3/8/01

EPA NEW ENGLAND'S TMDL REVIEW

TMDL: **Mousam River**
WBS# 628R Class B listed 1998 for toxics, TP/ps, nps, 2003-2008, in need of monitoring. (1998 list classification is in error: Mousam R. in Sanford is Class C)
Mousam River - upper watershed in York County
Tribal Interest: none
Town: Sanford, Maine

STATUS: Final

IMPAIRMENT/POLLUTANT: A 3.7-mile segment of the Mousam River, from the Route 4 bridge to Estes Lake, is not attaining class C standards for dissolved oxygen (DO) concentration, and fails to meet criteria for certain toxic substances. The major factors are nutrients (respiration of bottom-attached algae) and nitrogenous BOD (ammonia) from the Sanford discharge. Non-point source pollution appears not to be a significant contributor in the non-attainment segment; degraded background conditions in the Mousam above Sanford's discharge (in terms of both nutrients and toxics) are probably due to urban stormwater runoff from Sanford and Springvale.

Summer TMDLs are presented for BOD, ammonia nitrogen, total phosphorus (TP); a non-summer ammonia TMDL is presented separately; year-round TMDLs are presented for seven other toxic substances (silver, arsenic, selenium, copper, lead, zinc, aluminum). Separate non-summer (Feb 15-April 15) TMDLs are presented for ammonia and toxic substances applicable when flows exceed 100 cfs; this higher-tier flow will allow Sanford to empty the wastewater lagoons in the spring to create additional summer effluent storage (necessary due to the increased minimum trigger flow of 20 cfs).

BACKGROUND: the Maine Department of Environmental Protection (ME DEP) submitted to EPA New England the final Mousam river TMDLs listed above with a transmittal letter dated February 1, 2001 (received by EPA on February 5, 2001). The TMDL submitted includes the following supporting documentation (in reverse chronological order):

1. *Mousam River TMDL, Town of Sanford, final Report* (February 2001) (which includes a section entitled, *Responses to Public Comment*).
2. *Mousam River (Sanford) 1999 Data Report* (December 1999).

Also included in the administrative record file are the following correspondence. The following is not intended to be a complete list of all documents in the file:

- Letter of EPA review comments on the November 2000 public review draft TMDL (Steve Silva, EPA, to Paul Mitnik, ME DEP, dated January 11, 2001.

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REVIEW ELEMENTS OF TMDLs

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. § 130 describe the statutory and regulatory requirements for approvable TMDLs. The following information is generally necessary for

EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation.

1. Description of Waterbody, Pollutant of Concern, Pollutant Sources and Priority Ranking

The TMDL analytical document must identify the waterbody as it appears on the State/Tribe's 303(d) list, the pollutant of concern and the priority ranking of the waterbody. The TMDL submittal must include a description of the point and nonpoint sources of the pollutant of concern, including the magnitude and location of the sources. Where it is possible to separate natural background from nonpoint sources, a description of the natural background must be provided, including the magnitude and location of the source(s). Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation. The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as: (1) the assumed distribution of land use in the watershed; (2) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources; (3) present and future growth trends, if taken into consideration in preparing the TMDL; and, (4) explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments, or chlorophyl a and phosphorus loadings for excess algae.

The Mousam River is located in southern Maine; originates at Mousam Lake (also 303(d)-listed) in Shapleigh and Acton, Maine; flows through York county for its entire length of 23 miles, and enters the Gulf of Maine in Kennebunk. The TMDLs in this report address a 3.7-mile segment in Sanford from the Route 4 bridge to Estes Lake (also 303(d)-listed) in the upper watershed. The ME DEP intends to address Mousam Lake, and the non-attainment segment listed for the tidal waters in Kennebunk, in separate TMDL reports. ME DEP reports that Estes Lake serves as a large pollutant sink, so that water quality problems at Sanford do not affect water quality at Kennebunk (personal communication with Paul Mitnik, ME DEP 12/5/00; see also page 7 item 2 response to comments).

The 3.7-mile segment is not attaining class C standards for dissolved oxygen (DO) concentration, fails to meet criteria for certain toxic substances, and is included on Maine's 303(d) list for both point and nonpoint sources. (The 1998 303(d)-listed water quality classification should be Class C instead of Class B for the segment in non-attainment.) The non-attainment segment of the Mousam in Sanford was ranked as a medium priority waterbody (TMDL preparation 2003-2008), but the TMDL development "was hastened due to Sanford's request to get updated water quality information" to "inform them of the necessary treatment requirements needed in the plant upgrade." (Page 1 TMDL report).

The major factors of non-attainment are nutrients (respiration of bottom-attached algae), nitrogenous BOD (ammonia), and metals from the Sanford discharge. Non-attainment of class C DO criteria (5 ppm) was found in July 1999 at two locations below the Sanford discharge when the WWTP was typically discharging 10-20% of its licensed BOD and TP load (page 2 TMDL report). Sanford's dilution is 2.8:1 at 10 cfs (page 1) or 4.7:1 at 20 cfs (page 20), and the stream has very limited assimilative capacity (page 2). Non-point source pollution appears not to be a significant contributor within the non-attainment segment, but degraded background conditions in the Mousam River above Sanford's discharge (in terms of both nutrients and toxics) are probably due to urban stormwater runoff from Sanford and Springvale. TMDLs are presented for: BOD, phosphorus, ammonia nitrogen, and seven toxic substances (silver, arsenic, selenium,

copper, lead, zinc, aluminum).

Assessment: ME DEP has adequately identified the waterbody, the pollutant of concern, the magnitude and location of the sources of pollution. The TMDL also includes an adequate description of important assumptions made in developing the TMDL.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribe water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy. Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation. A numeric water quality target for the TMDL (a quantitative value used to measure whether or not the applicable water quality standard is attained) must be identified. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, usually site specific, must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal.

The summer TMDLs for BOD, ammonia-nitrogen, and total phosphorus are all tied to achieving the target of Maine's water quality criteria for dissolved oxygen (Class C DO minimum criteria are 5 ppm or 60% saturation at all times, and monthly average dissolved oxygen to exceed 6.5 ppm at all times (see page 1 TMDL summary report).

The non-summer TMDL for ammonia, and the year-round and higher-tier flow TMDLs for the toxic substances (ammonia, selenium, copper, lead, zinc, and aluminum) are based on EPA's ambient water quality criteria (AWQC) which serve as the numeric water quality targets. The year-round and higher-tier flow TMDLs for arsenic are based on the natural background level of arsenic in the Mousam River. Maine's water quality standards have a provision which exempts natural conditions as a cause of non-attainment [MRSA Sec. 530.5(A)(2)(a)(i): "Except as naturally occurs, levels of toxic pollutants in surface waters must not exceed federal water quality criteria as established by UNITED STATES ENVIRONMENTAL PROTECTION AGENCY..."].

Assessment: Adequately addressed. Given the fact that Maine water quality standards exempt naturally occurring levels of toxic pollutants, EPA agrees that using the median background level of arsenic as the numeric water quality target for the arsenic TMDLs is a reasonable approach.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

As described in EPA guidance, a TMDL identifies the loading capacity of a waterbody for a particular pollutant. EPA regulations define loading capacity as the greatest amount of loading that a water can receive without violating water quality standards (40 C.F.R. § 130.2(f)). The loadings are required to be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. § 130.2(i)). The TMDL submittal must identify the waterbody's loading capacity for the applicable pollutant and describe the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In most instances, this method will be a water quality model. Supporting documentation for the TMDL analysis must also be contained in the submittal, including the basis for assumptions, strengths and weaknesses in the analytical process, results from water quality modeling, etc. Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation.

In many circumstances, a critical condition must be described and related to physical conditions in the waterbody as part of the analysis of loading capacity (40 C.F.R. § 130.7(c)(1)). The critical condition can be thought of as the "worst case" scenario of environmental conditions in the waterbody in which the loading expressed in the TMDL for the pollutant of concern will continue to meet water quality standards. Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that results in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards.

ME DEP identifies the loading capacities for BOD, ammonia, TP, silver, arsenic, selenium, copper, lead, zinc, and aluminum. The TMDLs are expressed as mass-per-time (lbs/day) (see Tables 6a-c, and 7 on pages 25 and 27 TMDL report). ME DEP describes the rationale for the methods used to establish the cause-and-effect relationship between the numeric targets and the identified pollutant sources. The TMDLs are based on the assumption that Sanford does not discharge when river flow is <20 cfs at the Route 4 stream gage. (This represents a threshold increase from the current trigger flow of 10 cfs.) ME DEP estimates that 7Q10 is 10-15 cfs (personal communication with Paul Mitnik, ME DEP, 12/21/00). Sanford's waste discharge license must be written to be consistent with the final TMDL [40 CFR §122.44(d)(1)(vii)(B)].

BOD, Ammonia, TP TMDLs

ME DEP uses the QUAL2E water quality model for the BOD, ammonia, and TP summer TMDLs. ME DEP also uses a power equation to adjust the re-aeration rate by determining the effect of bottom attached algae on the diurnal DO swings (see page 7 and Table 3, page 9, of TMDL report). ME DEP provides supporting documentation for the TMDL analyses, including the basis for assumptions, strengths and weakness in the analytical process, and results from the water quality modeling (see pages 3-17 of the TMDL report).

Critical or worst case conditions are further defined by ME DEP as: low river flows (when dilution of wastewater inputs is at a minimum); high water temperatures (when the saturation of DO is lower and BOD decay and oxygen demand from the sediment are higher); and maximum inputs as point sources discharging at licensed limits (page 9 of TMDL report).

Toxic Substances TMDLs

AWQC and ambient water quality data are used to calculate loading capacities for the toxic substance TMDLs for non-summer ammonia and metals year-round. For non-summer ammonia, ME DEP presents spreadsheet analyses (Tables 6b and c, page 25 TMDL report) for two different flow tiers.

For the metals, ME DEP presents spreadsheet analyses for two different flow tiers (Table 7, page 27 TMDL report) using the median data collected at Butler Corner, which is located above the urban areas in Sanford and Springvale (page 21 TMDL report), and data collected directly above Sanford's outfall (page 26 of the report). ME DEP assumes that the data collected at Butler Corner represents natural conditions, and that the differences between data above the outfall and the data from Butler Corner represent the current NPS contribution to the loading. ME DEP has statewide toxic substances data from unimpacted sites in 1998, as well as statewide data on arsenic in groundwater, that support this assumption (see pages 1-2 response to public comments).

The loading capacities for the toxic substances have been applied year-round. (The 20.7 cfs used

in Table 7 represents the threshold flow of 20 cfs at the Rte 4 gage, plus 0.7 cfs incremental flow between the gage and Sanford's discharge, and does not include Sanford's flow. The target or total TMDL includes the 20.7 cfs (13.37 MGD) plus Sanford's winter design flow of 4.4 mgd for a total of 17.77 MGD.)

ME DEP has calculated non-summer TMDLs that are specifically in effect from February 15 to April 15 when river flows exceed 100 cfs at Route 4. This higher-flow tier will allow Sanford to empty the wastewater lagoons in the spring to provide an increase in summer effluent storage which is essential with the minimum trigger flow set at 20 cfs (an increase from 10 cfs currently in place).

Assessment: EPA New England concludes that the loading capacities have been appropriately set at levels necessary to attain applicable water quality standards and targets.
EPA concurs that it is reasonable to assume that the data collected at Butler Corner represent natural background conditions, especially with respect to arsenic. First, the Mitchell Center at UMe has geologic data from sites in nearby Acton, ME, that show naturally elevated arsenic in bedrock in that area of the State (personal communication, John Peckenham, Ume-Orono, 12/22/00). Second, ME DEP data as well as a 1999 USGS study in southwest-to-central Maine document the presence of elevated levels of arsenic in water from wells in bedrock aquifers. Third, Mousam River flow gaging data analyzed by ME DEP establish the connection between groundwater and surface water by indicating the influence of groundwater flows on river base flow (see page 5 TMDL report). Finally, we also note that the toxic substances data for the Mousam River were collected by Sanford using clean techniques, which would reduce analytical error, and have yielded arsenic levels below the detection level (0.8 ppb) of the 1998 state-wide toxics study.

4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background (40 C.F.R. § 130.2(g)). Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. § 130.2(g)). Where it is possible to separate natural background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero. If the TMDL recommends a zero LA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero LA implies an allocation only to point sources will result in attainment of the applicable water quality standard, and all nonpoint and background sources will be removed.

BOD, summer Ammonia, TP TMDLs

The summer TMDLs in Table 6a present load allocations (LAs) for non-point sources of pollution, separated into two categories: (1) "natural and NPS background", and (2) "incremental groundwater loads" (page 25 of the report). Data for the TMDLs for BOD, ammonia, and TP did not allow the separation of natural background from NPS.

Modeling for dissolved oxygen shows that the causes of low DO are predominantly point source pollution. For this reason, the TMDLs for BOD, ammonia, and TP do not specify NPS load

reductions to meet the DO water quality standards.

Toxic Substances TMDLs
The non-summer TMDLs for ammonia (at two different flows) present the load allocations as "natural and non-point sources" (see Table 6b-c, page 25 TMDL report). The TMDLs for the toxic metals present LAs to (1) natural background, and (2) nonpoint sources, as separate categories (see Table 7, page 27 TMDL report).

Water quality monitoring indicates that NPS is a factor in the criteria exceedences for arsenic and lead. The TMDL requires a 64% NPS reduction for arsenic and a 25% NPS reduction for lead. ME DEP has not accounted for future NPS loadings in the LAs; it is assumed that NPS controls will offset loadings from future growth (see page 2 item 7, response to comments).

Assessment: EPA New England concludes that load allocations are adequately specified in the TMDLs. We agree that, given the existing data, it was not possible to separate natural background from human-induced nonpoint sources of BOD, ammonia, and total phosphorus. Since the load allocations in these TMDLs reflect current NPS loadings, the TMDLs imply that there are no additional allocations for future sources of NPS. For this reason and the fact that NPS reductions are needed to meet the water quality targets for arsenic and lead, EPA agrees with ME DEP's recommendation for the implementation of stormwater best management practices in urban Sanford and Springvale.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources (40 C.F.R. § 130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and background will result in attainment of the applicable water quality standard, and all point sources will be removed.

In preparing the wasteload allocations, it is not necessary that each individual point source be assigned a portion of the allocation of pollutant loading capacity. When the source is a minor discharger of the pollutant of concern or if the source is contained within an aggregated general permit, an aggregated WLA can be assigned to the group of facilities. But it is necessary to allocate the loading capacity among individual point sources as necessary to meet the water quality standard.

The TMDL submittal should also discuss whether a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. In such cases, the State/Tribe will need to demonstrate reasonable assurance that the nonpoint source reductions will occur within a reasonable time.

All Sanford's WLAs are based on flows > 20 cfs, which represents an increase from 10 cfs, the low river flow which triggers Sanford's requirement to cease their effluent discharge. In other words, Sanford WLAs for all pollutants listed are zero whenever river flow as measured at the Rte 4 bridge is < 20 cfs (see page 3 response to comments).

BOD, summer Ammonia, TP WLAs
Based on water quality modeling analysis, the summer TMDLs for BOD, ammonia, and TP present WLAs for Sanford (see Table 6a). Maine's component analysis for the DO problem

shows that Sanford (discharging at current licensed loads) is the most significant source of the DO non-attainment (67%, as opposed to 17% SOD, and 16% NPS and natural impacts; see page 17, Table 5 and Figure 6, TMDL report).

Sanford's WLA of 3 lb/day TP depends on the WWTP maintaining an effluent DO > 7.5 ppm. (Figures 3 and 4 on pages 13 and 14 graphically display the model prediction runs for the different treatment options and show which options are predicted to attain water quality standards.) The TMDL report recommends concentration limits for Sanford's effluent BOD, TSS, non-summer ammonia, and metals. The TMDL report also recommends continuing the non-summer TP limits of 23 lb/day (mo. ave.) and 46 lb/day (daily max.) currently in Sanford's discharge license for the purpose of protecting Estes Lake. ME DEP clarifies that stream conditions are more critical than lake conditions in requiring Sanford's WLA of 3 lb/day TP ("The lake TP restriction require a TP limit of 5 lb/day." See page 3 response to comments).

Toxic Substances WLAs

Based on spreadsheet calculations, the TMDLs for non-summer ammonia and year-round metals present WLAs for Sanford (see Tables 6b-c, and 7). The TMDL for arsenic requires a 64% reduction in NPS because the AWQC for arsenic are not met at the background sampling site; the natural background level of arsenic is used as the basis or water quality target for the arsenic WLAs and LAs. The TMDL for lead requires a 25% reduction in NPS because the AWQC for lead are not met above Sanford's outfall. Sanford's WLAs for arsenic and lead will require Sanford to discharge below the maximum levels currently discharged.

Another discharger, Cyro Industries, is given zero WLAs for all the listed pollutants of concern. Cyro's discharge is non-contact cooling water only, and the water supply source is groundwater (personal communication, Paul Mitnik, ME DEP 12/21/00). The Maine discharge license states, "The Department does not have [any] information indicating that the non-contact cooling water discharged by Cyro Industries is causing or contributing to the non-attainment." (ME DEP license #W001914-5R-B-R, pages 3-4, 9/29/00). Furthermore, "because the non-contact cooling waters are piped underground approximately 1,500 feet before discharging to the Mousam river, the discharge temperature was cooler than the ambient temperature of the river" due to heat dissipation through the outfall pipe. As a result the discharge is benefitting the river during the summer months rather than having a negative impact."

Assessment: EPA New England concludes that the WLAs for the TMDLs are acceptable and reasonable. The TMDL report identifies the Sanford municipal discharge as the dominant source of pollutant loading to the river. The WLAs and LAs set pollutant loads so that water quality standards and targets will be met. Water quality modeling and spreadsheet calculations predict compliance with water quality standards and targets once permit limits for Sanford are implemented, and reductions in NPS are achieved.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1)). EPA guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for

the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

The TMDL includes both implicit and explicit margins of safety. First, a MOS is provided for BOD, ammonia, and total phosphorus when river flows are <20 cfs because Sanford is prohibited from discharging below that trigger flow, yet the water quality model predicts a minimum DO of 5.8 ppm (0.8 above minimum DO criterion).

Second, an explicit 10% MOS for Sanford's WLA is provided for summer BOD, and non-summer ammonia. Under the higher tier discharge condition, a large MOS (30-50%) is provided for most pollutants since the doubling of effluent flow is only allowed when the river flow is at least five times the minimum trigger flow.

In addition to the margin of safety in the TMDL, ME DEP has indicted further assurance that water quality standards will be met by recommending concentration effluent limits for BOD. Sanford typically operates well under their design flow in the summer, so a "temporary MOS" is provided as long as the treatment plant operates below design flow. ME DEP further indicates how the TMDL will be implemented through the recommended Sanford license conditions listed at the bottom of Table 8 (page 28 TMDL report). These conditions require Sanford to install a permanent staff gage at the Route 4 river crossing, have the gage calibrated yearly by USGS or a qualified hydrologist, and report river flow daily year round.

Assessment: EPA New England concurs that the conservative minimum flow assumption provides a significant MOS when flow are below 20 cfs. We note that there are reasonable recommendations in the discharge license conditions to assure the flow-based MOS will be implemented. We conclude that the implicit and explicit MOSs incorporated into the TMDLs provide for adequate MOS.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1).

ME DEP establishes separate TMDLs for summer and non-summer periods. Since DO non-attainment is limited to the summer period, the TMLDs for BOD and TP are limited to summer. The summer ammonia TMDL is based on nitrogenous BOD depletion that affects DO criteria attainment; the non-summer ammonia TMDL is based on toxicity criteria. ME DEP also establishes separate higher-flow tier TMDLs for late winter/early spring (Feb 15 to April 15) effective at flows >100 cfs (to allow more effluent released to the river at a time the river ordinarily has very high flows and very low temperatures, conditions best suited to accommodate more effluent with less environmental impact. (See page 2 TMDL summary.)

Assessment: EPA New England concludes that seasonal variations have been adequately accounted for in the TMDLs. The TMDLs for BOD, summer ammonia, and TP are only necessary in summer and are not needed to ensure compliance with water quality standards in the non-summer months when temperatures are lower, directly affecting dissolved oxygen, when

light intensity is reduced, and algal growth is significantly reduced. Separate non-summer TMDLs were appropriately developed for ammonia based on toxic effects, and concern over toxicity resulted in toxic substance TMDLs appropriately applied year-round.

8. Monitoring Plan for TMDLs Developed Under the Phased Approach

EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process (EPA 440/4-91-001), recommends a monitoring plan when a TMDL is developed under the phased approach. The guidance recommends that a TMDL developed under the phased approach also should provide assurances that nonpoint source controls will achieve expected load reductions. The phased approach is appropriate when a TMDL involves both point and nonpoint sources and the point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. EPA's guidance provides that a TMDL developed under the phased approach should include a monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of water quality standards.

Although no details are provided, ME DEP indicates that "Another necessary ingredient [of keeping the outfall in its current location] will be for DEP to follow up with river sampling after all the necessary actions are implemented to determine their effectiveness."(page 20 of the report). ME DEP plans to sample the river again after the WLA reductions are implemented (page 2 TMDL summary).

***Comment**:* Addressed, though not required.

9. Implementation Plans

On August 8, 1997, Bob Perciasepe (EPA Assistant Administrator for the Office of Water) issued a memorandum, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," that directs Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired solely or primarily by nonpoint sources. To this end, the memorandum asks that Regions assist States/Tribes in developing implementation plans that include reasonable assurances that the nonpoint source load allocations established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The memorandum also includes a discussion of renewed focus on the public participation process and recognition of other relevant watershed management processes used in the TMDL process. Although implementation plans are not approved by EPA, they help establish the basis for EPA's approval of TMDLs.

Prediction that the TMDLs will meet water quality standards and targets is based on point source control to improve water quality in the 3.7-mile segment of the Mousam River below Sanford. The TMDL report identifies Sanford WWTP as responsible for 67% of the DO problem at the DO sag point below the outfall. The reductions in point source loadings for BOD, ammonia, TP, and toxic metals will be controlled through the NPDES permit issued by the ME DEP. (See page 2, TMDL summary.) ME DEP also indicates that the necessary NPS reduction in lead and arsenic will be accomplished through town landfill remediation efforts currently underway, and perhaps through stormwater NPDES permitting in the future (page 3 TMDL summary).

Comment: Addressed, though not required.

10. Reasonable Assurances

EPA guidance calls for reasonable assurances when TMDLs are developed for waters impaired by both point and

nonpoint sources. In a water impaired by both point and nonpoint sources, where a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur, reasonable assurance that the nonpoint source reductions will happen must be explained in order for the TMDL to be approvable. This information is necessary for EPA to determine that the load and wasteload allocations will achieve water quality standards.

In a water impaired solely by nonpoint sources, reasonable assurances that load reductions will be achieved are not required in order for a TMDL to be approvable. However, for such nonpoint source-only waters, States/Tribes are strongly encouraged to provide reasonable assurances regarding achievement of load allocations in the implementation plans described in section 9, above. As described in the August 8, 1997 Perciasepe memorandum, such reasonable assurances should be included in State/Tribe implementation plans and "may be non-regulatory, regulatory, or incentive-based, consistent with applicable laws and programs."

A 64% reduction in the load for arsenic and a 25% reduction in the load for lead are required to meet the TMDL. Sanford is required to meet natural (arsenic) or criteria (lead) levels at end-of-pipe. These are stringent requirements, and ME DEP asserts that lower levels are probably not achievable. ME DEP indicates that NPS reductions in lead and arsenic will be accomplished through town landfill remediation efforts currently underway, and perhaps through stormwater NPDES permitting in the future.

Assessment: Since Sanford's WLAs for arsenic and lead are not as low as theoretically possible (zero), Sanford's ability to meet the TMDL depends on the reduction in NPS. EPA agrees that assigning Sanford WLAs for arsenic and lead which require meeting background and criteria levels, respectively, at end-of-pipe is reasonable. We agree that it is reasonable to consider landfill remediation efforts underway in the non-attainment segment as a reasonable assurance of reductions in NPS loadings of arsenic and lead.

The Mousam River is listed on Maine's "Nonpoint Source Priority Watersheds List" (Approved 10/15/98) as well as the 1998 303(d) list of impaired waters. These two listings give eligible NPS remediation projects in Mousam River watershed preference for funding by ME DEP. For this reason, EPA thinks it is reasonable to assume that ME DEP will support NPS controls proposed in the Sanford/Springvale area.

Finally, due to Sanford's location in York County, a high growth area, and the potential for designation as a community subject to phase II NPDES stormwater regulations, EPA also thinks it is reasonable to view phase II stormwater permitting efforts and application of required best management practices, as a potential reasonable assurance in the future that the necessary load reductions will occur.

11. Public Participation

EPA policy is that there must be full and meaningful public participation in the TMDL development process. Each State/Tribe must, therefore, provide for public participation consistent with its own continuing planning process and public participation requirements (40 C.F.R. § 130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval must describe the State/Tribe's public participation process, including a summary of significant comments and the State/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. § 130.7(d)(2)).

Inadequate public participation could be a basis for disapproving a TMDL; however, where EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public

participation has been provided for, either by the State/Tribe or by EPA.

On December 7, 2000, ME DEP mailed copies of the TMDL to interested parties, including the Sanford and Kennebunk Sewer Districts. Availability of the TMDL for public comment was advertised in the legal notices section of two newspapers in southern Maine, and the report was also posted electronically on the DEP's homepage. ME DEP provided EPA with copies of all public comment and the Department's response to that comment as an appendix to the final February 1, 2001 TMDL submittal.

Assessment: EPA New England concludes that ME DEP involved the public during the development of the TMDL for the Mousam River, has provided adequate opportunities for the public to comment on the TMDL, and has provided reasonable responses to the public comments.

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