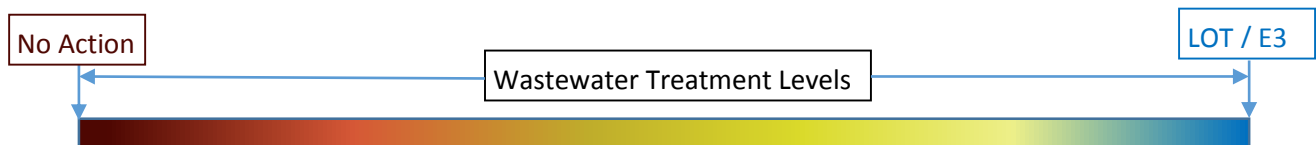


Draft Proposal - LOW/ E3 Wastewater Definition Update

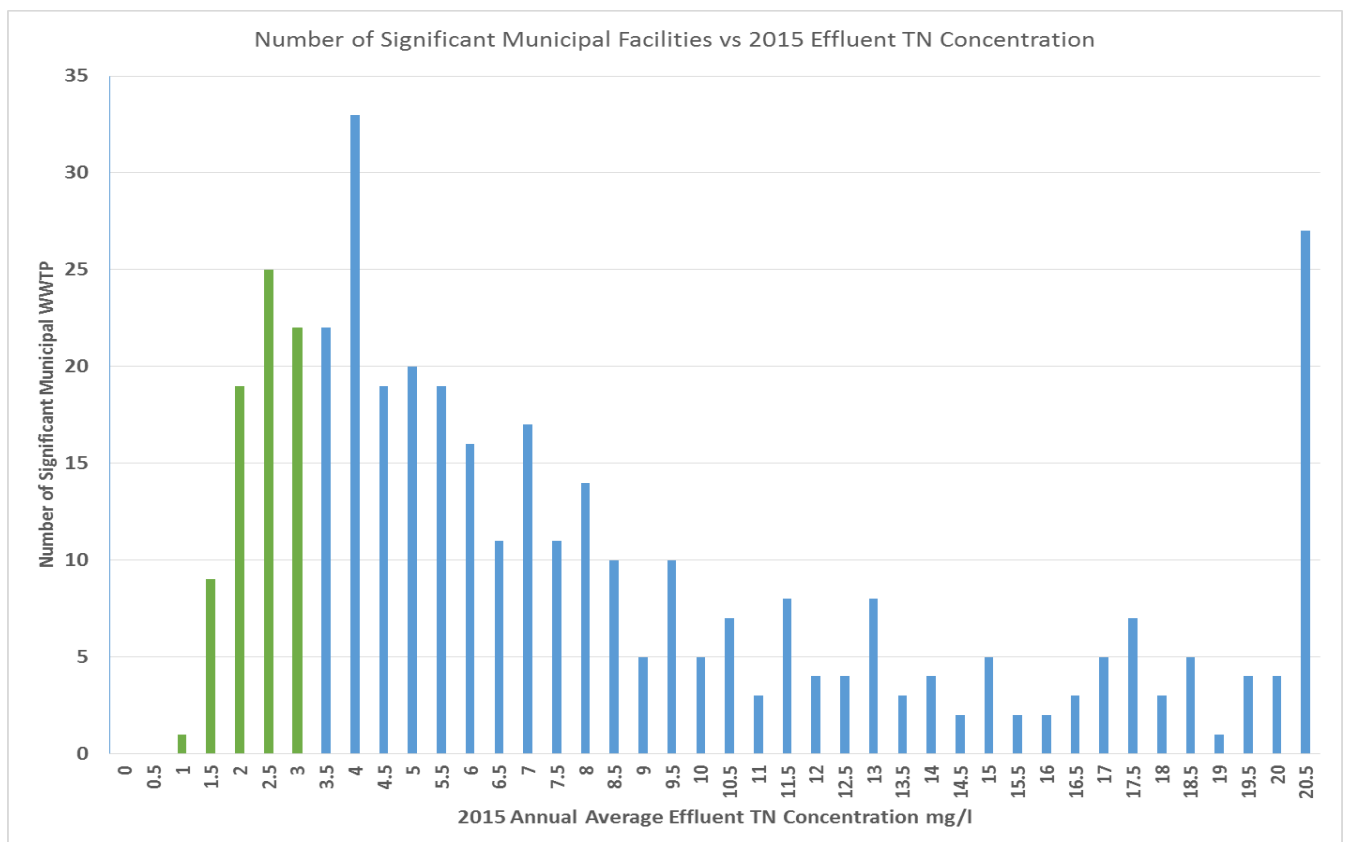
It has been more than 15 years since we first defined the Limit of Technology (LOT) level for the wastewater sector, which was later used in the E3 scenario for significant facilities. Technology has advanced with operation and performance improvement in wastewater treatment over the past decade. The data has also shown that many of our significant municipal WWTPs in the Bay watershed have been operating (on annual average) beyond the LOT level.

We evaluate the general wastewater nutrient removal levels between two extreme end points: No action and LOT that are two important reference points to define the possible normal range of nutrient removal levels.

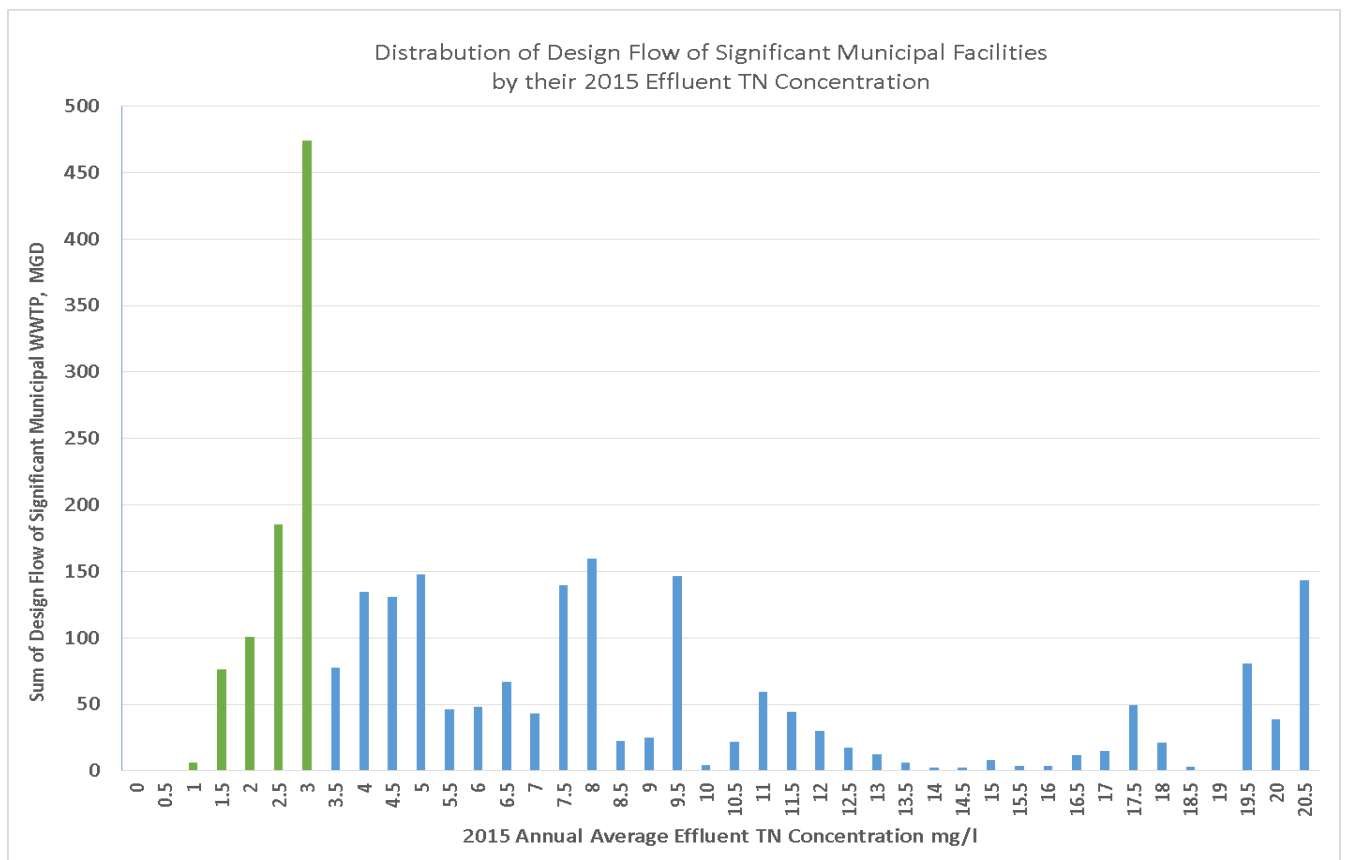
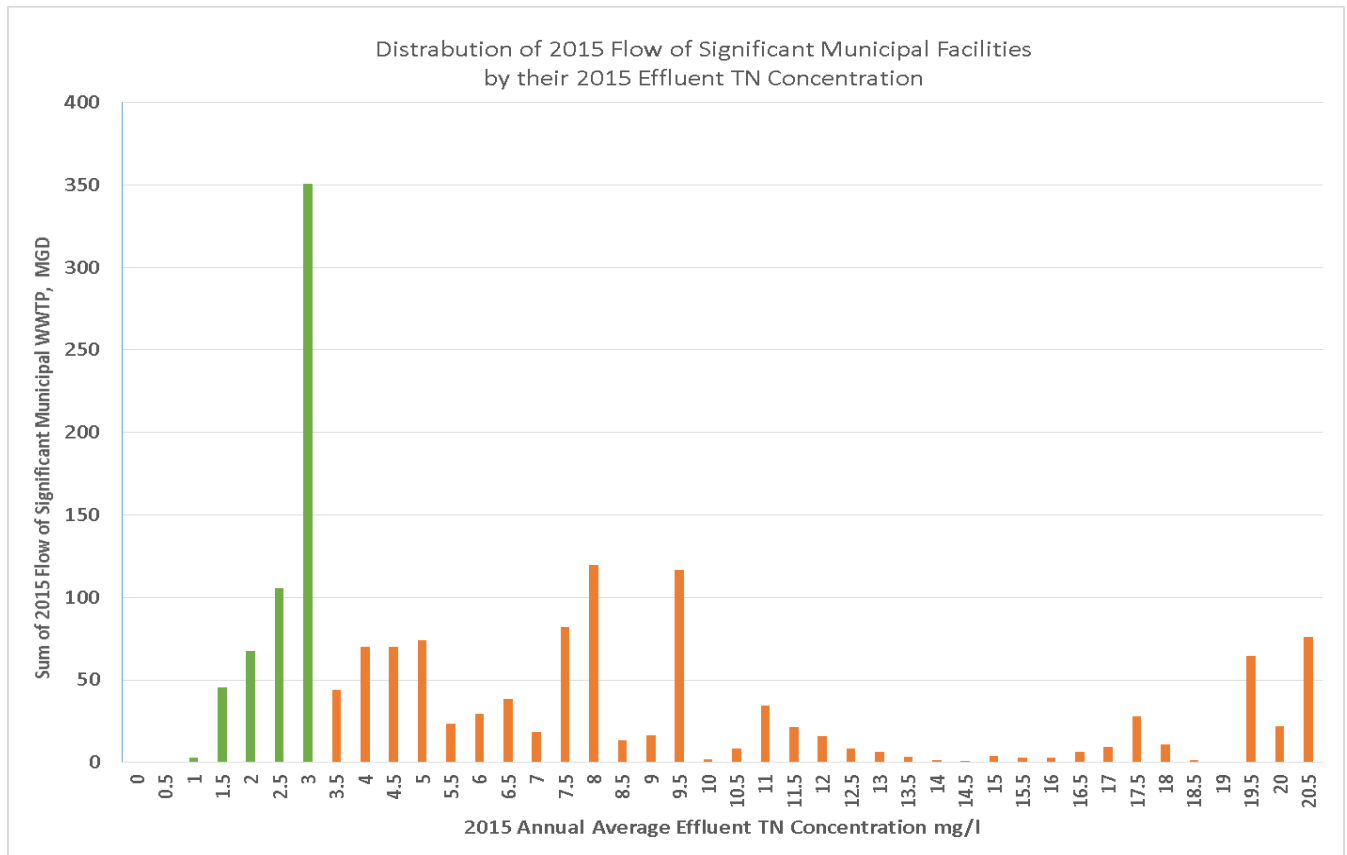


In the TMDL modeling analysis, we have applied the same theory to evaluate the implementation levels and created two important modeling reference scenarios: No Action and E3, which set up the possible scope for different implementation levels. When we analyze different implementation levels, it is important to have accurate and up to date reference points that define the boundary and scope of the study.

Progress 2015 results have not only shown that wastewater sector met the TMDL target loads for the first time, but also presented a significant amount of significant facilities that are currently operating at or better than the current LOT/E3 level at TN =3mg/l, as the following chart shows in the distributions of number of facilities, 2015 flows and design flows by effluent TN concentrations.



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In progress 2015, there are total 77 out of 401 (19.2% by number) significant municipal plants running < 3mg/l TN, which counts for 35% of total significant municipal flow in 2015. These 77 plants represents 32% of total significant municipal design flow.

Significant Municipal WWTPs in the Bay Watershed			
	All	2015 TN< 3 mg/l	Percentage
# plants	401	77	19.20%
Total 2015 Flow (mgd)	1,622	572	35.27%
Total Design Flow (mgd)	2,620	846	32.29%

These 77 plants are listed in the table attached at the end of this proposal. The list is sorted by the 2015 flow or facility size.

With 20% of significant municipal plants (or 35% by 2015 flow, 32% by design flow) operating at levels less than 3 mg/l TN, it is difficult to defend that TN at 3 mg/l is still the limit of technology.

Based on the data analysis above and recommendations from Dr. Cliff Randall, we propose to update the LOT level to reflect the technology advance and current operation reality.

	TN mg/l	TP mg/l
Current LOT	3	0.1
Proposed New LOT	2	0.08

The current LOT definition was also recommended by Dr. Randall about 15 years ago. According to Dr. Randall, facilities operating at TN <3 mg/l and near 2mg/l are not just common in the Chesapeake Bay Watershed, but also can be seen in many other regions, such as in GA and FL. He has been involved with plants that produce effluent TN concentrations less than 2.0 mg/L and TP <0.08 mg/l.

Many jurisdiction representatives have raised their concerns on potential regulation impact of the proposed new LOT level. The new LOT/E3 proposal is a reference point related to treatment technologies, however, EPA would continue to expect permit limits to be based on the assumptions and requirements of the TMDL WLAs which are determined by the Bay jurisdictions. EPA writes nutrient permit limits for only one facility in the watershed- Blue Plains. And, Blue Plains' permit limits are at a level of TN=4.2 mg/l and TP= 0.18 mg/l that are not even at current LOT.

As we did for the current LOT about a decade ago, we will recommend further studies and ask STAC to convene a workshop to evaluate whether new definitions of wastewater LOT are appropriate/supportable.

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Attachment

List of Significant Municipal Plants with Their 2015 Effluent TN less than 3 mg/l

FACILITY	NPDES	2015		WIP2	
		FLOW (mgd)	TN_C (mg/l)	FLOW (mgd)	TN_C (mg/l)
BLUE PLAINS	DC0021199	288.61	2.97	370	4.2
NOMAN M. COLE JR.	VA0025364	37.91	2.04	67	3.0
PISCATAWAY	MD0021539	24.30	2.06	30	4.0
ARLINGTON	VA0025143	23.43	1.28	40	3.0
LITTLE PATUXENT	MD0055174	21.21	1.58	25	4.0
WESTERN BRANCH	MD0021741	20.72	1.93	30.6	4.0
H.L. MOONEY	VA0025101	13.77	2.68	24	3.0
SOD RUN	MD0056545	11.89	2.52	20	4.0
MOORES CREEK-RIVANNA AUTHORITY	VA0025518	10.23	1.33	15	3.0
CUMBERLAND	MD0021598	8.51	2.03	15	4.0
FWSA OPEQUON	VA0065552	7.06	1.95	12.6	3.2
HAGERSTOWN	MD0021776	6.95	2.97	8	4.0
PARKWAY	MD0021725	6.48	2.65	7.5	4.0
ALTOONA CITY AUTHORITY-WEST	PA0027022	5.84	2.23	16.2	3.3
AQUIA	VA0060968	5.04	1.31	8	3.0
PATUXENT	MD0021652	4.93	1.89	7.5	4.0
BROADNECK	MD0021644	4.47	2.80	6	4.0
MIDDLE RIVER	VA0064793	3.75	2.23	6.8	4.0
BROAD RUN WRF	VA0091383	3.73	2.36	11	4.0
DERRY TOWNSHIP MUNICIPAL AUTHORITY	PA0026484	3.68	2.52	6.09	4.9
CULPEPER	VA0061590	3.03	0.98	6	4.0
DALE CITY #8	VA0024678	2.94	2.49	4.6	3.0
WAYNESBORO	VA0025151	2.73	1.04	4	4.0
DALE CITY #1	VA0024724	2.63	2.31	4.6	3.0
EASTON	MD0020273	2.55	1.68	4	4.0
CAMBRIDGE	MD0021636	2.51	2.55	8.1	4.0
Moorefield Regional WWTP	WV0106038	2.38	2.32	3.3	5.0
KENT ISLAND	MD0023485	2.10	1.65	3	4.0
SUNBURY CITY MUNICIPAL AUTHORITY	PA0026557	2.01	2.64	4.20	6.0
PARKINS MILL	VA0075191	2.00	2.48	5	4.0
ABERDEEN	MD0021563	2.00	2.27	4	4.0
ELKTON	MD0020681	1.87	1.94	3.05	4.0
HAVRE DE GRACE	MD0021750	1.81	2.85	2.275	4.0
FORT MEADE	MD0021717	1.58	2.59	4.50	4.0
DORSEY RUN	MD0063207	1.31	1.23	2	4.0
CELANESE	MD0063878	1.26	1.91	2	4.0
MARYLAND CITY	MD0062596	1.17	2.20	2.5	4.0
HURLOCK	MD0022730	1.15	2.16	1.65	4.0
LA PLATA	MD0020524	1.12	2.28	1.5	4.0
STUARTS DRAFT	VA0066877	1.06	2.40	4	4.0

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MANHEIM BOROUGH AUTHORITY	PA0020893	0.93	2.04	1.14	6.3
REMINGTON REGIONAL	VA0076805	0.92	2.42	2	4.0
LURAY	VA0062642	0.92	1.27	1.6	4.0
ORANGE	VA0021385	0.91	2.20	3	4.0
JOPPATOWNE	MD0022535	0.83	2.69	0.95	4.0
MARYLAND CORRECTIONAL INSTITUTE	MD0023957	0.82	3.00	1.6	4.0
QUANTICO-MAINSIDE	VA0028363	0.81	1.76	2.2	3.0
DAMASCUS	MD0020982	0.80	1.96	1.50	4.0
WILDERNESS SHORES	VA0083411	0.78	1.96	1.25	4.0
FORT DETRICK	MD0020877	0.77	1.88	2	4.0
MIFFLINBURG BOROUGH MUNICIPAL	PA0028461	0.76	2.58	1.40	6.0
COLONIAL BEACH	VA0026409	0.73	1.49	2	3.0
MOUNT AIRY	MD0022527	0.71	2.22	1.20	4.0
CHESTERTOWN	MD0020010	0.70	2.87	1.5	4.0
WARM SPRINGS PSD	WV0027707	0.69	2.69	1.74	5.0
THURMONT	MD0021121	0.62	1.95	1	4.0
RALPHO TWP MUN AUTH	PA0028738	0.59	2.84	0.72	6.0
PURCELLVILLE	VA0022802	0.58	1.48	1.5	4.0
WOODSTOCK	VA0026468	0.57	1.09	2	4.0
PINE GROVE BOROUGH AUTHORITY	PA0020915	0.53	2.99	1.50	6.0
EASTERN CORRECTIONAL INSTITUTE	MD0066613	0.52	1.95	1.14	3.4
BRUNSWICK	MD0020958	0.47	2.60	1.4	4.0
FORT ASHBY PSD	WV0105988	0.44	2.81	0.5	5.0
NEW CUMBERLAND BOROUGH AUTHORITY	PA0026654	0.42	2.87	1.25	6.0
CAROLINE COUNTY REGIONAL	VA0073504	0.41	2.26	0.5	6.0
BOONSBORO	MD0020231	0.34	2.78	0.53	3.8
TAPPAHANNOCK	VA0071471	0.34	2.23	0.8	4.0
NAVAL SURFACE WARFARE CENTER- DAHLGREN	VA0021067	0.33	1.53	0.72	3.0
FEDERALSBURG	MD0020249	0.31	1.68	0.75	4.0
TALBOT COUNTY REGION II	MD0023604	0.31	1.58	0.66	4.0
BERRYVILLE	VA0020532	0.28	1.79	0.7	4.0
KBM REGIONAL AUTH (NEW)	PA0064025	0.28	2.81	0.7	6.4
SNOW HILL	MD0022764	0.28	2.33	0.5	4.0
GORDONSVILLE	VA0021105	0.26	2.15	0.94	6.0
Vint Hill Farms Station WWTP	VA0020460	0.23	1.97	0.95	4.0
CENTREVILLE	MD0020834	0.12	2.41	0.5	2.0
SOUTH WALES STP	VA0080527	0.06	2.39	0.9	4.0
Total		572.08		845.80	