

Table 1. Summary of comparison between the draft Chesapeake Bay MTD technology assessment protocol (CBTAP) and TAPE

Category	Notes	Recommendation
Program features	<ol style="list-style-type: none"> 1. TAPE has developed a system in which an applicant can file for pilot/conditional/general use of certification. This provides a tiered limit on installations, Table 2, p. 4, (TAPE 2011). VTAP essentially copied this protocol. It is missing from the draft of CBTAP, as the elements of the program are yet to be decided. 2. TAPE has minimum performance standard, Table 1, p. 2-3, (TAPE 2011) CBTAP has no minimum performance standard. 3. TAPE has treatment certification categories for: Pretreatment, Basic (TSS and total P), metals, and oils (Table 1, p. 2-3, (TAPE 2011). CBTAP does not have a pretreatment, metals or oils certification currently. 	<p>Discuss the programmatic elements of TAPE as outlined in (TAPE 2011), and limits on installations contained in Table 2.</p> <p>Debate merits of a minimum standard.</p> <p>Develop our criteria for TAPE + (for the Basic certification).</p>
Storm event guidelines	<p>Minor differences exist in what constitutes an acceptable storm depth, i.e., 0.10 in vs. 0.15 in., min/max storm duration. These may be due to regional hydrologic differences, Table 5, pg, 14 (TAPE 2018).</p>	<p>Suggest adding to TAPE+ document.</p>
Sample types	<ol style="list-style-type: none"> 1. TAPE documents are broader on sampling types in comparison with CBTAP (pg 21, (TAPE 2018). 2. For compositing methods, CBTAP explicitly requires either equal volume, variable time (EVVT), or variable volume, variable time (VVVT); TAPE is silent, although virtually all applicants have used EVVT. 	<p>TAPE is acceptable w/ caveat that the compositing method must be specified to be either EVVT or VVVT.</p>
Sampling (Automatic)	<ol style="list-style-type: none"> 1. Minor differences in % hydrograph volume, first 24 hr., Table 6, pg 15, (TAPE 2018). 2. TAPE has specified avg intensity of 50%>0.76 mm/hr, CBTAP has no requirement, CBTAP has a max intensity of 102 mm/hr, TAPE has no max intensity. 3. TAPE specifies min # of storm events to be 15 or 95% confidence limit (CL), whichever is greater, CBTAP is 18. TAPE also adds additional required storms if difference in pH>1 or if pH<4 or pH>9. 4. VTAP had a minimum of 5 pairs of back to back events, TAPE has no such requirement. 	<p>TAPE is acceptable</p> <p>Avg intensities from TAPE may be too low.</p> <p>Debate whether it matters, CL is more important. pH needs adding.</p> <p>Discuss. Perhaps this can be made a goal?</p>

Category	Notes	Recommendation
	5. CBTAP has 10% max inflow/outflow allowance, TAPE is silent.	TAPE is acceptable
Sampling (Discrete)	1. Design loading rate, TAPE: 50-125% of rate, can use lab testing, CBTAP uses 2 events must be >75of design loading rate, Table 6, p. 15, (TAPE 2018). 2. TAPE-must meet influent WQ ranges, CBTAP: NA	TAPE is acceptable TAPE is acceptable
Required analysis, water samples	TAPE Basic/P requires: PSD, TSS, TP, ortho-P, CBTAP adds: SSC, TSP, SRP (sorption only), TN, TDN, NOx, TKN, Ammonia, specific gravity, Table 8, p. 23, (TAPE 2018).	Make this TAPE+ Should add pH, hardness
Required analysis, water samples, for site screening	TAPE Basic/P requires: PSD, pH, TSS, TP, ortho-P, TKN, NOx, hardness, total and dissolved CU and ZN, fecal coliform ¹ , E. coli ¹ . CBTAP uses same for screening and regular sampling Table 8, p. 23, (TAPE 2018).	TAPE+
Required analysis, sediment samples	TAPE: PSD, % solids, grain size, % volatile solids, TP CBTAP: Table 9, p. 24, (TAPE 2018) check	???
Supplemental Lab testing	TAPE has specific requirements, CBTAP is silent, p. 25, (TAPE 2018)	TAPE is acceptable
PSD testing	TAPE: allows wet sieve (ASTM D03977-97), CBTAP allows this and adds laser diffraction, coulter counter, p. 43, (TAPE 2018)	TAPE +
Maintenance	Record all maintenance, monitor for 1.5-2X maintenance cycle. Lightly enforced. CBTAP, 1X cycle, p. 13-14, (TAPE 2018).	TAPE is acceptable

References

TAPE. 2011. *Process Overview: Publication No. 11-10-010*. Olympia, WA.

TAPE. 2018. *Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies Pub No 11-10-061*. Olympia, WA.

¹ Grab sample only.