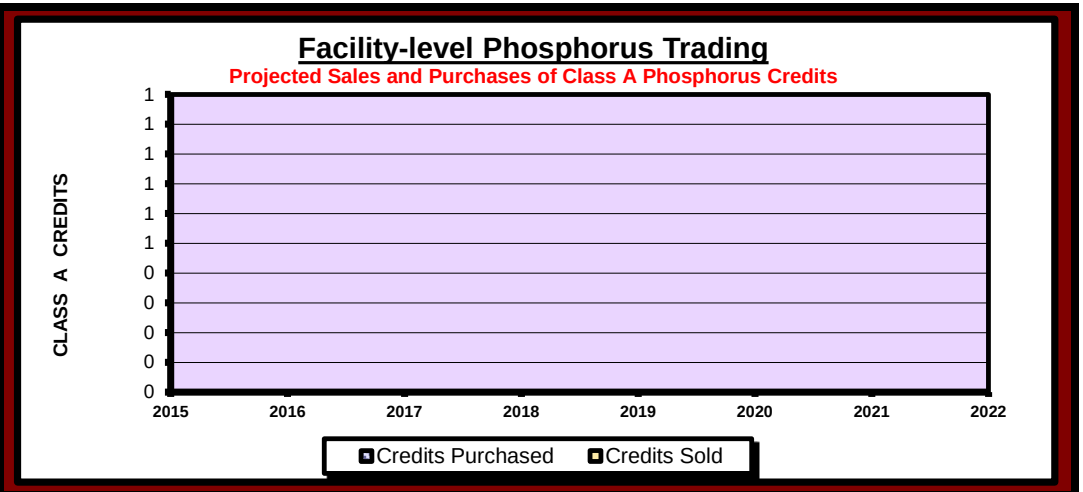
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Projected Flow (mgd)	12.21	12.28	12.35	12.42	12.49	12.56	12.61	12.66
Projected Avg. Annual Concentration (mg/L)	11.85	11.78	11.55	11.50	11.43	11.57	11.57	11.57
Discharged Load (end of pipe)	440,658	440,566	434,426	434,997	434,786	442,578	444,270	445,961
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	440,658	440,566	434,426	434,997	434,786	442,578	444,270	445,961
Delivered WLA	350,239	350,239	350,239	350,239	350,239	350,239	350,239	350,239
Expected Credits (delivered)	(90,419)	(90,327)	(84,187)	(84,758)	(84,547)	(92,339)	(94,031)	(95,722)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange*	250,404	283,352	85,000	85,000	85,000	92,339	94,031	95,722
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**159,985**	**193,025**	**813**	**242**	**453**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**159,985**	**193,025**	**813**	**242**	**453**	**0**	**0**	**0**

** Represents Credits provided by both Henrico County and Chesterfield County's Proctors Creek facility via Private Exchange*

PHOSPHORUS FACILITY SUMMARY

South Central WWA

UPPER JAMES Trading Basin



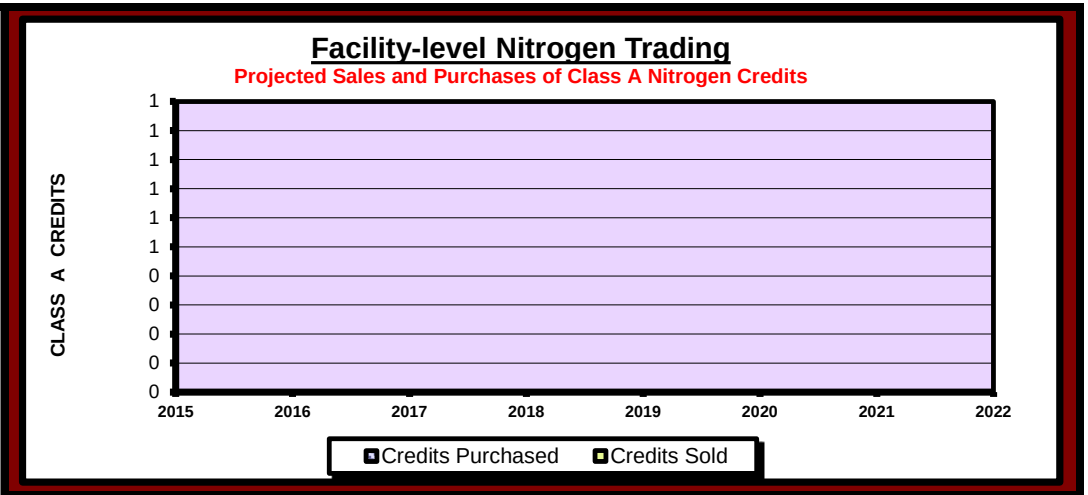
Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Projected Flow (mgd)	12.21	12.28	12.35	12.42	12.49	12.56	12.61	12.66
Projected Avg. Annual Concentration (mg/L)	0.94	0.93	0.93	0.92	0.90	0.90	0.90	0.90
Discharged Load (end of pipe)	34,955	34,782	34,980	34,800	34,235	34,427	34,559	34,690
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	34,955	34,782	34,980	34,800	34,235	34,427	34,559	34,690
Delivered WLA	35,024	35,024	35,024	35,024	35,024	35,024	35,024	35,024
Expected Credits (delivered)	69	242	44	224	789	597	465	334
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange*	16,293	17,576	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**16,362**	**17,818**	**44**	**224**	**789**	**597**	**465**	**334**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**16,362**	**17,818**	**44**	**224**	**789**	**597**	**465**	**334**

** Represents Credits provided by both Henrico County and Chesterfield County's Proctors Creek facility via Private Exchange*

NITROGEN FACILITY SUMMARY

Tyson Foods-Glen Allen

UPPER JAMES Trading Basin

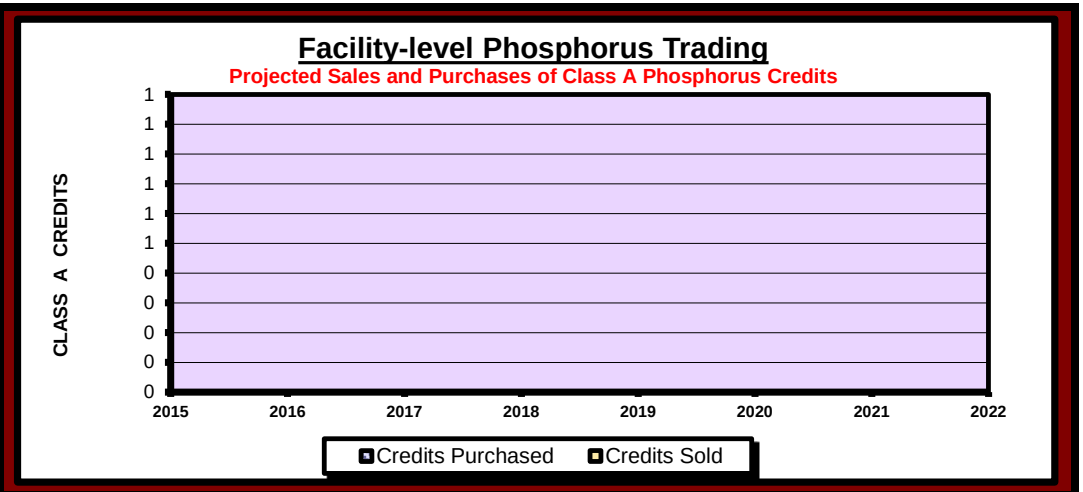


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Projected Flow (mgd)	1.00	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Projected Avg. Annual Concentration (mg/L)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Discharged Load (end of pipe)	18,273	19,552	19,552	19,552	19,552	19,552	19,552	19,552
Delivery Factor	1.00	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Expected Load	18,273	3,128	3,128	3,128	3,128	3,128	3,128	3,128
Delivered WLA	19,552	3,128	3,128	3,128	3,128	3,128	3,128	3,128
Expected Credits (delivered)	1,279	0	0	0	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**1,279**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**1,279**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Tyson Foods-Glen Allen

UPPER JAMES Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Projected Flow (mgd)	1.00	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Projected Avg. Annual Concentration (mg/L)	0.10	0.10	0.13	0.13	0.13	0.13	0.13	0.13
Discharged Load (end of pipe)	305	326	407	407	407	407	407	407
Delivery Factor	1.00	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Expected Load	305	150	187	187	187	187	187	187
Delivered WLA	409	188	188	188	188	188	188	188
Expected Credits (delivered)	104	38	1	1	1	1	1	1
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**104**	**38**	**1**	**1**	**1**	**1**	**1**	**1**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**104**	**38**	**1**	**1**	**1**	**1**	**1**	**1**

SECTION 6

Eastern Shore Basin Exchange Compliance Plan

Consistent with similar disclosures made in conjunction with the original Exchange Compliance Plan dated July 31, 2007, and each annual update thereafter, Credit forecasts for the Eastern Shore basin continue to indicate a potential lack of Credit availability from facilities located within the Eastern Shore basin. This situation derives in part from the relatively small number of facilities and total allocations of the Eastern Shore basin.

In 2010, Virginia law governing nutrient allocation compliance and reporting was amended by House Bill 1290 (2010 Acts of Assembly Chapter 11) to amend the general limitation of trading to the tributary level by allowing that "permitted facilities in the Eastern Shore basin may also acquire credits from permitted facilities in the Potomac and Rappahannock tributaries." Va. Code § 62.1-44.19:18.A.1.

Accordingly, this Annual Update incorporates use of Class A Credits from the Potomac basin to meet Eastern Shore Class A Credit purchase requests that cannot be satisfied from Class A Credit sales commitments by facilities in the Eastern Shore basin. This limited cross-basin trading is noted, as applicable, on the Credit ledgers in both this section and the Potomac section. The Nitrogen and Phosphorus compliance charts of the Eastern Shore basin illustrate the impact of Class A Credits provided by the Potomac basin (Declared Load forecast), while the Expected Load line represents the net Expected Credits of Eastern Shore facilities only.

EXHIBIT 6-1
Nitrogen Plan Summary: Eastern Shore Basin

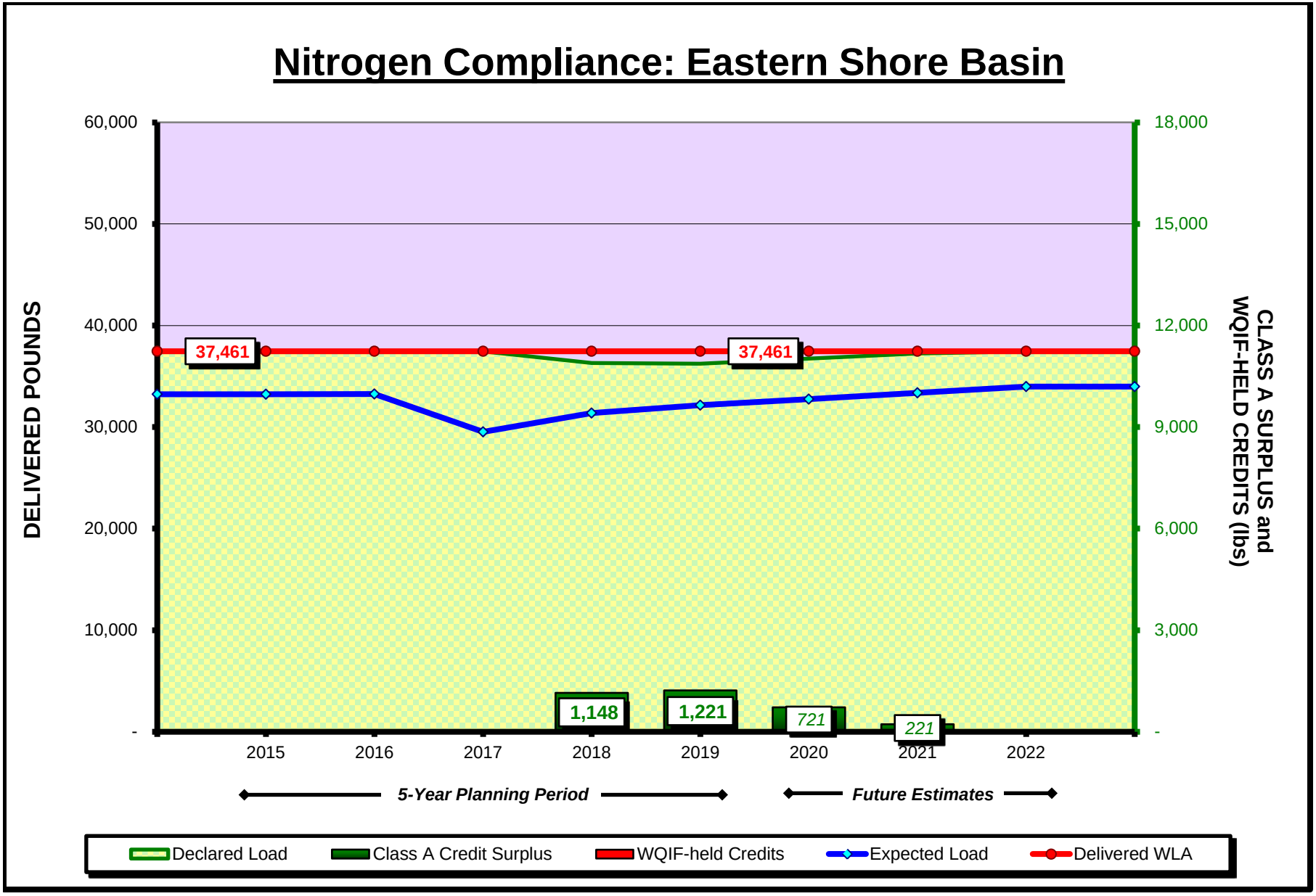


EXHIBIT 6-2
2015 Nitrogen Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Nitrogen Credit Ledger

Compliance Year:	*2015*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	No Sale	$ 3.05	$ 0.11
The Exchange (group)	**37,461**	**33,227**	**4,234**	**-**	**2,406**	**-**	**6,640**		**2,406**	**(2,406)**	**6,640**
Cape Charles	3,046	2,193	853	-	-	-	853		-	-	853
Onancock	9,137	6,091	3,046	-	-	-	3,046		-	-	3,046
Shore Health Services	1,218	1,845	(627)	-	-	-	(627)		-	(627)	-
Tangier Island	1,218	2,997	(1,779)	-	-	-	(1,779)		-	(1,779)	-
Tyson Foods-Temperanceville	22,842	20,101	2,741	-	-	-	2,741		-	-	2,741
Sale from Potomac Basin	-	-	-	-	2,406	-	2,406		2,406	-	-
	-	-	-	-	-	-	-		-	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-3
2016 Nitrogen Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Nitrogen Credit Ledger

Compliance Year:	*2016*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	No Sale	$ 3.50	$ 0.10
The Exchange (group)	**37,461**	**33,248**	**4,213**	**-**	**1,779**	**-**	**5,992**		**1,779**	**(1,779)**	**5,992**
Cape Charles	3,046	2,315	731	-	-	-	731		-	-	731
Onancock	9,137	6,700	2,437	-	-	-	2,437		-	-	2,437
Shore Health Services	1,218	1,135	83	-	-	-	83		-	-	83
Tangier Island	1,218	2,997	(1,779)	-	-	-	(1,779)		-	(1,779)	-
Tyson Foods-Temperanceville	22,842	20,101	2,741	-	-	-	2,741		-	-	2,741
Sale from Potomac Basin	-	-	-	-	1,779	-	1,779		1,779	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-4
2017 Nitrogen Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Nitrogen Credit Ledger

Compliance Year:	*2017*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	No Sale	$ 3.75	$ 0.06
The Exchange (group)	**37,461**	**29,532**	**7,929**	**-**	**1,779**	**-**	**9,708**		**1,779**	**(1,779)**	**9,708**
Cape Charles	3,046	2,558	488	-	-	-	488		-	-	488
Onancock	9,137	2,741	6,396	-	-	-	6,396		-	-	6,396
Shore Health Services	1,218	1,135	83	-	-	-	83		-	-	83
Tangier Island	1,218	2,997	(1,779)	-	-	-	(1,779)		-	(1,779)	-
Tyson Foods-Temperanceville	22,842	20,101	2,741	-	-	-	2,741		-	-	2,741
Sale from Potomac Basin	-	-	-	-	1,779	-	1,779		1,779	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-5
2018 Nitrogen Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Nitrogen Credit Ledger

Compliance Year:	*2018*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	$ 2.10	$ 3.78	$ 0.14
The Exchange (group)	**37,461**	**31,372**	**6,089**	**-**	**-**	**-**	**6,089**		**3,000**	**(1,852)**	**4,941**
Cape Charles	3,046	2,802	244	-	-	-	244		-	-	244
Onancock	9,137	4,264	4,873	-	-	-	4,873		3,000	-	1,873
Shore Health Services	1,218	1,135	83	-	-	-	83		-	-	83
Tangier Island	1,218	3,070	(1,852)	-	-	-	(1,852)		-	(1,852)	-
Tyson Foods-Temperanceville	22,842	20,101	2,741	-	-	-	2,741		-	-	2,741
Sale from Potomac Basin	-	-	-	-	-	-	-		-	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-6
2019 Nitrogen Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Nitrogen Credit Ledger

Compliance Year:	*2019*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)		
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**	**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE: $ 2.03	$ 3.82	$ 0.16
The Exchange (group)	**37,461**	**32,152**	**5,309**	**-**	**-**	**-**	**5,309**	**3,000**	**(1,779)**	**4,088**
Cape Charles	3,046	3,046	-	-	-	-	-	-	-	-
Onancock	9,137	4,873	4,264	-	-	-	4,264	3,000	-	1,264
Shore Health Services	1,218	1,135	83	-	-	-	83	-	-	83
Tangier Island	1,218	2,997	(1,779)	-	-	-	(1,779)	-	(1,779)	-
Tyson Foods-Temperanceville	22,842	20,101	2,741	-	-	-	2,741	-	-	2,741
Sale from Potomac Basin	-	-	-	-	-	-	-	-	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-7
Phosphorus Plan Summary: Eastern Shore Basin

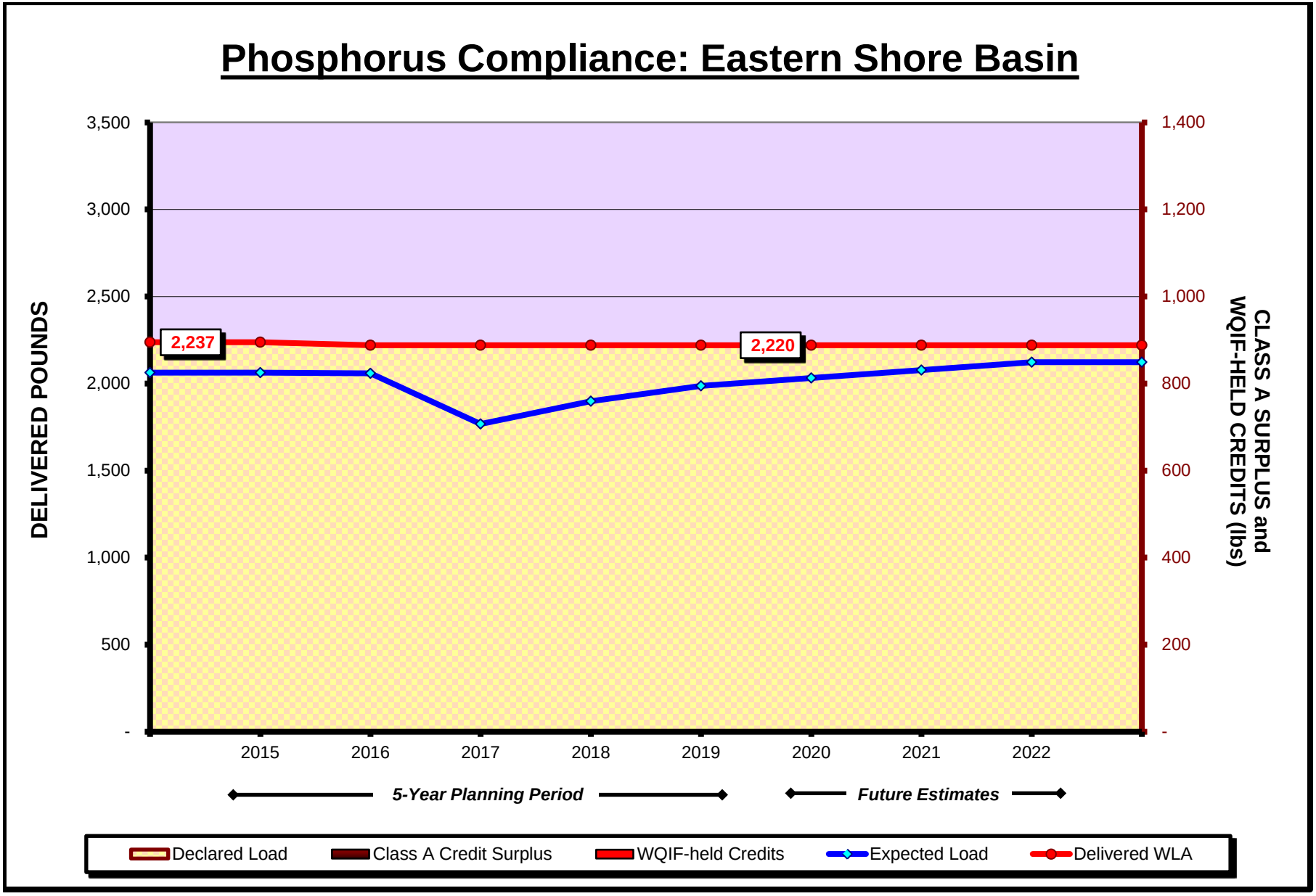

EXHIBIT 6-8
2015 Phosphorus Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Phosphorus Credit Ledger

Compliance Year:	2015	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	No Sale	$ 4.93	$ 0.29
The Exchange (group)	**2,237**	**2,062**	**175**	**-**	**256**	**-**	**431**		**256**	**(256)**	**431**
Cape Charles	228	164	64	-	-	-	64		-	-	64
Onancock	685	457	228	-	-	-	228		-	-	228
Shore Health Services	91	89	2	-	-	-	2		-	-	2
Tangier Island	91	347	(256)	-	-	-	(256)		-	(256)	-
Tyson Foods-Temperanceville	1,142	1,005	137	-	-	-	137		-	-	137
Sale from Potomac Basin	-	-	-	-	256	-	256		256	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-9
2016 Phosphorus Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Phosphorus Credit Ledger

Compliance Year:	*2016*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	No Sale	$ 5.27	$ 0.31
The Exchange (group)	**2,220**	**2,059**	**161**	**-**	**246**	**-**	**407**		**246**	**(246)**	**407**
Cape Charles	226	172	54	-	-	-	54		-	-	54
Onancock	678	497	181	-	-	-	181		-	-	181
Shore Health Services	87	52	35	-	-	-	35		-	-	35
Tangier Island	87	333	(246)	-	-	-	(246)		-	(246)	-
Tyson Foods-Temperanceville	1,142	1,005	137	-	-	-	137		-	-	137
Sale from Potomac Basin	-	-	-	-	246	-	246		246	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-10
2017 Phosphorus Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Phosphorus Credit Ledger

Compliance Year:	*2017*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	No Sale	$ 5.65	$ 0.18
The Exchange (group)	**2,220**	**1,767**	**453**	**-**	**229**	**-**	**682**		**229**	**(229)**	**682**
Cape Charles	226	190	36	-	-	-	36		-	-	36
Onancock	678	204	474	-	-	-	474		-	-	474
Shore Health Services	87	52	35	-	-	-	35		-	-	35
Tangier Island	87	316	(229)	-	-	-	(229)		-	(229)	-
Tyson Foods-Temperanceville	1,142	1,005	137	-	-	-	137		-	-	137
Sale from Potomac Basin	-	-	-	-	229	-	229		229	-	-
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**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-11
2018 Phosphorus Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Phosphorus Credit Ledger

Compliance Year:	2018	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	Delivered WLA	Expected Load	Expected Credits	In-Bubble Exchange	Private Exchange	WQIF-Held Credits	Expected Net Credits		Class A Sales	Class A* Purchases	Class B** (expected)
								PRICE:	$ 5.13	$ 5.70	$ 0.37
The Exchange (group)	**2,220**	**1,898**	**322**	**-**	**29**	**-**	**351**		**229**	**(229)**	**351**
Cape Charles	226	208	18	-	-	-	18		-	-	18
Onancock	678	317	361	-	-	-	361		200	-	161
Shore Health Services	87	52	35	-	-	-	35		-	-	35
Tangier Island	87	316	(229)	-	-	-	(229)		-	(229)	-
Tyson Foods-Temperanceville	1,142	1,005	137	-	-	-	137		-	-	137
Sale from Potomac Basin	-	-	-	-	29	-	29		29	-	-

**** For this Compliance Year, 0% of all Class A Credit Purchases are expected to be satisfied using Class B Credits.***

*** Expected Class B Credits are estimates only. Actual Class B Credits—and the resulting Class B sales price—will vary from estimates based on actual Delivered Loads in the Compliance Year.*

EXHIBIT 6-12
2019 Phosphorus Trading Ledger: Eastern Shore Basin

EASTERN SHORE Basin: Phosphorus Credit Ledger

Compliance Year:	*2019*	Credit Forecasts		Preliminary Use of Credits				Credit Exchange (Pounds)			
Facility Name	**Delivered WLA**	**Expected Load**	**Expected Credits**	**In-Bubble Exchange**	**Private Exchange**	**WQIF-Held Credits**	**Expected Net Credits**		**Class A Sales**	**Class A* Purchases**	**Class B** (expected)**
								PRICE:	$ 5.18	$ 5.76	$ 0.51
The Exchange (group)	**2,220**	**1,987**	**233**	**-**	**55**	**-**	**288**		**255**	**(255)**	**288**
Cape Charles	226	226	-	-	-	-	-		-	-	-
Onancock	678	362	316	-	-	-	316		200	-	116
Shore Health Services	87	52	35	-	-	-	35		-	-	35
Tangier Island	87	342	(255)	-	-	-	(255)		-	(255)	-
Tyson Foods-Temperanceville	1,142	1,005	137	-	-	-	137		-	-	137
Sale from Potomac Basin	-	-	-	-	55	-	55		55	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-	-	-
	-	-	-	-	-	-	-		-

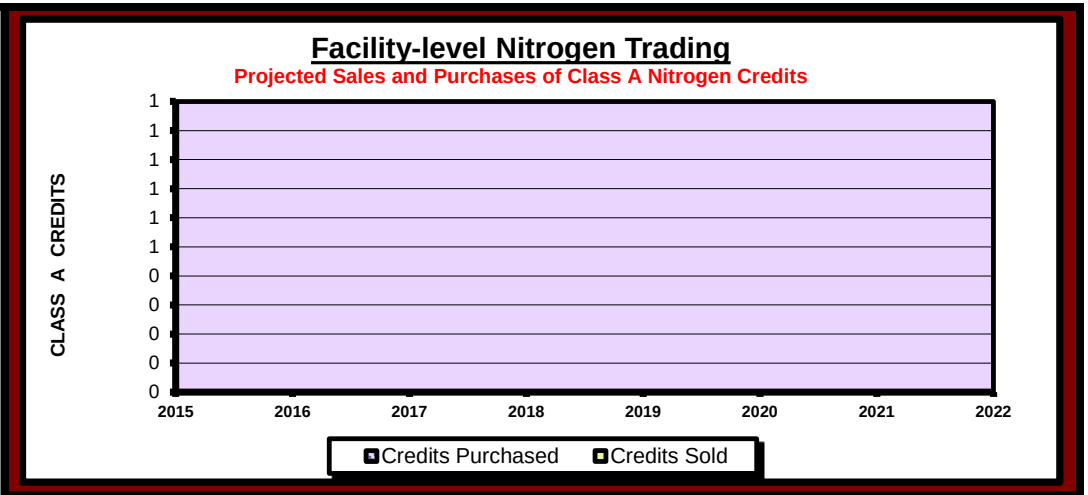
Eastern Shore Basin

Supplemental Information for Individual Facilities

NITROGEN FACILITY SUMMARY

Cape Charles

EASTERN SHORE Trading Basin

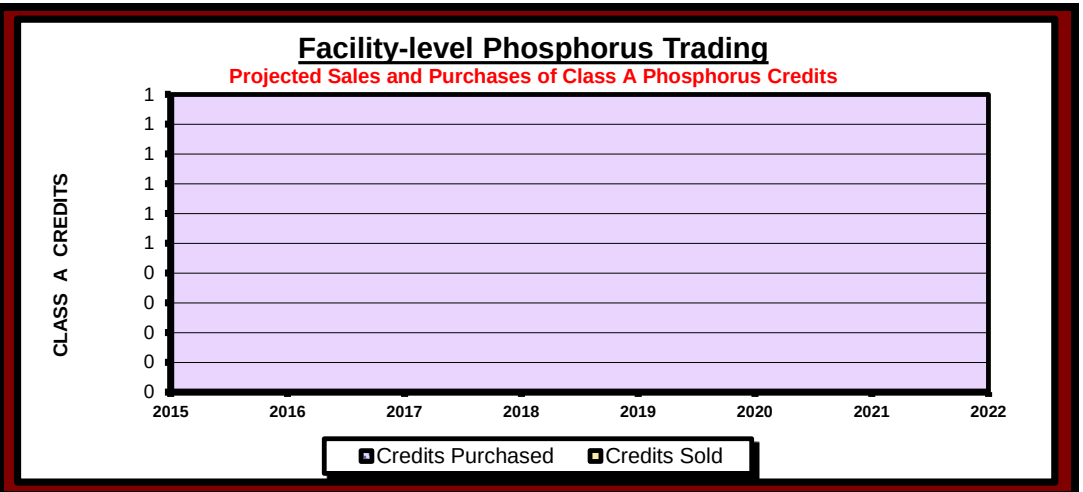


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.25	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.18	0.19	0.21	0.23	0.25	0.25	0.25	0.25
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	2,193	2,315	2,558	2,802	3,046	3,046	3,046	3,046
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,193	2,315	2,558	2,802	3,046	3,046	3,046	3,046
Delivered WLA	3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046
Expected Credits (delivered)	853	731	488	244	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**853**	**731**	**488**	**244**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**853**	**731**	**488**	**244**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Cape Charles

EASTERN SHORE Trading Basin

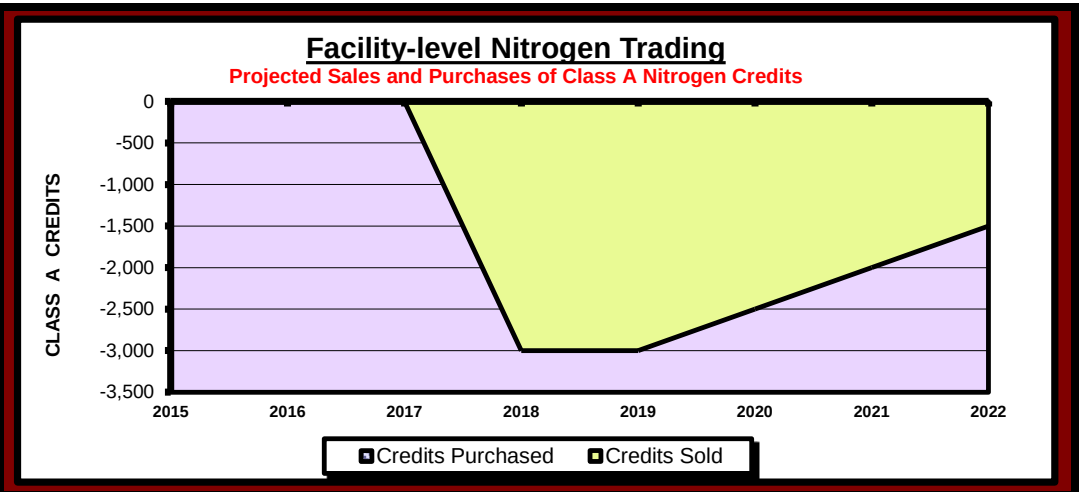


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.25	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Projected Flow (mgd)	0.18	0.19	0.21	0.23	0.25	0.25	0.25	0.25
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	164	174	192	210	228	228	228	228
Delivery Factor	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Expected Load	164	172	190	208	226	226	226	226
Delivered WLA	228	226	226	226	226	226	226	226
Expected Credits (delivered)	64	54	36	18	0	0	0	0
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**64**	**54**	**36**	**18**	**0**	**0**	**0**	**0**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**64**	**54**	**36**	**18**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Onancock

EASTERN SHORE Trading Basin

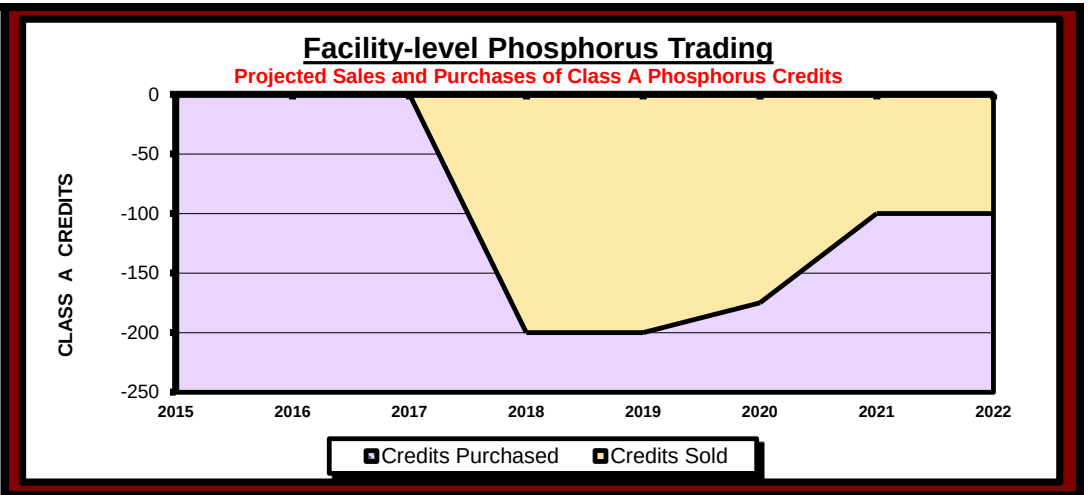


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Projected Flow (mgd)	0.50	0.55	0.23	0.35	0.40	0.45	0.50	0.55
Projected Avg. Annual Concentration (mg/L)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	6,091	6,700	2,741	4,264	4,873	5,482	6,091	6,700
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	6,091	6,700	2,741	4,264	4,873	5,482	6,091	6,700
Delivered WLA	9,137	9,137	9,137	9,137	9,137	9,137	9,137	9,137
Expected Credits (delivered)	3,046	2,437	6,396	4,873	4,264	3,655	3,046	2,437
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**3,046**	**2,437**	**6,396**	**4,873**	**4,264**	**3,655**	**3,046**	**2,437**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**3,000**	**3,000**	**2,500**	**2,000**	**1,500**
Expected Class B Credits	**3,046**	**2,437**	**6,396**	**1,873**	**1,264**	**1,155**	**1,046**	**937**

PHOSPHORUS FACILITY SUMMARY

Onancock

EASTERN SHORE Trading Basin

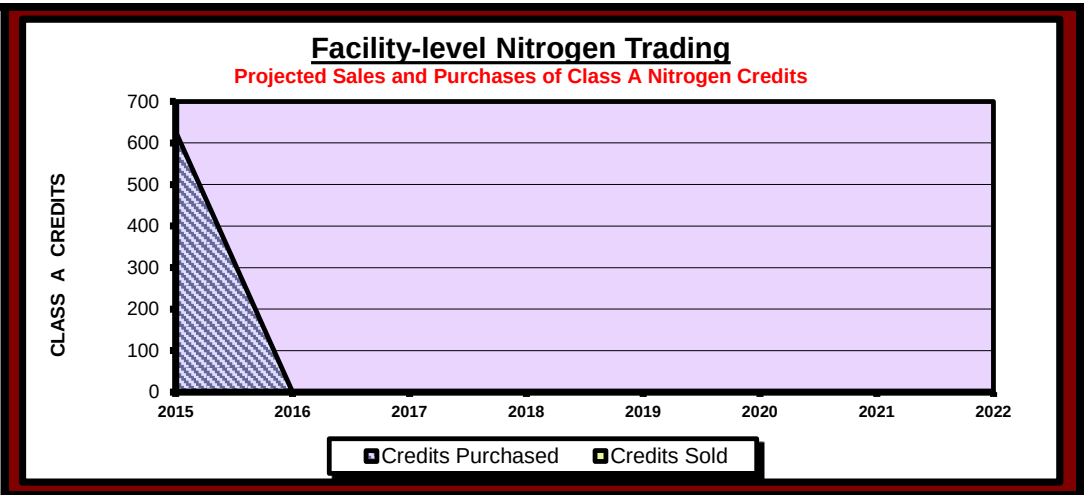


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Projected Flow (mgd)	0.50	0.55	0.23	0.35	0.40	0.45	0.50	0.55
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	457	503	206	320	365	411	457	503
Delivery Factor	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Expected Load	457	497	204	317	362	407	452	497
Delivered WLA	685	678	678	678	678	678	678	678
Expected Credits (delivered)	228	181	474	361	316	271	226	181
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**228**	**181**	**474**	**361**	**316**	**271**	**226**	**181**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**200**	**200**	**175**	**100**	**100**
Expected Class B Credits	**228**	**181**	**474**	**161**	**116**	**96**	**126**	**81**

NITROGEN FACILITY SUMMARY

Shore Health Services

EASTERN SHORE Trading Basin

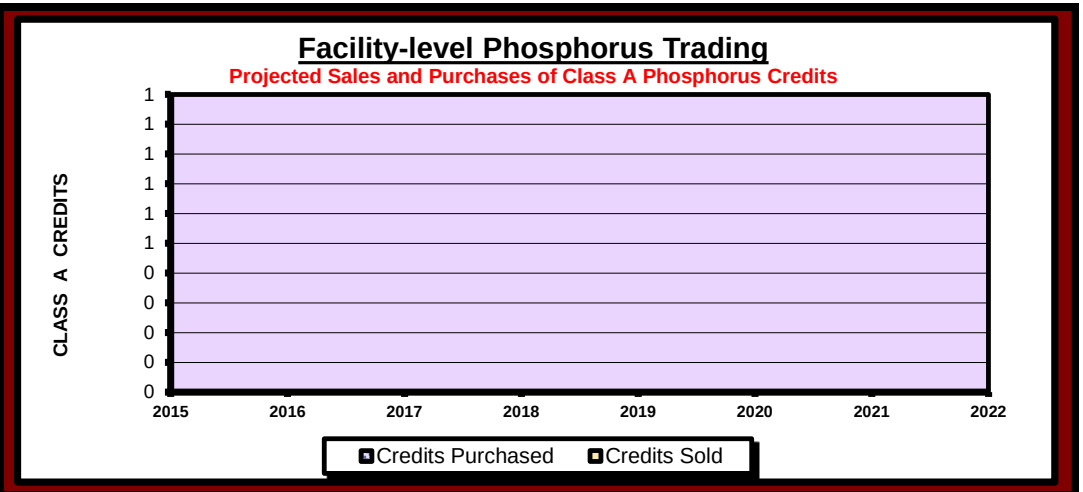


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Projected Avg. Annual Concentration (mg/L)	16.20	16.20	16.20	16.20	16.20	16.20	16.20	16.20
Discharged Load (end of pipe)	1,845	1,135	1,135	1,135	1,135	1,135	1,135	1,135
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	1,845	1,135	1,135	1,135	1,135	1,135	1,135	1,135
Delivered WLA	1,218	1,218	1,218	1,218	1,218	1,218	1,218	1,218
Expected Credits (delivered)	(627)	83	83	83	83	83	83	83
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(627)**	**83**	**83**	**83**	**83**	**83**	**83**	**83**
Class A Credit Sales (Purchases)	**(627)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**0**	**83**	**83**	**83**	**83**	**83**	**83**	**83**

PHOSPHORUS FACILITY SUMMARY

Shore Health Services

EASTERN SHORE Trading Basin

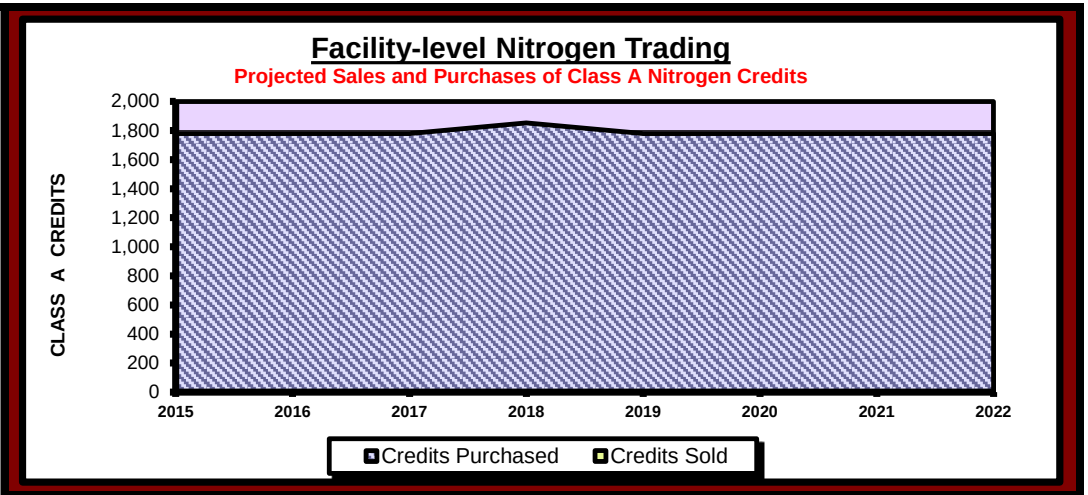


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Projected Avg. Annual Concentration (mg/L)	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Discharged Load (end of pipe)	89	55	55	55	55	55	55	55
Delivery Factor	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Expected Load	89	52	52	52	52	52	52	52
Delivered WLA	91	87	87	87	87	87	87	87
Expected Credits (delivered)	2	35	35	35	35	35	35	35
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2**	**35**	**35**	**35**	**35**	**35**	**35**	**35**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**2**	**35**	**35**	**35**	**35**	**35**	**35**	**35**

NITROGEN FACILITY SUMMARY

Tangier Island

EASTERN SHORE Trading Basin

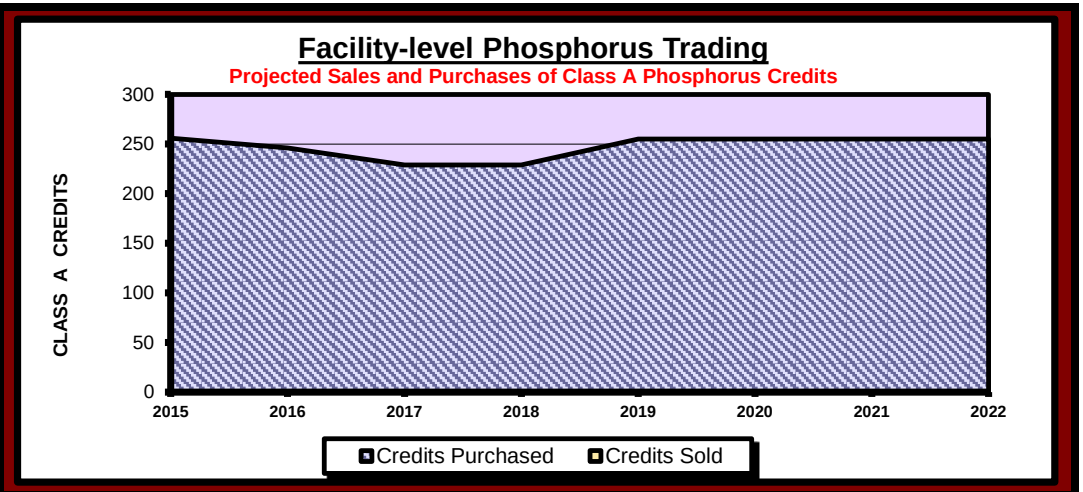


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	16.40	16.40	16.40	16.80	16.40	16.40	16.40	16.40
Discharged Load (end of pipe)	2,997	2,997	2,997	3,070	2,997	2,997	2,997	2,997
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	2,997	2,997	2,997	3,070	2,997	2,997	2,997	2,997
Delivered WLA	1,218	1,218	1,218	1,218	1,218	1,218	1,218	1,218
Expected Credits (delivered)	(1,779)	(1,779)	(1,779)	(1,852)	(1,779)	(1,779)	(1,779)	(1,779)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(1,779)**	**(1,779)**	**(1,779)**	**(1,852)**	**(1,779)**	**(1,779)**	**(1,779)**	**(1,779)**
Class A Credit Sales (Purchases)	**(1,779)**	**(1,779)**	**(1,779)**	**(1,852)**	**(1,779)**	**(1,779)**	**(1,779)**	**(1,779)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PHOSPHORUS FACILITY SUMMARY

Tangier Island

EASTERN SHORE Trading Basin

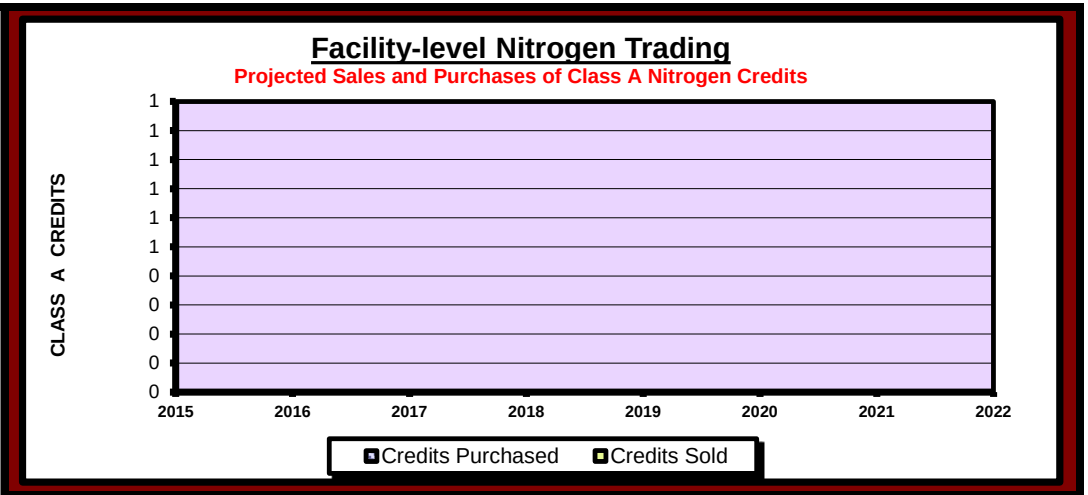


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Flow (mgd)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Projected Avg. Annual Concentration (mg/L)	1.90	1.90	1.80	1.80	1.95	1.95	1.95	1.95
Discharged Load (end of pipe)	347	347	329	329	356	356	356	356
Delivery Factor	1.00	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Expected Load	347	333	316	316	342	342	342	342
Delivered WLA	91	87	87	87	87	87	87	87
Expected Credits (delivered)	(256)	(246)	(229)	(229)	(255)	(255)	(255)	(255)
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**(256)**	**(246)**	**(229)**	**(229)**	**(255)**	**(255)**	**(255)**	**(255)**
Class A Credit Sales (Purchases)	**(256)**	**(246)**	**(229)**	**(229)**	**(255)**	**(255)**	**(255)**	**(255)**
Expected Class B Credits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

NITROGEN FACILITY SUMMARY

Tyson Foods-Temperancevil

EASTERN SHORE Trading Basin

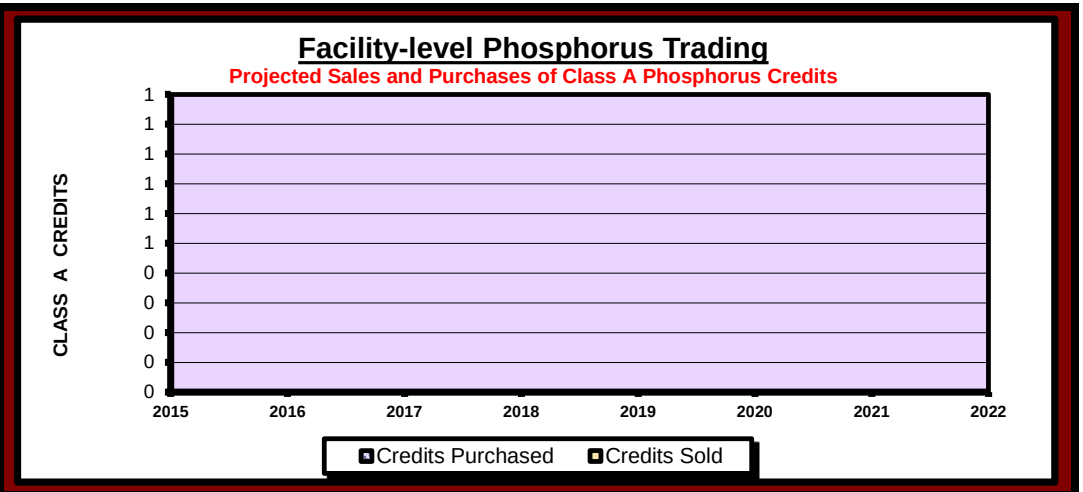


Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Projected Flow (mgd)	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Projected Avg. Annual Concentration (mg/L)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Discharged Load (end of pipe)	20,101	20,101	20,101	20,101	20,101	20,101	20,101	20,101
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	20,101	20,101	20,101	20,101	20,101	20,101	20,101	20,101
Delivered WLA	22,842	22,842	22,842	22,842	22,842	22,842	22,842	22,842
Expected Credits (delivered)	2,741	2,741	2,741	2,741	2,741	2,741	2,741	2,741
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**	**2,741**

PHOSPHORUS FACILITY SUMMARY

Tyson Foods-Temperancevil

EASTERN SHORE Trading Basin



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period					*Future Estimates (non-binding)*		
Design Flow (mgd)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Projected Flow (mgd)	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Projected Avg. Annual Concentration (mg/L)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Discharged Load (end of pipe)	1,005	1,005	1,005	1,005	1,005	1,005	1,005	1,005
Delivery Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Expected Load	1,005	1,005	1,005	1,005	1,005	1,005	1,005	1,005
Delivered WLA	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142
Expected Credits (delivered)	137	137	137	137	137	137	137	137
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQIF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	**137**	**137**	**137**	**137**	**137**	**137**	**137**	**137**
Class A Credit Sales (Purchases)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Expected Class B Credits	**137**	**137**	**137**	**137**	**137**	**137**	**137**	**137**

SECTION 7

Credit Exchange Special Conditions

SECTION 7

Credit Exchange Special Conditions

For the Nutrient Credit Exchange Program to be successful in delivering compliance and cost savings, both for Virginia as a whole and for local ratepayers, Virginia business owners, and state taxpayers (WQIF) funding the Chesapeake Bay cleanup, the Exchange Program must attract Participants and give those Participants comfort sufficient for them to engage in a robust level of trading. During the Exchange Compliance Plan development process, a common theme from potential Participants has been the need for specific assurances that good faith participation in the Exchange Program will not result in VPDES non-compliance or contractual liability to third parties, whether due to regulatory deadlines that Participants cannot meet due to construction challenges (as in the case of potential Class A Sellers) or due to acts of third parties (as in the case of potential Class A Buyers relying on timely Credit availability). This section specifies Credit Exchange Special Conditions designed to help provide the necessary conditions for success. This section is unchanged substantively from the Exchange Compliance Plan 2014 Annual Update.

7.1 Schedule of Compliance

This Section 7.1 is based on DEQ's approval letter dated September 7, 2007 from E. Gilinksy, Ph.D., Director, Division of Water Quality, DEQ, to M. Haley, President of The Exchange (the "2007 DEQ Approval Letter") (attached as Appendix A). While the following procedure was originally developed for purposes of meeting the initial January 1, 2011 compliance schedule, it is retained here for its potential relevance going forward in light of the fact that the new Watershed General Permit reissued and effective January 1, 2012 includes new compliance schedules for York/Phosphorus and James/Nitrogen, as first reflected in the 2012 Annual Update and continued in this 2015 Annual Update.

July 31, 2007 Recommendation and Procedure (Information Only)

The July 31, 2007 plan recommended and was premised upon an aggressive tributary-parameter schedule (January 1, 2011 effective date of final effluent limits for nitrogen and phosphorus in all tributaries, except the Potomac-Shenandoah where the date would be January 1, 2013) and an implementation approach compliant with the general "as soon as possible" standard to be administered by DEQ, as follows: "Effective date for any tributary-parameter shall be extended by the DEQ Director up to but no later than December 31, 2013 based on justification provided in accordance with scheduling factors established by Virginia Code section 62.1-44.19:14 C 2 or other good cause shown."

This implementation approach was recommended in lieu of the alternative of an *across-the-board* period (12 to 24 months) previously recommended under the statutory scheduling factors. The overall benefit of this approach was that it was intended to provide for both the shortest feasible schedule for facility construction and successful startup of the Nutrient Credit Exchange Program. The specific individual benefits of this approach included: (1) this schedule adjustment may only be exercised for good cause shown, (2) the finding of good cause as well as the specific length of any adjustment are both decisions made by the DEQ Director (not by

The Exchange or any of its Participants or other permittees), and (3) it establishes a mechanism by which DEQ has the ability to make timely schedule adjustments where good cause exists.

Compliance Schedule Procedure under 2007 DEQ Approval Letter

In the 2007 DEQ Approval Letter, DEQ explained its finding that the 2011 compliance deadline should be retained at that time for both parameters in all five basins and, thus, DEQ disapproved the detailed implementation approach summarized above in this Section 7.1. In reaching this conclusion, however, DEQ acknowledged The Exchange's main concern when DEQ stated: "We share your concern with the completion of so many projects on such a tight timeline. However, at this early date it is not possible to determine how quickly individual construction projects will proceed and what the actual capabilities of the upgraded facilities will be."

Similarly, a September 12, 2007 letter from D. Paylor, Director, DEQ, to M. Haley, President of The Exchange (attached as Appendix D), also indicates that "it will be a challenge to complete so many projects on such a tight timeline, and we remain committed to working with you to shepherd these projects to completion."

The 2007 DEQ Approval Letter sets forth the following two-step implementation approach in lieu of that previously recommended by The Exchange:

1. **Monitor & Evaluate –** Future annual compliance plan updates and DEQ's semi-annual WQIF progress reports will be used along with the scheduling factors in the Virginia Code and the "as soon as possible" criterion to evaluate the need for basin schedule extensions.

2. **Adjust as Needed –** Should it prove necessary, DEQ will initiate amendment to the permit under the Administrative Process Act to make appropriate revisions to the schedule.

This procedure is also generally set forth in the Chesapeake Bay and Virginia Waters Clean-Up Plan Progress Report submitted by the Secretary of Natural Resources of the Commonwealth of Virginia to House Committee on Agriculture, Chesapeake and Natural Resources, House Appropriations Committee, Senate Committee on Agriculture, Conservation and Natural Resources, and the Senate Finance Committee (October 2007) at page 3.

Accordingly, the above two-step implementation approach shall be the operative procedure for evaluating and adjusting the compliance schedule.

As noted above, the new Watershed General Permit reissued and effective January 1, 2012 includes new compliance schedules for York/Phosphorus and James/Nitrogen as first reflected in the 2012 Annual Update.

7.2 Initial Upgrade Delays Despite Participant's Best Efforts

The focus of the Exchange Compliance Plan is on achieving initial compliance. A large number of concurrent nutrient removal upgrades are required as is evident from the Exchange Compliance Plan set forth above. Similar activities are underway throughout the Chesapeake Bay region in other states. All of these construction projects are occurring at a period where the general construction market (not only wastewater treatment) is in a period of very high demand

for professional engineers, skilled and unskilled labor, and critical materials. Prices are increasing sharply. State government is also experiencing this in key sectors such as highway and school construction.

During Exchange Compliance Plan development, owners of larger facilities such as those that either must upgrade for the basin to achieve compliance (because the facility is a large source) or which are expected to have lower unit cost upgrades (dollars per pound removed), have voiced reluctance to commit to sell Class A Credits because compliance with the initial compliance schedule deadlines is partially or significantly beyond their reasonable control, especially as compared to the January 1, 2011 initial compliance deadlines in the General Permit. Accordingly, to promote and secure the participation of these facilities, The Exchange does not intend to impose its otherwise generally applicable credit shortfall policy under these circumstances. This means that in a shortfall situation in the startup years, there is a risk that Buyers waiting on Credit availability may not have Credits available through The Exchange, if one or more linchpins are delayed in completing construction. A condition of this Exchange Compliance Plan is that neither the delayed Seller nor the waiting Buyer will be deemed to be in non-compliance or subject to enforcement action.

7.3 Timely Regulatory Approvals

One factor that impacts basin-level compliance is timely review and approval of permits, WQIF grant agreements, and engineering documents by DEQ. This Exchange Compliance Plan is premised on timely action by DEQ, including the standard turnaround times for engineering documents as specified in 9 VAC 25-790-80 C (generally 30 day turnaround deadline for technical evaluations of engineering documents).

7.4 Requested Changes Resulting From Regulatory Review

The Participants have elected to participate in this multi-party Exchange Compliance Plan on the assumption that the Exchange Compliance Plan would be accepted and approved by DEQ (and any other relevant state and federal authority) in the form presented or in a substantially similar form with no material adverse changes. In the event of any material adverse change, The Exchange reserves the right to revise this Exchange Compliance Plan and each Participant reserves the right to modify its position in it, or withdraw from it, upon notice to DEQ and The Exchange within 60 days of notice of any material adverse change in the content of the approved Exchange Compliance Plan.

7.5 WQIF Grant Denial

Numerous facility upgrades covered in Sections 2 through 6 are premised upon execution of a WQIF Grant Agreement between DEQ and the Participant for the partial funding of nutrient removal technology to be installed. Since 2005, the WQIF statute has provided at Virginia Code section 10.1-2131 B that DEQ "shall enter into grant agreements with all facilities designated as significant dischargers or eligible nonsignificant dischargers that apply for grants." This Section 7.5 is necessary to address the amendment at Virginia Code section 10.1-1186.01 G to establish a limited exception, as follows:

> Notwithstanding the provisions of subsection B of § 10.1-2131, the Director of the Department of Environmental Quality shall not be required to enter into a grant

> agreement with a facility designated as a significant discharger or eligible nonsignificant discharger if the Director determines that the use of nutrient credits in accordance with the Chesapeake Bay Watershed Nutrient Credit Exchange Program (§ 62.1-44.19:12 et seq.) would be significantly more cost-effective than the installation of nutrient controls for the facility in question.

This Exchange Compliance Plan is conditioned on the execution of WQIF Grant Agreement for each WQIF eligible project set forth herein. The Exchange and the Participants reserve the right to amend this plan in the event that, pursuant to section 10.1-1186.01, DEQ declines to enter into a WQIF Grant Agreement for such a project.

7.6 WQIF Credit Availability

Access to WQIF Credits in the event of a Credit shortfall situation is an essential element for providing the certainty and comfort level required for trading-based compliance plans. Accordingly, The Exchange Compliance Plan is conditioned on the SWCB and DEQ ensuring the continued availability of Credits through the WQIF at or below the prices currently specified in the General Permit.

7.7 Annual Updates

The Exchange and the Participants reserve the right to update and amend this Exchange Compliance Plan on an annual basis consistent with applicable laws and regulations.

7.8 Effluent Nutrient Concentrations

Concentrations contained herein are estimates for information purposes only and are not to be used as a basis for any regulatory decisions.

SECTION 8

Credit Exchange Policy

CREDIT EXCHANGE POLICY FOR THE PURCHASE AND SALE OF CHESAPEAKE BAY NUTRIENT CREDITS

ARTICLE I
PURPOSE

This Credit Exchange Policy (this "Policy") of the Virginia Nutrient Credit Exchange Association, Inc. (the "Nutrient Exchange") is adopted pursuant to Article VII of the Bylaws for the purpose of coordinating and facilitating the participation of its Members in Virginia's Chesapeake Bay Nutrient Credit Exchange Program established by Virginia Code section 62.1-44.19:12 *et seq*. Accordingly, this Policy is intended to provide a framework for the Exchange of Credits by and among the Members and, in addition to other benefits, to satisfy the standard requirement of Virginia Water Quality Improvement Fund Grant Agreements made pursuant to Virginia Code section 10.1-2117 *et seq*. that the grantee make available for Exchange any Credits remaining after complying with its Watershed General Permit limits.

ARTICLE II
DEFINITIONS

Unless otherwise defined below or a different meaning is intended by the usage herein, all terms shall have the same definition as provided in section 9 VAC 25-820-10 of the Watershed General Permit.

Actual Class B Credits – In the Reconciliation Year, the quantity of Credits remaining for the Permitted Facility after adjusting Actual Net Credits for Class A Credit purchases and sales for the immediately preceding Compliance Year. This quantity equals Actual Net Credits plus any Class A Credit purchases and minus any Class A Credit sales for the Compliance Year.

Actual Credits – Credits actually generated during the Compliance Year prior to adjusting for Preliminary Uses of Credits. Actual Credits equal Delivered WLA minus Actual Load.

Actual Load – The Delivered Load actually discharged during the Compliance Year for one or more Permitted Facilities.

Actual Net Credits – Actual Credits minus the quantity of Credits not available due to Preliminary Uses of Credits.

Board of Governors (or Board) – The board of directors of the Nutrient Exchange.

Buyer – A Participant that purchases Credits for a given Compliance Year.

Class A Buyer – A Participant that requests the availability of, and agrees in advance to purchase, a specific quantity of Credits in accordance with this Policy. Except as otherwise

provided herein, a Class A Buyer is committed to purchasing its requested and agreed amount of Class A Credits, even if the Class A Buyer actually needs a lesser amount based on actual performance of its Permit Facility in a Compliance Year.

Class A Credits – Credits for which an agreement for sale and purchase in a specific quantity is made in advance in accordance with this Policy.

Class A Pledge – The quantity of Class A Credits that the Seller specifies and agrees to sell to the Nutrient Exchange as Class A Credits in accordance with this Policy.

Class A Seller – A Participant that agrees in advance to sell Class A Credits to the Nutrient Exchange in accordance with this Policy. Except as otherwise provided herein, a Class A Seller is responsible for making up any shortfall in its agreed amount of Class A Credits for a given Compliance Year and completing such sale.

Class B Credits – Credits for which no agreement for sale and purchase in a specific quantity is made in advance but which are pledged to the Nutrient Exchange in accordance with this Policy.

Clearing Account – An account of the Nutrient Exchange used for segregating funds from Credit Exchanges from other funds of the Nutrient Exchange.

Compliance Year – Any specific calendar year for which Exchanges are planned or executed.

Credit – Each pound of TN or TP by which the Expected Load (projections) or Delivered Load (actual) is less than the Delivered WLA for a Permitted Facility (or Permitted Facility Bubble). Note that while Credits can exist only in positive quantities, for planning and implementation purposes certain Credit-related values may be stated as negative quantities. For example, when a Permitted Facility's Expected Load is projected to exceed its Delivered WLA, the Plan will show a negative quantity of Expected Credits. Additional examples may include Expected Net Credits, Actual Credits, Actual Net Credits, and Actual Class B Credits.

Delivered WLA – The TN or TP WLA assigned to a Permitted Facility, either under the Water Quality Management Planning ("WQMP") Regulation (9 VAC 25-720) or otherwise, and adjusted by the applicable delivery factor under the Watershed General Permit and expressed as pounds per year.

Delivered Load – The TN or TP load discharged by a Permitted Facility during a Compliance Year, adjusted by the applicable delivery factor under the Watershed General Permit and expressed as pounds per year.

DEQ – The Virginia Department of Environmental Quality or, where appropriate, the State Water Control Board to which the Department serves as staff.

Designated Representative – A person who is a fulltime employee of, and is designated in writing by, the Participant to act on its behalf.

Exchange – The purchase and sale of a Credit of any class.

Exchange Compliance Plan (or P lan) – The plan submitted by the Nutrient Exchange to DEQ pursuant to 9 VAC 25-820-40 A as updated periodically pursuant to 9 VAC 25-820-40 B and 9 VAC 25-820-70 Part I D of the Watershed General Permit.

Exchange Compliance Plan Update (or Plan Update) – The update of the Exchange Compliance Plan required pursuant to 9 VAC 25-820-40 B and 9 VAC 25-820-70 Part I D of the Watershed General Permit.

Expected Class B Credits – The quantity of Credits projected to be remaining for a Permitted Facility after adjusting Expected Net Credits for Class A Credit sales for the current or any future Compliance Year. This quantity equals Expected Net Credits minus any Class A Credits committed by a Class A Seller for a Compliance Year.

Expected Load – The projected Delivered Load for a given Compliance Year for one or more Permitted Facilities.

Expected Credits – The amount of Credits projected for a given Compliance Year as determined by subtracting the Expected Load from the Delivered WLA.

Expected Net Credits – Expected Credits minus the quantity of Credits projected to not be available due to Preliminary Uses of Credits.

In-Bubble Exchange – A Preliminary Use of Credits consisting of Credit use by and among the Permitted Facilities within a Permitted Facility Bubble included in the Exchange Compliance Plan. In accordance with 9 VAC 25-820-70 Part I B 2 e of the Watershed General Permit, In-Bubble Exchanges are not Exchanges or credit acquisitions as described in 9 VAC 25-820-70 Part I J 2 of the Watershed General Permit.

Neutral Participant – A Participant which projects a positive quantity of Expected Net Credits for its Permitted Facility in a given Compliance Year, but which has not elected to be a Class A Seller for that Compliance Year.

Non-Participant – An owner or operator of a Permitted Facility that is not a Participant.

Partic ipant – A Member owner or operator of a Permitted Facility included in the Exchange Compliance Plan which has executed the Nutrient Credit Services Agreement.

Permitted Facility – A facility authorized to discharge under the Watershed General Permit. The singular refers to the plural (Permitted Facilities) where appropriate. This term also refers to a Permitted Facility Bubble where appropriate.

Permitted Facility Bubble – Multiple Permitted Facilities under common ownership or operation that are subject to aggregated WLAs pursuant to 9 VAC 25-820-70 Part I B 2 of the Watershed General Permit.

Planning Period – The rolling five-year period covered by the Exchange Compliance Plan (or Plan Update) beginning with the year in which the Plan is due to be submitted to DEQ. For example, for the Exchange Compliance Plan 2008 Annual Update due and submitted to DEQ on February 1, 2008, the Planning Period is January 1, 2008 through and including December 31, 2012.

Preliminary Use of Credits – Any of the following three planned or actual uses of Credits: In-Bubble Exchange, Private Exchange, or WQIF-Held.

Private Exchange – A Preliminary Use of Credits consisting of an Exchange planned or executed directly between or among Participants or Non-Participants rather than through the Nutrient Exchange.

Reconciliation – The process for executing Exchanges for a Compliance Year.

Reconciliation Year – For each Compliance Year, the year immediately following during which time Exchanges for the Compliance Year are executed. For example, for Compliance Year 2011, the associated Reconciliation Year is 2012.

Seller – A Participant that supplies Credits for a given Compliance Year.

TN – Total nitrogen, a pollutant the discharge of which is authorized and limited under the Watershed General Permit.

TP – Total phosphorus, a pollutant the discharge of which is authorized and limited under the Watershed General Permit.

Watershed General Permit – The General Virginia Pollutant Discharge Elimination System Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9 VAC 25-820) issued by the State Water Control Board effective for a five-year permit term beginning January 1, 2007 or as hereafter modified or reissued from time to time. Among other requirements, the Watershed General Permit imposes limitations on the discharge of TN and TP from Permitted Facilities (9 VAC 25-820-70 Part I B), and requires each permittee to submit to DEQ by August 1, 2007 and annually thereafter (currently by each February 1) a compliance plan (9 VAC 25-820-40), either individually or through the Nutrient Exchange, indicating how its facility(ies) will comply with such limitations.

WLA – A Wasteload Allocation for TN or TP as established under the Water Quality Management Planning Regulation, 9 VAC 25-720, and implemented through the Watershed General Permit. A WLA may be expressed in pounds per year as either a discharged WLA (*i.e.* end-of-pipe gross pounds) or as a Delivered WLA (*i.e.*, the discharged WLA multiplied by the

delivery factor applicable to the Permitted Facility as specified in the Watershed General Permit).

WQIF-Held – Pursuant to 9 VAC 25-820-70 Part I J 2 e of the Watershed General Permit, a Preliminary Use of Credits which consists of setting aside and not using within the Plan certain Credits associated with Permitted Facilities (or a portion thereof) not yet constructed and in operation. Such Credits are held in the Water Quality Improvement Fund administered by DEQ.

ARTICLE III
GUIDING PRINCIPLES & GENERAL APPROACH

3.1 Guiding Principles. This Policy has been developed and is to be implemented in accordance with the following guiding principles adopted by the Nutrient Exchange:

(a) Guiding Principle No. 1: Environment First. The Nutrient Exchange, including its Exchange Compliance Plan and this Policy, is designed to ensure environmental protection first and foremost. Environmental protection is fostered by means of full compliance with the Watershed General Permit issued by DEQ.

(b) Guiding Principle No. 2: Voluntary Participation. Under governing laws and regulations, there is generally no requirement for a Permitted Facility to trade, *i.e.*, Exchange, Credits with any other person. Accordingly, the Nutrient Exchange, including its Exchange Compliance Plan and this Policy, is premised on the voluntary participation of Participants and their Permitted Facilities subject to applicable laws and regulations and the policies and procedures established by the Nutrient Exchange.

(c) Guiding Principle No. 3: Benefits for All. Consistent with the concept of voluntary participation, the Nutrient Exchange, including its Exchange Compliance Plan and this Policy, is designed with the intent of benefitting all Participants whether as a Buyer, Seller or Neutral.

(d) Guiding Principle No. 4: Remember the "Base Case." This principle is a reminder that the Nutrient Exchange is a first-of-its-kind undertaking with the potential to provide significant benefits including water quality improvement, regulatory flexibility, and economic efficiency compared to the traditional regulatory approach lacking a trading option, and that the Nutrient Exchange intends to operate with this potential for broad benefit in mind.

3.2 General Approach. This Policy is designed to meet the following goals and objectives for the establishment of a successful Exchange Program: (a) a highly-structured, well-planned program, (b) a convenient and reliable Credit Exchange mechanism, (c) a practical legal structure that promotes participation by maintaining a high degree of flexibility for Participants, and (d) a fair and effective pricing methodology.

ARTICLE IV
COMPLIANCE AND CREDIT EXCHANGE PLANNING

4.1 Participant-Driven Exchange Compliance Plan. The Nutrient Exchange has developed the Exchange Compliance Plan on behalf of the Participants for each of Virginia's five major river basins in accordance with the Watershed General Permit and intends to update the Plan annually by submittal of Plan Updates to DEQ. The Nutrient Exchange Compliance Plan is now and will continue to be based on the individual data provided by, and individual decisions made by, Participants with respect to their own Permitted Facilities, including revisions to relevant facility-specific information related to Class A Credit and Class B Credit Exchanges or other information, in accordance with the schedule at Attachment A and subject to acceptance by the Nutrient Exchange in accordance with this Policy and further subject to approval by DEQ.

4.2 Five-Year Planning Period. The Plan including any Plan Updates shall cover a rolling five-year Planning Period. For each Planning Period each of the following Plan elements shall be on a firm basis and may not be modified by a Participant except as provided in Section 4.8 (Modifications Within Planning Period): (a) Class A Credit sales and purchases once elected by a Participant, (b) the Class A Credit purchase price paid by a Class A Buyer (Attachment B), and (c) the Participant's commitment pursuant to Section 4.7 (Class B Credit Pledge) to provide to the Nutrient Exchange its Actual Class B Credits. With each Plan Update, Year 1 of the preceding Planning Period shall be dropped (except for purposes of Reconciliation), Year 2 through Year 5 of the preceding Planning Period (Year 1 through Year 4 of the Plan Update) shall remain unchanged with respect to the Plan elements stated in this Section as firm, and a new Year 5 shall be added based on data and information determined by each Participant with respect to its Permitted Facility. For example, in 2012, the Nutrient Exchange, in coordination with the Participants, will conduct the Reconciliation process for Compliance Year 2011 and update the five-year Plan to cover a Planning Period of 2012 through and including 2016, with the new fifth year (2016) based on data and information determined and submitted by each Participant with respect to its Permitted Facility. Without limiting the foregoing, it is nevertheless the intent of the Nutrient Exchange to accommodate through each Plan Update certain modifications related to firm elements of the Plan for the remaining four years of the Planning Period, whenever some or all of such modifications are determined by the Board in its discretion to be feasible and in the best interests of the Nutrient Exchange, as provided below in Section 4.8. Notwithstanding the foregoing provisions of this Section, if DEQ were to extend the schedule of compliance in Part I C 1 of the Watershed General Permit for any tributary (river basin) and parameter combination, the obligation of Participants to execute Exchanges of Credits for Permitted Facilities in such tributary (river basin) and for such parameter (TN or TP) as provided in the Exchange Compliance Plan shall be waived for each year prior to the first year for which compliance is required.

4.3 Annual Participant Data Update. The Nutrient Exchange may request and each Participant shall provide in a timely manner information necessary or useful for updating or otherwise administering the Plan. For purposes of Plan Updates, the Nutrient Exchange anticipates continuing to utilize a Facility Data Checklist. The most recent form of the Facility Data Checklist is attached as Attachment C and may be revised by the Nutrient Exchange from time to time. The Nutrient Exchange anticipates continuing to utilize a Compliance Deadline

Statement prior to the expiration of the schedule of compliance in Part I C 1 of the Watershed General Permit. The most recent form of the Compliance Deadline Statement is attached as Attachment D and may be revised by the Nutrient Exchange from time to time. With respect to the new fifth year of the Planning Period covered by each Plan Update, the Plan shall be based on data and information determined by the Participant during the Plan Update process. To meet applicable regulatory deadlines, Participants shall submit the requested data pursuant to the schedule at Attachment A, which may be revised by the Nutrient Exchange from time to time. Failure to meet submittal deadlines may result in omission of a Participant and its Permitted Facilities from the Plan at the discretion of the Nutrient Exchange.

4.4 Expected Net Credits. For each of its Permitted Facilities included in the Plan, the Participant will be responsible for specifying the Delivered WLA (established by regulation), Expected Load (derived from projected flow and concentration data provided by the Participant), Expected Credits, Preliminary Uses of Credits, and Expected Net Credits. Expected Net Credits is a planning figure only, and no Participant is obligated solely by its specification thereof to generate Credits in a quantity equal to or greater than the Expected Net Credits for the Planning Period.

4.5 Class A Credit Sale Obligations. Participants with Permitted Facilities projecting to generate a positive quantity of Expected Net Credits shall have the option to sell Class A Credits for a Compliance Year in the Planning Period at the premium Class A Credit price. Each such Participant shall specify its Class A Pledge as a quantity of Credits ranging from zero (0) up to the quantity of its Expected Net Credits for each year of the Planning Period, such quantity to be determined in the discretion of the Participant. Such specification shall be made for the full initial Planning Period and thereafter annually for the new fifth year of the five-year Planning Period. The Participant shall be obligated to provide to the Nutrient Exchange such quantity of Class A Credits. The specified quantity of Class A Credits shall be set forth in the Plan. Unless waived pursuant to section 5.10 (Waiver of Class A Credit Sales Obligation), the Participant agrees to sell such quantity of Credits to the Nutrient Exchange regardless of its Actual Net Credits (*i.e.*, a Class A Seller is responsible for making up any shortfall in its agreed amount of Class A Credits for a given Compliance Year and completing such sale). A Participant projecting to generate a positive quantity of Expected Net Credits but electing to make no firm Class A Credit sales obligation (*i.e.*, a Neutral Participant) shall specify a Class A Pledge of zero.

4.6 Class A Credit Purchase Obligations. For Permitted Facilities projecting Expected Net Credits in a negative quantity, to demonstrate a plan for compliance the Participant shall be obligated to purchase Credits in such quantity at the Class A Credit purchase price shown on Attachment B. For example, a Permitted Facility projecting in the 2008 Plan Update to have Expected Net Credits of TN of negative 500 for Compliance Year 2011 shall be obligated to purchase 500 TN Credits at the Class A Credit price in effect for 2011 ($2.00 per Credit). This transaction shall be executed during the Reconciliation Year at which time the Credits shall be transferred and the price shall be paid. The Exchange Compliance Plan shall plan to meet this projected demand addressed in this Section through Class A Credit sales obligations under Section 4.5 to the extent available; however, to the extent that sufficient Class A Credits are not available, the Plan may address this demand by means of Class B Credits pledged by Participants. The Credit prices paid by a Buyer as shown on Attachment B are firm

for the Planning Period and shall be updated annually to include such price for the new fifth year of the Plan Update.

4.7 Class B Credit Pledge. By participating in the Exchange Compliance Plan, each Participant pledges one hundred percent of its Expected Class B Credits and agrees to transfer one hundred percent of its Actual Class B Credits from its Permitted Facilities to the Nutrient Exchange. The quantity of Expected Class B Credits is a projection only and it accommodates Preliminary Uses of Credits, including Private Exchanges planned and disclosed by the Participant in accordance with Section 4.9. Without limiting this pledge requirement, it is acknowledged and understood that Actual Class B Credits are anticipated to vary from the projection of Expected Class B Credits and that the Participant has no obligation to provide Actual Class B Credits in the same quantity as Expected Class B Credits, so long as the Participant transfers all of its Actual Class B Credits to the Nutrient Exchange. Among other purposes, it is the intent of this Section to enable Participants, which have entered into or will enter into a Virginia Water Quality Improvement Fund Grant Agreement with DEQ (*i.e.*, the owners of eligible municipal wastewater treatment plants) to satisfy the following standard provision of the typical grant agreement: "To aid in implementing the Nutrient Credit Exchange Program, the Grantee shall make all Point Source Nitrogen and Phosphorus Credits generated in a calendar year available for nutrient allocation compliance." It is also the intent of this Section to include as Actual Class B Credits those Credits not identified as Expected Class B Credits due to any Preliminary Use of Credits but which are in fact available for Exchange through the Nutrient Exchange during the Reconciliation.

4.8 Modifications Within Planning Period. Notwithstanding the firm commitments for Class A Credits and Class B Credits provided in this Article IV, it is the intent of the Nutrient Exchange to accommodate through each Plan Update requests for modifications affecting the firm elements of the previous Planning Period, provided that the Board determines, in its discretion, that such modification is not reasonably expected to have a material adverse effect on the Nutrient Exchange or its Participants. Consistent with the guiding principles described above, the fact that a modification would result in a decrease in funds from Credit sales shall not preclude the Board from determining that a modification would not have a material adverse effect. In the event of multiple competing modification requests, (i) requests of existing Participants shall have priority over requests of potential new Participants, and (ii) to the extent that it is not feasible to honor all modification requests of existing Participants, the Nutrient Exchange generally intends to address the requests of existing Participants on a pro rata basis with respect to Credits. In order to manage requests for modifications within the Planning Period efficiently and fairly, the Nutrient Exchange shall establish annually a date by which Participants shall submit such requests. The modifications requested by any Participant, if accommodated in the Plan Update in whole or in part, shall be binding on such Participant.

(a) Class A Credit Sale Obligations. Notwithstanding the firm basis of Class A Credit sale obligations, a Class A Seller may decrease its Class A Credit sale obligations through the Plan Update to the extent the Board determines that a sufficient supply of Class A Credits is projected to remain to meet the existing Class A Credit demand of the existing Class A Buyers, and the Board, in its discretion, may accommodate further decreases taking into consideration Expected Class B Credit projections. Any Participant may increase its Class A

Credit sale obligation so long as the resulting Class A Credit supply does not exceed Class A Credit demand.

(b) Class A Credit Purchase Obligations. Notwithstanding the firm basis of Class A Credit purchase obligations, a Class A Buyer may decrease its Class A Credit purchase obligations to the extent the Board determines that Class A Credit demand exceeds Class A Credit supply. Any Participant may increase its Class A Credit purchase obligation to the extent of Class A Credit supply, and the Board, in its discretion, may accommodate further increases taking into consideration Expected Class B Credit projections.

(c) Class B Credits. As provided above in Section 4.7, Expected Class B Credits is a projection only and the Participant's obligation with respect to Class B Credits is limited to providing its Actual Class B Credits to the Nutrient Exchange. Accordingly, through each Plan Update, the Participant at its discretion may modify its projection of Expected Class B Credits for each and every year of the five-year Planning Period covered by the Plan Update.

(d) New Participants. The Nutrient Exchange intends to consider the admission of new Participants depending on whether the Nutrient Exchange anticipates a surplus of Credits or projects a need for or desires additional Credits during the Planning Period. Admission of new Participants shall be at the discretion of the Board and generally subject to the following conditions. When the Plan indicates a surplus of Class A Credits, a new Participant may be included subject to the condition that it may not sell Class B Credits until Year 3 and Class A Credits until Year 5 of the Plan Update that first includes the new Participant. When the Plan indicates a need for additional Class A Credits, a new Participant may be included subject to the condition that it may not purchase Credits until Year 5 of the Plan Update that first includes the new participant. These conditions may be waived or modified in whole or in part by the Board in its discretion.

4.9. Private Exchanges. Sections 4.4 (Expected Net Credits) and 4.7 (Class B Credit Pledge) notwithstanding, to facilitate adequate planning each Participant shall provide reasonable advance notice to the Nutrient Exchange of all Private Exchanges to which it is or will be a party. Such notice shall be made by the deadline in Attachment A for submitting the Facility Data Checklist during the Plan Update process and shall be effective for any Private Exchange for the Compliance Year beginning the next January 1 following such notice (or for any subsequent Compliance Year). The notice shall be on a form to be provided by the Nutrient Exchange and shall identify all parties and the quantity of Credits subject to the Private Exchange. For example, if a Participant desires to enter into a new Private Exchange for Compliance Year 2011, under the current schedule at Attachment A notice would be required by November 1, 2010 and such Private Exchange would be included in the Plan Update covering the Planning Period of Compliance Years 2011 through 2015. Nothing in this Section 4.9 shall affect the firm commitment as to Class A Credit purchases and sales once made by a Participant.

4.10 DEQ Approval. The Nutrient Exchange's goal is to maintain the Exchange Compliance Plan in a manner and form that best serves its Participants and complies with the terms and conditions of the Watershed General Permit. In the event that DEQ were to disapprove a Plan Update in whole or in part, the Nutrient Exchange shall be responsible only for

continuing to endeavor, in consultation with the Participants, to obtain DEQ approval pursuant to 9 VAC 25-820-40 B.

ARTICLE V
CREDIT EXCHANGE RECONCILIATION

5.1 Administration of and Participation in Reconciliation. Beginning in 2012 for Compliance Year 2011, the Nutrient Exchange will administer and the Participants will participate in an annual Reconciliation pursuant to the Plan and this Policy for the preceding Compliance Year.

5.2 Annual Permitted Facility Reports. In accordance with the schedule at Attachment A, each Participant shall annually submit to the Nutrient Exchange a copy of the Participant's Annual Report to DEQ required by Part I F of the Watershed General Permit and such other information as may be reasonably requested by the Nutrient Exchange in administering the Reconciliation.

5.3 Initial Reconciliation Report. In accordance with the schedule at Attachment A, the Nutrient Exchange will prepare and distribute to the Participants the Initial Reconciliation Report for the immediately preceding Compliance Year. On a Permitted Facility and river basin-level basis for all Participants, the report shall present in ledger format an accounting of the generation and transfer of Credits within the Nutrient Exchange and among its Participants. The report shall specify for each Permitted Facility its Delivered WLA, Actual Load, Actual Credits, Preliminary Uses of Credits, Actual Net Credits, Class A Credit sales and purchases, and Actual Class B Credits, Credit prices, charges to Buyers, and revenues to Sellers. As applicable, the report will reflect application of the policies and procedures in Sections 5.9 (Initial Upgrades), 5.10 (Waiver of Class A Credit Sales Obligation), 5.11 (Option to Purchase Additional Credits During Reconciliation), and 5.12 (Credit Shortfall Management Procedures).

5.4 Credit Exchanges and Confirmations. The transfer of Credits from Sellers to the Nutrient Exchange, and from the Nutrient Exchange to Buyers, shall be implemented as follows.

(a) Credit Transfers from Sellers. Each year beginning 2012 (or one year later for each year by which DEQ extends the schedule of compliance for any tributary (river basin) and parameter (TN or TP) combination beyond January 1, 2011), Participants shall transfer to the Nutrient Exchange in accordance with the Initial Reconciliation Report and the schedule at Attachment A (i) the quantity of Class A Credits to which they have committed as Sellers and (ii) the quantity of their Actual Class B Credits, if any. Such transfer shall be effective without further action by the Participant and shall be confirmed by the Participant through execution by its Designated Representative of, and submittal to the Nutrient Exchange of, the Seller's Credit Exchange Confirmation Form (Attachment E).

(b) Credit Transfers to Buyers. Each year beginning 2012 (or one year later for each year by which DEQ extends the schedule of compliance for any tributary (river basin) and parameter (TN or TP) combination beyond January 1, 2011), the Nutrient Exchange shall

transfer to Buyers in accordance with the Initial Reconciliation Report and the schedule at Attachment A the quantity of Credits committed to and requested by such Buyers subject to the terms and limitations of this Policy. Such transfer shall be accomplished and confirmed by the Nutrient Exchange through execution and submittal to Buyers of the Buyer's Credit Exchange Confirmation Form (Attachment F). In addition, the Nutrient Exchange shall invoice each Buyer for Credit purchases in accordance with the schedule at Attachment A, and each Buyer shall pay such invoice within forty-five (45) days of the invoice date. Failure to pay such invoice within such time shall require payment by the Participant of an administrative charge of one hundred dollars ($100.00) plus ten percent (10%) of the amount of the invoice.

5.5 Sales of Surplus Credits to Non-Participants. For any Compliance Year and associated Reconciliation Year, for any river basin and parameter (TN or TP) combination, if the Nutrient Exchange has satisfied all of the needs for Credits for Participants as specified in the Exchange Compliance Plan or as otherwise requested by Participants for Watershed General Permit compliance purposes, and has remaining Credits, the Nutrient Exchange may sell such remaining Credits, in the discretion of the Board, to any Non-Participants requesting and committing to the purchase of such Credits subject to terms established by the Board in accordance with this Policy. The revenue from any Credit sales to Non-Participants or others shall be distributed to the Participants in the manner provided in Section 5.8.

5.6 Final Reconciliation Report. In accordance with the schedule at Attachment A, the Nutrient Exchange will prepare and distribute to the Participants the Final Reconciliation Report for the immediately preceding Compliance Year to reflect any adjustments subsequent to the Initial Reconciliation Report for sales of surplus Credits to Non-Participants or as otherwise may be appropriate.

5.7 Sources of Funds. The sources of funds for the Nutrient Exchange's purchase of Credits from Sellers shall be the funds paid by Buyers, the funds paid by any Non-Participants or others purchasing Credits through the Nutrient Exchange, and any other revenues accruing to the Nutrient Exchange that the Board designates for this purpose.

(a) Clearing Account. All such funds shall be segregated for accounting purposes from any other funds of the Nutrient Exchange in a Clearing Account for the purposes of holding prior to distribution and of distributing such funds to Sellers in the manner provided in this Policy.

(b) Prices Paid by Buyers and Non-Participants. The prices for Credits shall be (i) for Buyers of Credits in the quantities scheduled in the Plan as Class A Credit purchases the Class A Credit price on Attachment B, (ii) for Participants making additional Credit purchases beyond those scheduled in the Plan as Class A Credit purchases, the Class A Credit Price from Attachment A multiplied by a premium of 1.5, and (iii) for any Non-Participant or others for purchases as provided in Section 5.5, the Class A Credit Price from Attachment A multiplied by a premium which shall be established by the Board but which shall not be less than 2.0, unless the Board in its discretion determines that a lesser premium is in the best interests of the Nutrient Exchange and its Participants.

5.8 Disbursement of Funds to Sellers. The Nutrient Exchange shall disburse funds to Sellers from the Clearing Account as follows.

(a) Timing. Funds shall be disbursed to Sellers each Reconciliation Year in accordance with the schedule at Attachment A, or as soon thereafter as may be practical.

(b) Amounts Paid to Sellers. Ninety (90) percent of the amount in the Clearing Account and due to the Nutrient Exchange from Buyers for each Compliance Year in the Reconciliation Year shall be paid to the Class A Sellers, pro rata in proportion to the quantity of such Class A Credits transferred by each. The remaining ten (10) percent shall be paid to those Participants transferring Class B Credits to the Nutrient Exchange, pro rata as to the quantity of such Class B Credits transferred by each. However, if under the preceding calculation the amount paid by the Nutrient Exchange for each Class B Credit would exceed the amount paid by the Nutrient Exchange for each Class A Credit, the amount paid for Class A and Class B Credits shall be equal and shall be paid to Sellers pro rata in proportion to the quantity of Credits transferred by each.

(c) Clearing Account Shortfalls Due to Non-Payment of Buyers. To the extent that any Buyer or other purchaser of Credits from the Nutrient Exchange fails to remit to the Nutrient Exchange any amounts for Credits when due, and such shortfall interferes with the distribution of funds as provided herein, in addition to the administrative charge provided in Paragraph 5.4(b) the Board may in its discretion (i) invalidate the Credit transfer to the non-paying person(s) and redistribute such Credits as provided in this Policy, (ii) extend additional time for payment on such terms as the Board may determine, or (iii) take other actions in the best interests of the Nutrient Exchange and the Participants. In any such event, the Board may further in its discretion either delay payments otherwise provided for in this Section 5.8, or make partial payments, pro rata as provided herein, pending resolution of such matters.

5.9 Initial Upgrades. The Nutrient Exchange and the Participants acknowledge that for the initial Permitted Facility wastewater treatment upgrades necessary to implement the Exchange Compliance Plan for any river basin beginning January 1, 2011 (or such later initial year for compliance as DEQ may approve), the availability of engineering design services, the availability of construction services, availability of Water Quality Improvement Fund grant funds, extreme weather and other factors may make a Participant's provision and transfer to the Nutrient Exchange of Class A Credits impracticable and beyond the reasonable control of such Participant. In any case in which such transfer to the Nutrient Exchange of Class A Credits is determined by the Board in its discretion to be impracticable and beyond the reasonable control of such Participant, such not-at-fault Participant shall be relieved of its obligations for the transfer to the Nutrient Exchange of Class A Credits, but only the extent that such Credits are actually not available to such Participant and only for the period of time of the initial unavailability. Any resulting Credit shortfalls impacting the ability to supply Credits to Class A Buyers shall be managed in accordance with Section 5.12 (Credit Shortfall Management Procedures). In addition, the Nutrient Exchange shall request DEQ's concurrence that neither the not-at-fault Class A Seller(s) as defined in this Section 5.9 nor the not-at-fault waiting Buyer(s) will be deemed to be in noncompliance or subject to enforcement solely because of such circumstances and related Credit supply impacts.

5.10 Waiver of Class A Credit Sales Obligation. If during the Reconciliation Year sufficient Credits exist to meet the demands of all Participants for the Compliance Year, a Class A Seller's Class A Credit sales obligation shall be waived to the extent of its Class A Credit shortfall.

5.11 Option to Purchase Additional Credits During Reconciliation. If during the Reconciliation Year sufficient Credits exist to meet the demands of all Participants for the Compliance Year, after waivers of Class A Credit sale obligations pursuant to Section 5.10 any Participant desiring to purchase additional Credits for unanticipated needs (*i.e.*, Credits required beyond the Participant's Class A Credit purchases scheduled in the Exchange Compliance Plan) may purchase such Credits from the Nutrient Exchange at the premium price applicable to Participants as specified in Paragraph 5.7(b)(ii) to meet its Watershed General Permit compliance obligations.

5.12 Credit Shortfall Management Procedures.

(a) If insufficient Credits exist to meet the demands of all Participants, Class A Buyers shall have priority access to available Credits to the extent provided in this Paragraph 5.12(a). To the extent of the available Credits, Credits shall first be transferred to Class A Buyers in a quantity sufficient to satisfy either the amount of Credits scheduled as a Class A Credit purchase in the Exchange Compliance Plan for each Class A Buyer or the amount of Credits actually needed by the Class A Buyer to comply with its Delivered WLA, whichever is less for each Class A Buyer (its "Class A Shortfall Distribution Quantity"). Such distribution to Class A Buyers and any subsequent distribution to Participants shall be implemented in accordance with either Paragraph 5.12(b) or Paragraph 5.12(c), as appropriate.

(b) If the distribution of available Credits pursuant to Subparagraph 5.12(a) is insufficient to satisfy all Class A Buyers in the manner and to the extent provided in Subparagraph 5.12(a), the following procedure shall apply: (i) all available Credits will be distributed among the Class A Buyers pro rata in proportion to the Class A Shortfall Distribution Quantity of each, and (ii) all Class A Sellers that failed to generate and transfer all of the Class A Credits that such Sellers had agreed to provide pursuant to Section 4.5 of this Policy and scheduled in the Plan shall make up their allocable share of any remaining shortfall of Class A Credits to the extent required to meet the total Class A Shortfall Distribution Quantity of all Class A Buyers, pro rata in proportion to each such Class A Seller's Class A Credit sales shortfall, by acquiring Credits from outside of the Nutrient Exchange, from the Water Quality Improvement Fund administered by DEQ, or as otherwise allowed under applicable law.

(c) If the distribution of available Credits pursuant to Subparagraph 5.12(a) is sufficient to satisfy all Class A Buyers in the manner and to the extent provided in Subparagraph 5.12(a), any remaining Credits shall be transferred in equal shares to all Participants who desire such Credits; provided, however, that no Participant may purchase more Credits than required for compliance of its Permitted Facility under the Watershed General Permit. Each Participant with a remaining need for Credits thereafter shall be solely responsible for acquiring sufficient

additional Credits from outside of the Nutrient Exchange, from the Water Quality Improvement Fund administered by DEQ, or as otherwise allowed under applicable law.

(d) In the discretion of the Board, the Nutrient Exchange may assist the Participants in acquiring sufficient additional Credits from outside of the Nutrient Exchange, from the Water Quality Improvement Fund administered by DEQ, or as otherwise allowed under applicable law; however, the Nutrient Exchange shall have no liability whatsoever for or related to a Credit shortfall regardless of the cause thereof.

ARTICLE VI
MISCELLANEOUS PROVISIONS

6.1 Amendments. This Policy may be amended from time to time in accordance with Article VII of the Bylaws.

6.2 Administrative Obligations. As a condition of continuing participation and without limiting any other provision of this Policy, each Participant shall (a) execute and comply with terms of the Nutrient Credit Services Agreement; (b) pay any applicable fees in a timely manner, and (c) pay its Credit purchase costs as provided herein in a timely manner.

6.3 Compliance with Watershed General Permit; Exchange Not Liable. Each Participant shall remain responsible for ensuring its own compliance with the Watershed General Permit. Neither the Nutrient Exchange, nor its officers, governors (directors), technical consultants or other advisors shall be responsible for assuring an adequate supply of Credits or for any other costs or damages of any kind related in any way to the operation of the Nutrient Exchange, including consequential damages.

6.4 No Waiver. No failure to exercise, and no delay in exercising, any right, power or privilege under this Policy by the Nutrient Exchange shall operate as a waiver, nor shall any single or partial exercise of any right, power or privilege hereunder preclude the exercise of any other right, power or privilege. No waiver by the Nutrient Exchange of any breach of any provision shall be deemed to be a waiver of any preceding or succeeding breach of the same or any other provision, nor shall any waiver be implied from any course of dealing.

ATTACHMENTS

A Annual Schedule for Plan Update and Reconciliation Processes
B Credit Price Schedule
C Facility Data Checklist
D Compliance Deadline Statement
E Seller's Credit Exchange Confirmation Form
F Buyer's Credit Exchange Confirmation Form

ATTACHMENT A

ANNUAL SCHEDULE

Action	Deadline	Party Responsible	Policy Section(s)
Submit Class A Credit Sale/Purchase Obligation Change Requests (OPTIONAL) (only for changes proposed to current Planning Period, not for new Year 5)	Sept. 1	Participant	4.8
Submit Facility Data Checklist (Attachment C) for Plan Update Development	Sept. 1	Participant	4.3
Submit Annual Report to Nutrient Exchange (and DEQ per 9 VAC 25-820-70 Part I F)	Feb. 1	Participant	5.2
Submit Exchange Compliance Plan Update to DEQ	Feb. 1	Exchange	4.1, 4.10
Prepare Initial Reconciliation Report	Mar. 7	Exchange	5.3
Distribute Credit Exchange Confirmation Forms to Sellers	Mar. 15	Exchange	5.4(a)
Distribute Invoices to Buyers	Mar. 15	Exchange	5.4(b)
Submit Credit Exchange Confirmation Forms to Nutrient Exchange	April 15	Sellers	5.4(a)
Invoice Payments Due from Buyers	May 1	Buyers	5.4(b), 5.7
Distribute Signed Credit Exchange Confirmation Forms to Buyers	May 20	Exchange	5.5(b)
Certify Credit Purchases to DEQ (9 VAC 25-820-70 Part J 2 f)	June 1	Buyers	N/A
Prepare Final Reconciliation Report	June 15	Exchange	5.4
Disbursement of Funds to Participants for Credit Sales	Aug. 1	Exchange	5.8

ATTACHMENT B

CREDIT PRICE SCHEDULE

Compliance Year	Reconciliation Year	Class A Credit Purchase Price ($/Credit)		Price Status (Firm or Estimate)
		Nitrogen	***Phosphorus***	
2011	2012	$2.00	$4.00	Firm
2012	2013	$2.00	$4.00	Firm
2013	2014	$2.15	$4.30	Firm
2014	2015	$2.65	$4.60	Firm
2015	2016	$3.05	$4.93	Firm
2016	2017	$3.50	$5.27	Firm
2017	2018	$3.75	$5.65	Firm
2018	2019	$3.78	$5.70	Firm
2019	2020	$3.82	$5.76	Firm

ATTACHMENT C

FACILITY DATA CHECKLIST FOR 2015 EXCHANGE COMPLIANCE PLAN ANNUAL UPDATE

Participant (Owner) Name: _____

Facility Name: _____

Designated Representative (or Alternate) Name: _____

Contact Phone: _____

Contact Email: _____

After completing the checklist, please save the file according to the following format: Participant Name-Facility Name dd-mm-year (where date in file name is date of email submittal) and email back to Cody Stanger, **cstanger@grg-ltd.com** (**NEW EMAIL**, note only one 'r' in last name)

(please enter information only in cells with blue text)

NITROGEN Data Checklist	New 5th Year	Estimates Beyond 5-year Planning Period		
	2019	2020	2021	2022
Projected Flow (mgd)	0.00	0.00	0.00	0.00
Projected mg/L (avg. annual)	0.00	0.00	0.00	0.00
End-of-Pipe Pounds	0	0	0	0
Delivery Factor[1]	0.00	0.00	0.00	0.00
Delivered Pounds	0	0	0	0
Delivered WLA[1]	0	0	0	0
Expected Credits	0	0	0	0
Adjustments In (Out)[2]	0	0	0	0
Net Expected Credits	0	0	0	0
Class A Sales (Purchases)[3]	**0**	**0**	**0**	**0**
Expected Class B Credits	*0*	*0*	*0*	*0*
Class A Purchase Price ($/lb)	$ 3.82			
Facility Class A Purchase Cost[5]	**$ -**			

PHOSPHORUS Data Checklist	New 5th Year	Estimates Beyond 5-year Planning Period		
	2019	2020	2021	2022
Projected Flow (mgd)[4]	0.00	0.00	0.00	0.00
Projected mg/L (avg. annual)	0.00	0.00	0.00	0.00
End-of-Pipe Pounds	0	0	0	0
Delivery Factor[1]	0.00	0.00	0.00	0.00
Delivered Pounds	0	0	0	0
Delivered WLA[1]	0	0	0	0
Expected Credits	0	0	0	0
Adjustments In (Out)	0	0	0	0
Net Expected Credits	0	0	0	0
Class A Sales (Purchases)	**0**	**0**	**0**	**0**
Expected Class B Credits	*0*	*0*	*0*	*0*
Class A Purchase Price ($/lb)	$ 5.76			
Facility Class A Purchase Cost[5]	**$ -**			

1 - Facility-specific Delivery Factors and Delivered WLAs as shown on DEQ's revised Watershed General Permit Registration List

2 - Adjustments include either positive or negative Credit amounts that reflect Private Exchanges, Bubble Exchanges, or WQIF-held Credits

3 - If showing positive value for Net Expected Credits, enter the number of Class A Credits committed for sale (enter 0 if no Class A Credits are committed for sale).

3 - If showing negative value for Net Expected Credits, enter the same value in this row to indicate Class A Credit purchase commitment (consistent with Credit Exchange Policy).

4 - Projected flows for the Phosphorus Credit forecast are set equal to those used to generate the Nitrogen Credit forecast

5 - Represents the total purchase cost to the facility (regardless of actual Credit need) based on the Credit purchase forecast and corresponding Class A purchase price

ATTACHMENT D

COMPLIANCE STATEMENT FOR FACILITIES SUBJECT TO REDUCED WASTELOAD ALLOCATIONS IN CHESAPEAKE BAY TMDL

Facility (Or Owner Bubble) Name: _____

Check One:
_____ James River TN Compliance
_____ York River TP Compliance

Compliance Information Required by 9 VAC 25-820-40 A 2 (Check Option 1 or Option 2)

_____ Option 1 (9 VAC 25-820-40 A 2 b): Permittee hereby requests WLA to be effective as of January 1, 2012.

_____ Option 2 (9 VAC 25-820-40 A 2 a): Additional capital project(s) is needed to ensure continued compliance with the WLA through the applicable compliance schedule deadline for the tributary. (Note: Checking Option 2 does not preclude use of credit purchase as means of compliance under II.B.)

If Option 2 is checked, briefly describe need for additional projects:
_____
_____
_____

Implementation Schedule

1. Does permittee anticipate using credit purchase to comply?
   _____ NO _____ YES

2. Is permittee implementing a capital project to comply?
   _____ NO _____ YES
   (If YES, compliance is required as soon as possible but no later than the applicable tributary compliance schedule deadline.)

3. Capital Project Milestone Schedule (Specify estimated date for each milestone. For bubbles, specify facility name(s) and list multiple facility schedules if applicable.)

Engineer selection	_____
PER/CER to DEQ	_____
Plans & Specifications to DEQ	_____
Commence construction	_____
Complete construction	_____
CTO Request to DEQ (POTWs only)	_____

ATTACHMENT E

SELLER'S CREDIT EXCHANGE CONFIRMATION FORM
COMPLIANCE YEAR 20__

The execution of this Credit Exchange Confirmation Form confirms a Credit Transfer from the Participant to the Nutrient Exchange pursuant to the Section 5.4(a) of the Credit Exchange Policy of the Nutrient Exchange. Capitalized terms have the meanings provided in the Credit Exchange Policy.

In accordance with the provisions of and subject to the terms and limitations of the Credit Exchange Policy and the Nutrient Credit Services Agreement, the undersigned Participant hereby:

1. Acknowledges receipt of the Initial Reconciliation Report dated _____.

2. Confirms and represents that the Initial Reconciliation Report correctly states for its Permitted Facility(ies) in the Exchange Compliance Plan the amounts of Class A Credits of TN and TP and Class B Credits of TN and TP transferred to the Nutrient Exchange.

3. Acknowledges and confirms the transfer of such Credits in such amounts to the Nutrient Exchange.

To be completed by Participant:

Participant Name (Organization): _____

Designated Representative (Print): _____

Designated Representative Signature: _____

Date: _____

No later than April 15 submit the signed original form to:
Virginia Nutrient Credit Exchange Association, Inc.
ATTN: Secretary
P.O. Box 51
Richmond, VA 23218-0051

ATTACHMENT F

BUYER'S CREDIT EXCHANGE CONFIRMATION FORM

The execution of this Credit Exchange Confirmation Form confirms a Credit Transfer to the Participant from the Nutrient Exchange pursuant to the Section 5.4(b) of the Credit Exchange Policy of the Nutrient Exchange. Capitalized terms have the meanings provided in the Credit Exchange Policy.

In accordance with the provisions of and subject to the terms and limitations of the Credit Exchange Policy and the Nutrient Credit Services Agreement, the Nutrient Exchange hereby transfers to the Participant identified herein the following amounts of Credits of TN and TP:

Participant Name (Organization): _____

River Basin (One Per Form): _____

Compliance Year: _____

TN Credits (Pounds): _____

TP Credits (Pounds): _____

VIRGINIA NUTRIENT CREDIT EXCHANGE ASSOCIATION, INC.

By: _____

Title: _____

Date: _____

For convenience, the next page of this form made be used, subject to DEQ's approval, by the Participant to make its required certification of credit acquisition to DEQ.

BUYER'S CREDIT EXCHANGE NOTIFICATION TO DEQ
PURSUANT TO PART I J 2 f OF THE GENERAL PERMIT
FOR TOTAL NITROGEN AND TOTAL PHOSPHORUS DISCHARGES AND
NUTRIENT TRADING IN THE CHESAPEAKE BAY WATERSHED IN VIRGINIA
9 VAC 25-820-70

General Permit Registration No.: _____

Permittee Name: _____

Pursuant to Part I J 2 f of the Watershed General Permit, the above-named Permittee, a Participant in the Virginia Nutrient Credit Exchange Association, Inc., hereby certifies that it has acquired sufficient Credits to satisfy its compliance obligations. The Credit Exchange Confirmation Form on the reverse side of this notification form documents the quantity of Credits of TN and TP transferred from the Nutrient Exchange to the Participant for the Compliance Year.

I certify under penalty of law that this notification and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Principal Executive Officer
or Authorized Agent: _____

Typed or Printed Name: _____

Signature: _____

Area Code/Phone Number: _____

Date: _____

APPENDIX A

DEQ Approval Letters

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

December 17, 2014

Mr. Frank W. Harksen, President
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

Re: Exchange Compliance Plan 2014 Annual Update

Dear Mr. Harksen:

We have reviewed the Exchange's January 30, 2014 Compliance Plan Update and the document is approved for implementation under the watershed general permit. The Exchange and its members are to be congratulated for all the hard work that has made meeting and maintaining the Chesapeake Bay TMDL point source nutrient load caps possible. Please note that we will be publishing a Notice of Intended Regulatory Action for the reissuance of the Watershed General Permit in the coming month and will be soliciting participants in that process. We look forward to another year of partnering with the Exchange and its members in pursuit of a restored Chesapeake Bay.

Sincerely,

Frederick K. Cunningham

Frederick K. Cunningham, Manager
Office of Water Permitting

cc: Mr. Chris Pomeroy, Esq. – AquaLaw

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
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Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

December 18, 2013

Mr. Frank W. Harksen, President
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

Re: Exchange Compliance Plan 2013 Annual Update

Dear Mr. Harksen:

We have reviewed the Exchange's February 1, 2013 Compliance Plan Update and the document is approved for implementation under the watershed general permit. We note that members of The Exchange continue to follow and participate in DEQ's reevaluation of the James River Chlorophyll-a criteria. Upon completion of the study DEQ will be establishing final individual wasteload allocations (WLAs) for the significant James River dischargers. As part of that process we will be performing an engineering costs analysis to help establish cost effective and equitable WLAs. We look forward to collaborating with the James River dischargers on the analysis as the final nutrient reduction goals for the James River Basin are developed.

The Exchange and its members are to be congratulated for all the hard work that has made meeting and maintaining the Chesapeake Bay TMDL point source nutrient load caps possible. We look forward to another year of partnering with the Exchange and its members in pursuit of a restored Chesapeake Bay.

Sincerely,

Frederick K. Cunningham, Manager
Office of Water Permitting

cc: Mr. Chris Pomeroy, Esq. – AquaLaw

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
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Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

January 22, 2013

Mr. Frank W. Harksen, President
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

Re: Exchange Compliance Plan 2012 Annual Update

Dear Mr. Harksen:

We have reviewed the Exchange's February 1, 2012 Compliance Plan Update and DEQ gives its approval for implementation of the plan under the watershed general permit. Again in 2012, we expect there to be excess credits available in all basins except the Eastern Shore and that the Eastern Shore shortfall can be covered by surplus credits in the Potomac and Rappahannock basins. The Exchange and its members are to be congratulated for all the hard work that has made meeting and maintaining the Chesapeake Bay TMDL point source nutrient load caps possible.

We look forward to another year of partnering with the Exchange and its members in pursuit of a restored Chesapeake Bay.

Sincerely,

Frederick K. Cunningham

Frederick K. Cunningham
Water Permit Manager
Office of VPDES Permits

cc: Mr. Chris Pomeroy, Esq. – AquaLaw

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

January 26, 2012

Mr. Mark A. Haley, President
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

Re: Exchange Compliance Plan 2011 Annual Update

Dear Mr. Haley:

We have reviewed the Exchange's February 1, 2011 Compliance Plan Update. The Plan is approved with the condition that the items included on the attached summary be addressed as appropriate in either the 2012 Compliance Plan Update due on February 2, 2012 or the Reconciliation for Compliance Year 2011 report due by June 1, 2012.

A preliminary review of the 2011 DMR data indicates that there are excess credits in all basins except the Eastern Shore and that the Eastern Shore shortfall can be covered by surplus credits in the Potomac and Rappahannock basins. The Exchange and its members are to be congratulated for all the hard work that has made meeting the January 1, 2011 compliance deadline possible.

We look forward to another year of partnering with the Exchange and its members in pursuit of a restored Chesapeake Bay.

Sincerely,

Frederick K. Cunningham
Water Permit Manager
Office of Water Permits and Compliance Assistance

cc: Mr. Chris Pomeroy, Esq. – AquaLaw

EXCHANGE COMPLIANCE PLAN 2011 ANNUAL UPDATE: ITEMS TO BE ADDRESSED PER DEQ CONDITIONAL APPROVAL

1. **Town of Onancock WWTP**
   For 2011, the Plan indicates that the Town of Onancock WWTP is using its 0.75 MGD WLAs; however, a CTO has not yet been issued for this design flow. Accordingly, the Plan should apply the 0.25 MGD allocation for 2011. This item should be addressed during Reconciliation for Compliance Year 2011. For later years, the 0.75 MGD WLAs may be applied beginning with the first full Compliance Year following issuance of the CTO.

2. **Hanover County Bubble**
   The Plan indicates that a portion of the Totopotomoy WWTP's 10 MGD WLAs is used for trading outside the Hanover County bubble. DEQ expects any credits generated at other County facilities within the bubble (i.e. Doswell) to be used within the bubble before credits associated with Totopotomoy's pending 3 MGD expansion from 7 MGD to 10 MGD are used (i.e.. until the CTO for 10 MGD issued). This equates to 54,820 lbs/yr of TN and 6,396 lbs/yr of TP. This means that the first 54,820 lbs/yr of TN credits and 6,396 lbs/yr of TP credits that are not used within the Hanover bubble are treated as "WQIF-held." Based on the actual 2011 loads, the Reconciliation for Compliance Year 2011 should include:

	Total Aggregate Delivered WLA	2011 Actual Delivered Load	Gross 2011 Credits	Credits Associated with 3 MGD	WQIF Held Credits	Net Hanover Credits
Total N	210,692	67,251	143,441	54,820	54,820	88,621
Total P	25,156	5,508	19,648	6,396	6,396	13,252

3. **Alleghany County**
   The Lower Jackson WWTP is shown as having a delivered TN WLA of 19,187 lbs/yr when the actual allocation is 8,223 lbs/yr. Likewise the TP delivered WLA is shown as 5,330 lbs/yr rather than 2,284 lbs/yr. Presumably the difference reflects the transfer of the entire Clifton Forge WLA to Lower Jackson WWTP. However the transfer of the Clifton Forge WLA will not occur until completion of the public notice period in February 2012. Therefore, it would be more appropriate to address this item as a Private Exchange in the Reconciliation for Compliance Year 2011.

   Additionally, while the WLAs for Lower Jackson WWTP and Clifton Forge WWTP are based on a total capacity of 3.5 MGD, at this time only 2.6 MGD has been constructed. This equates to WQIF held credits of 4,934 delivered lbs/yr TN and 1,371 delivered lbs/yr TP. The WQIF held credits are properly indicated on the TN ledger however they are not included on the TP ledger. WQIF held credits should be accounted for in the Reconciliation for Compliance Year 2011 in a similar manner as with the Hanover County Bubble discussed above.

4. **Town of Culpeper WWTP**
   The Plan should be updated to reflect consolidation of the Culpeper County Mountain Run 1.5 MGD WLAs with the WLAs of the expanded 6.0 MGD Town of Culpeper WWTP.

5. **Spotsylvania County Bubble**
   While the bubble WLAs are correct, individual WLAs should be updated to reflect the transfer of 1.4 MGD of WLAs from FMC WWTP to Massaponax WWTP.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

November 2, 2010

Mr. Mark A. Haley, President
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

Re: Exchange Compliance Plan 2010 Annual Update

Dear Mr. Haley:

We have reviewed the Exchange's February 1, 2010 Compliance Plan Update and DEQ gives its approval for implementation of the plan under the watershed general permit. With numerous upgrades now close to completion, we look forward to compliance with the Total Nitrogen and Total Phosphorus wasteload allocations in 2011. DEQ will be distributing final Discharge Monitoring Reports to all registered facilities early next year. The Exchange and its members are to be congratulated for all the hard work that has made meeting this aggressive deadline possible.

We look forward to another year of partnering with the Exchange and its members in pursuit of a restored Chesapeake Bay.

Sincerely,

Frederick K. Cunningham
Water Permit Manager
Office of Water Permits and Compliance Assistance

cc: Mr. Chris Pomeroy, Esq. - AquaLaw

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

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1-800-592-5482

September 24, 2009

Mr. Mark A. Haley, President
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

Re: Exchange Compliance Plan 2009 Annual Update

Dear Mr. Haley:

We have reviewed the Exchange's February 1, 2009 Compliance Plan Update and DEQ gives its approval for implementation of the plan under the watershed general permit. We remain very pleased by the progress being made by the organization and its members. Point source Total Nitrogen and Total Phosphorus delivered loads decreased in each of the five permitted watersheds in 2008.

We share your concern with the lack of trading partners on the Eastern Shore and look forward to working with the Exchange in the next year to address this issue. Finally, our staff has had some discussions with you concerning a few survey responses that appear to be out of date by the time they are compiled and submitted. A few such situations may be inevitable as many facilities have struggled with upgrade decisions in the middle of the economic downturn. We are currently reviewing WQIF records to provide you with a list of apparent discrepancies for use in reviewing the next round of survey responses.

We look forward to another year of partnering with the Exchange and its members in pursuit of a restored Chesapeake Bay.

Sincerely,

Frederick K. Cunningham
Water Permit Manager
Office of Water Permits and Compliance Assistance

Cc: Mr. Chris Pomeroy, Esq. - AquaLaw

COMMONWEALTH of VIRGINIA

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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

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1-800-592-5482

April 25, 2008

Mr. Mark A. Haley, President
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

Re: Exchange Compliance Plan 2008 Annual Update

Dear ~~Mr. Haley~~ Mark:

We have reviewed the Exchange's February 1, 2008 Compliance Plan Update and DEQ gives its approval for implementation of the plan under the watershed general permit. We are very pleased by the progress being made by the organization and its members. The growth in membership has been impressive and we expect that participation will continue to grow as the January 1, 2011 deadline approaches and more facilities recognize the benefits of membership.

Equally impressive is the reduction in load made in some basins as more and more facilities optimize their operations. The Exchange members managed to operate below their combined TN wasteload allocations in the Potomac and Rappahannock Basins and below their combined TP wasteload allocations in the York and (Lower) James Basins; however we must recognize 2007 was a dry year.

We will continue to monitor and evaluate progress in each basin as noted in my September 7, 2007 letter and Section 7.1 of the annual update. Between the annual compliance plan updates, the WQIF annual reports and the annual load reports we are confident that we will stay on top of this issue and be able to make any schedule adjustments necessary. Also as noted in my September 7, 2007 letter, the conditions in Section 7.2 on the compliance plan do not dictate the terms of DEQ's enforcement policy. However, please rest assured that DEQ too has much invested in the watershed general permit and intends to work cooperatively with all stakeholders to ensure a fair and successful program.

With respect to the Eastern Shore Basin, we share your concern that the basin is not large enough to provide ample trading partners. As you know a legislative change would be required to open up the Eastern Shore market to include purchases from the Potomac and Rappahannock Basins.

We have noted in recent weeks that as WQIF agreements and VPDES permits are negotiated, a few facilities have backed off of the upgrade plans provided to the Exchange. So far none of these changes appear to affect the basin compliance goals. We intend to track these discrepancies to ensure that they do not have an adverse impact on basin compliance as a whole and will continue to instruct such facilities to keep the Exchange informed of any changes in their plans.

In closing, we continue to be encouraged by the progress in the trading program and by the cooperation and efforts of the Exchange and its members in particular. We look forward to another year of this partnership and progress towards a restored Chesapeake Bay.

Sincerely,

Ellen Gilinsky

Ellen Gilinsky, Ph.D., Director
Division of Water Quality

Cc: Mr. Chris Pomeroy, Esq. - AquaLaw

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

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September 7, 2007

Mr. Mark Haley
President, Board of Governors
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

RE: Exchange Compliance Plan, July 31, 2007

Mark

Dear Mr. Haley:

We have reviewed the Exchange's July 31, 2007 Compliance Plan and your letter of July 30, 2007 and are very pleased by the progress being made by the Exchange members. Especially encouraging are the projections that expected TN and TP loads will be below the aggregate wasteload allocations in all five basins by 2011.

After a careful review of all of the individual compliance plans and the Exchange's compliance plan, DEQ staff recommends that the existing 2011 compliance deadline be retained at this time for both parameters in all five basins. The Class A/Class B trading system adopted by the Exchange has served as an excellent tool for managing trades among its members. However, using only Class A pledges as the basis for determining a river basin compliance date appears inconsistent with the permit condition of achieving compliance "as soon as possible". In establishing "as soon as possible" compliance dates, DEQ must rely on the completion of projects that allow limits to be met and not delay the regulatory deadline due to a reluctance to sign Class A pledges.

We share your concern with the completion of so many projects on such a tight timeline. However, at this early date it is not possible to determine how quickly individual construction projects will proceed and what the actual capabilities of the upgraded facilities will be. For instance, after a year of progress, the performance of Exchange members was significantly better than what was projected for these facilities in the April 2006 draft report. Future annual compliance plan updates and DEQ's semi-annual WQIF progress reports will add further clarity to these projections and will be used along with the scheduling factors in the Virginia Code and the "as soon as possible" criteria to evaluate the need for basin schedule extensions. Accordingly, we believe that The Exchange's proposed footnote for the watershed general permit compliance table is neither necessary nor does it provide the public or EPA with an

opportunity to participate in regulatory changes to the permit schedules. Should it prove necessary, DEQ will initiate amendment to the permit under the Administrative Process Act to make appropriate revisions to the schedule.

We also share your desire for DEQ to provide a safe regulatory environment for participating owners to commit to buy or sell credits. The very existence of the trading program represents a significant reduction in risk for the permittees. This risk is further reduced by the ability to purchase compliance credits from the WQIF. DEQ has proposed to incorporate into the WQIF cost-control guidelines a provision that credits generated via WQIF-funded upgrades would be made available to other permittees by the facility generating the credits. As suggested in your July 30th letter, we are also pursuing a means of sustaining a pool of WQIF-funded BMP projects that will serve as a source of WQIF credits in each basin.

We greatly appreciate the Exchange's efforts in encouraging and facilitating the cooperation of over 100 facilities to reduce nutrient loads to the Chesapeake Bay, and look forward to our continued working relationship with your organization.

Sincerely,

Ellen Gilinsky

Ellen Gilinsky, Ph.D., Director
Division of Water Quality

APPENDIX B

Form of Nutrient Credit Services Agreement

NUTRIENT CREDIT SERVICES AGREEMENT

THIS NUTRIENT CREDIT SERVICES AGREEMENT (this "Agreement") made by and between the Virginia Nutrient Credit Exchange Association, Inc., (the "Nutrient Exchange") and the undersigned owner or operator of a Permitted Facility included in the Exchange Compliance Plan (the "Participant").

BACKGROUND

A. The Participant owns or operates a certain facility or facilities regulated under the General Virginia Pollutant Discharge Elimination System Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia, 9 VAC 25-820, issued by the State Water Control Board and Department of Environmental Quality (collectively "DEQ") for a five-year permit term beginning January 1, 2007 or as hereafter modified or reissued from time to time (the "Watershed General Permit").

B. The Nutrient Exchange is a Virginia non-stock corporation comprised of permittees subject to the Watershed General Permit and is authorized by section 62.1-44.19:17 of the Code of Virginia to assist permittees with Watershed General Permit compliance and to facilitate voluntary nutrient credit trading.

C. Among other requirements, the Watershed General Permit (9 VAC 25-820-70, Part I B) imposes limitations on the discharge of two nutrients, total nitrogen and total phosphorus, from the Participant's Permitted Facility(ies), and requires the Participant to submit to DEQ by August 1, 2007 and each February 1 thereafter, either individually or through the Nutrient Exchange, a compliance plan (9 VAC 25-820-40 and -70 Part I D) identifying how its Permitted Facility(ies) will comply with such limitations.

D. On behalf of the Participants and based on the data provided and decisions made by the individual Participants, the Nutrient Exchange has developed, and intends to maintain by means of the Watershed General Permit-required annual Plan Updates, a compliance plan for each of Virginia's five major river basins (collectively the "Exchange Compliance Plan") to assist the Participants in complying with the Watershed General Permit compliance plan requirement.

E. In addition, Participants in the Exchange Compliance Plan have the option of exchanging nutrient Credits. The Exchange Compliance Plan identifies firm commitments for the purchase and sale of Class A Credits at the request of numerous individual Participants who have elected to participate as Class A Buyers or Class A Sellers, and further establishes a market for and provides all Participants with the option of later purchasing available Class B Credits on more flexible terms to assist in maintaining compliance during unanticipated circumstances.

F. The Nutrient Exchange serves as the central trading exchange to facilitate the execution and reporting of these voluntary nutrient Credit Exchanges by and among its Participants in accordance with its Credit Exchange Policy, the Watershed General Permit and,

when applicable, Water Quality Improvement Fund Grant Agreements entered into by and between a Participant and DEQ.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants and conditions herein, the parties hereto agree as follows:

1. Annual Compliance Plan Updates. The Nutrient Exchange agrees to update the Exchange Compliance Plan annually and submit such Plan Update to DEQ for approval on or before the deadline (currently February 1 of each year) specified in Part I D of the Watershed General Permit. The Plan Update shall include updated information as provided by the Participant in accordance with the Credit Exchange Policy for its Permitted Facility(ies), including revisions to relevant facility-specific information. The Participant shall assist the Nutrient Exchange in the development of the Plan Update by providing information reasonably requested by the Nutrient Exchange in accordance with an annual Plan Update schedule to be established by the Nutrient Exchange.

2. Annual Reports. The Participant agrees to submit to the Nutrient Exchange a copy of the Participant's annual report to DEQ required by Part I F of the Watershed General Permit (9 VAC 25-820-70), and such other information as may be reasonably requested by the Nutrient Exchange to assist in the annual Reconciliation of Credit Exchanges for each Compliance Year.

3. Annual Credit Exchange Reconciliation. The Nutrient Exchange agrees to conduct an annual Reconciliation process for the timely execution of the Credit Exchanges elected by the Participants as specified in the Exchange Compliance Plan. The Participant agrees to implement any previously elected Class A Credit or Class B Credit Exchanges in accordance with the Credit Exchange Policy.

4. Incorporation of Credit Exchange Policy. The provisions of the Credit Exchange Policy are hereby incorporated as if such provisions were fully set out herein. For convenient reference, a copy of the current version of the Policy is attached hereto.

GENERAL PROVISIONS

5. Definitions. Terms not specifically defined herein shall have the definitions provided in the Credit Exchange Policy.

6. Term. The Agreement shall be in effect once signed by both parties and shall have an initial term through and including June 30, 2013. This term is coincident with the five year Planning Period covered by the current Exchange Compliance Plan (January 1, 2008 through December 31, 2012) plus a six month period (January 1, 2013 through June 30, 2013) for the Reconciliation process for the fifth Compliance Year (2012). Such term shall automatically extend by one year, without notice, upon submittal to DEQ of each annual update of the Exchange Compliance Plan beginning with the 2009 Annual Update due February 1, 2009,

unless (a) the Participant withdraws as provided herein or (b) the Nutrient Exchange provides notice to the Participant prior to completion of the Plan Update that it will not extend the term of this Agreement.

7. Amendments to Credit Exchange Policy and Exchange Compliance Plan. The Nutrient Exchange and the Participant acknowledge that the Credit Exchange Policy and the Exchange Compliance Plan may be amended from time to time as a result of changes desired by the Participants, the Exchange Board of Governors or DEQ, possible changes to law, and other factors. It is agreed that changes thereto shall become effective upon notice to the Participants or upon a later effective date as may be specified in such notice.

8. Withdrawal. The Participant shall have the following rights to withdraw from the Nutrient Exchange and the Exchange Compliance Plan.

(a) Withdrawal Upon End of Current Term. This Agreement shall not automatically extend for an additional year upon the Plan Update as provided in Paragraph 6 if the Participant elects to withdraw by providing notice of such election to the Nutrient Exchange at least four years and nine months (57 months) prior to the expiration of the term of this Agreement or before any later date as the Nutrient Exchange may specify during the Plan Update process. In the event of such withdrawal, the Nutrient Exchange shall omit the Participant and its Permitted Facilities from the additional Compliance Year (the new Year 5) added to the Plan during the Plan Update process for that year. For example, if a Participant in the Exchange Compliance Plan for the five year Planning Period covering January 1, 2008 through December 31, 2012 desires to withdraw and not extend this Agreement for an additional year (*i.e.*, through December 31, 2013), the Participant shall provide its withdrawal notice on or before October 1, 2008.

(b) Withdrawal During Term in Response to Policy or Plan Amendment. Notwithstanding any other provision of this Agreement, if any change to the Credit Exchange Policy or the Exchange Compliance Plan pursuant to Paragraph 7 would result in a material adverse effect on the Participant within the five year Planning Period covered by the Exchange Compliance Plan then in effect, the Participant may withdraw from the Agreement by written notice delivered to the Nutrient Exchange within sixty (60) days of such Participant's notice of the change, unless the Nutrient Exchange in its discretion further amends the Credit Exchange Policy or Exchange Compliance Plan within ninety (90) days of receiving such notice in a manner that eliminates the material adverse effect. Such withdrawal shall be effective January 1 of the Compliance Year for which the material adverse effect would first otherwise occur. The Participant shall participate in the Reconciliation and execute all Credit Exchanges planned for each Compliance Year prior to the effective date of withdrawal and pay all Credit costs or receive Credit revenue through and including such Compliance Year. In addition, the Participant shall continue to pay all applicable fees or dues in the ordinary course through the effective date of such withdrawal.

(c) Withdrawal During Term for Other Reasons. In addition to the right to withdraw during the term of this Agreement as provided in Subparagraph 8(b), the Participant shall have the right to withdraw during the term of this Agreement through the Plan Update

process if the following conditions are satisfied: (i) the Board determines that the Participant's withdrawal, alone or in combination with other modification requests, would not have a material adverse effect during the Planning Period on the Nutrient Exchange or any non-withdrawing Participants, (ii) the Participant is and agrees to remain current on all fees and Credit purchase costs as are due or may come due through and including the time of completion of the Reconciliation process for the last Compliance Year for which its Permitted Facilities are covered by the Plan, and (iii) the Participant agrees to cooperate fully in the Reconciliation for the last Compliance Year for which its Permitted Facilities are covered by the Plan. Such withdrawal shall be effective subject to the foregoing conditions upon submittal of the Plan Update by the Nutrient Exchange to DEQ as provided in Paragraph 1 above.

9. Annual Fee. The Nutrient Exchange's obligations under this Agreement shall be contingent on the continued adequate funding of the Nutrient Exchange through fees applicable to and paid by the Participants. Following execution of this Agreement by both parties and by approximately November 2008, the Nutrient Exchange shall issue an invoice to the Participant in the amount shown on Attachment A under the column labeled "Nov. 2008." Such invoice shall also include the amount, if any, invoiced by the Nutrient Exchange to the Participant in approximately March 2008 (as shown under the column labeled "Mar. 2008") but not yet paid by the Participant. The Participant agrees to pay such invoice within forty-five (45) days of the invoice date. Beginning with the 2009 Plan Update, following submittal of each annual Plan Update to DEQ the Nutrient Exchange shall issue an invoice to the Participant for the annual fee. The Participant shall pay such invoice within forty-five (45) days of the invoice date or by July 31 of the calendar year in which the invoice is issued, whichever is later. The Nutrient Exchange agrees to periodically update such schedule to add the fee amount for future years and in so doing intends to keep the annual fees specified therein to the lowest level sufficient for proper operation in the discretion of the Board. The Board anticipates establishing annual fees associated with and payable after the 2009, 2010, 2011 and 2012 Plan Updates, respectively, at less than a maximum of twice the annual fee currently scheduled on Attachment A for Nov. 2008. If an annual fee associated with any Plan Update through and including the 2012 Plan Update were to exceed this maximum anticipated fee, in that event the Participant may withdraw in accordance with the same procedures provided in Paragraph 8(b) of this Agreement. For the 2009 Plan Update, the Board's current estimate is that the annual fee will be the same amount as the Nov. 2008 fee shown on Attachment A. Upon receipt of a written request from the Participant, the Nutrient Exchange agrees to provide the Participant with an accounting of its receipts and disbursements for the two fiscal years immediately preceding the fiscal year in which the written request is received. The Participant agrees to pay applicable fees when due. Failure to pay any annual fee invoice within forty-five (45) days shall result in an administrative charge of one hundred dollars ($100). In the event the Participant fails to pay any annual fee invoice within ninety (90) days of the invoice date, without limiting any other remedies, the Board in its discretion may terminate this Agreement and eliminate the Participant's Permitted Facilities from the Plan. Such termination shall not relieve the Participant of its obligation to pay any amounts due prior to the date of termination.

10. Waiver of Liability of the Nutrient Exchange. In recognition of the benefits derived by Participants and the nature of the Nutrient Exchange, to the extent permitted by law the Participant waives any causes of action and rights of recovery for liability of the Nutrient

Exchange and its Board of Governors, officers, employees, consultants and other advisors, for any losses or damage to the Participant, other than due to the gross negligence or intentional misconduct thereof.

11. Authorization of Signature. The Participant and the Nutrient Exchange each represent and warrant that its execution of this Agreement by the undersigned is fully authorized and validly performed.

12. No Partnership. Nothing contained in this Agreement shall create any partnership, trust, or joint venture with regard to the Nutrient Exchange and any or all Participants.

13. Third Party Beneficiaries. This Agreement is solely for the benefit of the Nutrient Exchange and its Participants and their permitted successors and assignees and shall not confer any rights or benefits on any other person.

14. Notices. Notices pursuant to Paragraphs 6 and 8 shall be delivered at the following address by U.S. Mail, certified with return receipt, and shall be deemed given when received (or delivery is refused) by the party to whom such notice or communication is directed. A party may change its address for such notice in writing as provided herein.

If to the Nutrient Exchange: Virginia Nutrient Credit Exchange Association, Inc.
ATTN: Secretary
P.O. Box 51
Richmond, Virginia 23218-0051

If to the Participant: _____
_____
_____
_____

with a copy to the Participant's Designated Representative.

Any other notices and communications pursuant to this Agreement shall be made by or to the Participant's Designated Representative, or alternate when appropriate, each as designated the Participant from time to time in accordance with the Bylaws of the Nutrient Exchange.

15. Netting of Payments. The Nutrient Exchange may, but shall not be obligated to, net any payments to the Participant for such Participant's sales of Credits or otherwise with any fees past due, other authorized charges past due, or charges for Credits purchased past due to the Nutrient Exchange.

16. Integration. This Agreement (including the Credit Exchange Policy incorporated herein by reference) contains the entire agreement between the Nutrient Exchange and the Participant as to the subject matter hereof and supercedes all previous written and oral negotiations, commitments, proposals and writings, including those of counsel. Except as

otherwise provided herein or in the Credit Exchange Policy, no amendments may be made except by a writing signed by the parties.

17. Change in Law. Other than as specifically provided in the Credit Exchange Policy, in the event of any material change in applicable laws or regulations the parties shall work together to amend the Agreement to conform to such change in law, while maintaining as closely as practical the provisions and intent of this Agreement.

18. Governing Law; Severability. This Agreement shall be construed in accordance with and governed for all purposes by the laws of the Commonwealth of Virginia. If any term or provision of this Agreement, the deletion of which would not adversely affect the receipt of a material benefit by either party hereunder, shall be held by a court of competent jurisdiction to be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby and each other term and provision of this Agreement shall remain valid and enforceable to the fullest extent permitted by law. It is the intent of the parties to this Agreement, and the parties agree, that in lieu of any term or provision of this Agreement that is illegal, invalid or unenforceable, the parties in good faith shall supply as part of this Agreement a legal, valid and enforceable term or provision as similar to such illegal, invalid or unenforceable term or provision as may be possible.

IN WITNESS WHEREOF, the parties have caused the execution of this Agreement as of the date first written above.

VIRGINIA NUTRIENT CREDIT EXCHANGE ASSOCIATION, INC.

By: _____

Name: _____

Title: _____

Date: _____

_____

PARTICIPANT NAME

By: _____

Name: _____

Title: _____

Date: _____

ATTACHMENT A

ANNUAL FEE SCHEDULE

Class	Participant's Total TN WLA (lbs/yr)	Mar. 2008	Nov. 2008
Very Large	>400,000	$1,750	$3,500
Large	400,000-75,001	$1,250	$2,500
Standard	75,000-15,001	$750	$1,500
Small	≤15,000	$250	$500

ANNUAL FEE SCHEDULE UPDATE
(ISSUED: MAY 26, 2010)

Class	Participant's Total TN WLA (discharge lbs/yr)	Annual Fee
Very Large	>400,000	$4,250
Large	400,000-75,001	$3,125
Standard	75,000-15,001	$1,875
Small	≤15,000	$625

APPENDIX C

Water Quality Improvement Fund

This appendix provides an update on funding from the Water Quality Improvement Fund for eligible point source nutrient removal technology upgrades. Based on projections presented by DEQ to the Senate Finance Committee on January 20, 2015, the Fund is expected to experience a $13.4 million shortfall through June 2016 and a total anticipated deficit of $67.4 million for existing and currently projected new agreements. Relevant excerpts of DEQ's January 20, 2015 report are included in this Appendix C.

Department of Environmental Quality

Budget Briefing for Senate Finance Committee

Subcommittee on Economic Development and Natural Resources

David K. Paylor, Director

January 20, 2015

General Assembly 2014
Major DEQ Impacts

- The 2014 GA included an additional $20 million of bond authorization in FY 2015 to support the Stormwater Local Assistance program. These funds are in addition to the $35 million authorized for this program by the 2013 GA.
- $7.6 million in FY 2015 was provided to the WQIF at DEQ, made up of:
  - $1.0 million for deposit to the WQIF Reserve Fund
  - $6.6 million for stormwater and nonpoint source water quality projects, including municipal separate stormwater sewer systems and grants to local governments. Funding for statewide digital orthography is to be taken from this item.
- DEQ will continue to have WQIF bond authorization, consisting of:
  - Up to $101 million for eligible dischargers in the Chesapeake Bay watershed for capital costs incurred for nutrient removal technologies
  - Up to $75 million for the Combined Sewer Overflow Fund, consisting of up to $30 million for the City of Lynchburg and up to $45 million for the City of Richmond
  - Up to $5 million for a supplemental nutrient removal grant for Hopewell
  - Up to $5 million for the Appomattox River Water Authority

Deposits to VA Water Quality Improvement Fund – DEQ

- WQIF established in 1997 to provide grants for nutrient removal and other water quality projects
- FY 2014 bond authorization of $106 MM for nutrient removal, including $5 million for Hopewell

Period	Funds for Bay Point Source Projects (in Millions)
FY 1998	$10.00
FY 1999	$37.10
FY 2000	$27.64
FY 2001	$10.30
FY 2005	$12.57
FY 2006	$80.28
FY 2007	$197.33
Interest earned through FY2007	$18.19
FY 2008	$5.00
FY 2009	$0.48
Interest earned FY08 & FY09	$3.37
FY10 – Bond Proceeds & Interest	$250.35
FY 2011	$ 3.10
FY 2013	$87.57
Monetary Assessments FY 2011-14	$0.13
FY 2014	$106.00
Total Deposits =	**$849.41**

Department of Environmental Quality

Water Quality Improvement Fund
Grant Summary*

Total Grant Commitment on 64 Projects	$ 771.6 MM
Less: Cumulative Amount Paid on Projects	$ (625.1) MM
Grant Commitment Remaining on 14 Signed Agreements	$ 146.5 MM
Plus: Projected New Agreements for Fairfax and Loudoun	$ 39.4 MM
Equals: Total Estimated Need on Grants	$ 185.9 MM
Less: Total Available Funds including bond authorization	$ 118.5 MM
Total Anticipated Deficit	$ (67.4) MM
Note: Potential Cash Flow Shortfall through June 2016	$ (13.4) MM

* This exhibit is an estimate based on the latest full analysis of all projects done in the Fall of 2014

APPENDIX D

DEQ Director Letter

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
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September 12, 2007

Mr. Mark Haley
President, Board of Governors
Virginia Nutrient Credit Exchange Association, Inc.
P.O. Box 51
Richmond, VA 23218-0051

RE: Exchange Compliance Plan

Dear Mr. Haley:

I understand that the Exchange's July 31, 2007, Compliance Plan projects that expected Total Nitrogen and Total Phosphorus loads will be below the aggregate wasteload allocations in all five basins by 2011. You and the entire association are to be congratulated for your diligence in evaluating the best opportunities for upgrades and trading in each of the Chesapeake Bay basins so that we can retain the existing January 1, 2011, compliance date in the watershed general permit for both nitrogen and phosphorus. This is a significant step for the Exchange, the watershed general permit and trading program, and for the Commonwealth in our continued efforts to clean up the Bay and illustrates your commitment to being a strong partner in the solution.

We know it will be a challenge to complete so many projects on such a tight timeline, and we remain committed to working with you to shepherd these projects to completion. In the meantime, we appreciate the Exchange's efforts to encourage and facilitate the cooperation of over 100 facilities to reduce nutrient loads to the Chesapeake Bay.

Thank you for your commitment to maintaining healthy waters within Virginia.

Sincerely,

David K. Paylor

DKP:dlm