

PRELIMINARY DETERMINATION REVIEW DOCUMENT  
for  
PROPOSED AMENDMENT TO  
The Potomac-Shenandoah River Basin Water Quality Management Plan  
(VR 680-16-14 et seq.)

Item 1. REASON FOR THE PROPOSED AMENDMENT

The proposed regulatory action is to amend the Potomac-Shenandoah River Water Quality Management Plan (WQMP) VA Administrative Code cite 9 VAC 25-440 et seq. The State Water Control Board adopted the plan June 18, 1981. The plan became effective in June of 1982. Water quality management plans identify water quality problems, consider alternative solutions and recommend pollution control measures needed to attain or maintain water quality standards. The proposed amendment addresses changed conditions in segment 1-4a of the Upper South Fork Shenandoah River which begins at the Merck discharge (river mile 88.09) and continues downstream for 10 miles. New modeling data shows a total wasteload assimilative capacity in segment 1-4a greater than that previously identified in the plan.

The Potomac-Shenandoah River Water Quality Management Plan states that AAdoption of waste load allocations recommended by the Plan for dischargers located on water quality classified stream segments, subject to revision by further intensive stream sampling and detailed water quality modeling .≡ [VR 680-16 14 97, Board Actions to Meet Water Quality Goals]. Merck, Inc. has requested revised wasteload allocation in their Virginia Pollutant Discharge Elimination System (VPDES) permit to allow for expanded discharge flows. The following segment of the South Fork Shenandoah River is proposed to be amended:

**Segment 1-4a:** This segment was originally modeled using the Streeter Phelps method with desktop or assumed stream conditions. The Merck discharge was given wasteload allocations in the WQMP. These allocations were based upon the permitted effluent limits at the time the plan was developed. Merck is expanding its production and greater BOD<sub>5</sub> and total kjeldahl nitrogen (TKN) loadings will result from the expansion. The current Potomac-Shenandoah River Water Quality Management Plan established a BOD<sub>5</sub> wasteload allocation (WLA) of 3,454 lbs/day (1,567.86 kilograms per day (kg/d)) and a TKN WLA of 2,846 lbs/day (1,291.87 kilograms per day (kg/d)). The proposed expansion will require an increase in the BOD<sub>5</sub> and total kjeldahl nitrogen loadings. The model submitted to DEQ by Merck indicated that the stream could assimilate 4,137.7 kg/day BOD<sub>5</sub> and 2,147.3 kg/day TKN.

The proposed amendment will recognize the higher BOD<sub>5</sub> and TKN loadings and if necessary allocations among other discharges in this portion of the river will be made. In addition a TMDL will be established for this segment.

## Item 2. STATEMENT OF LEGAL AUTHORITY

The basis for the existing regulation is Section 62.1-44.15(13) of the Code of Virginia, which authorizes the State Water Control Board to establish policies and programs for effective area-wide and basin-wide water quality control and management. The Code also authorizes the Board to develop pollution abatement and water quality control plans. The state Attorney General's Office has determined that the water quality management plans should be adopted as regulation because the plans are required to contain TMDLs and WLAs for Water Quality Limited segments that are incorporated into VPDES permits. Therefore, the Potomac-Shenandoah River Basin WQMP was adopted in its entirety as a regulation.

### STATEMENT OF STATUTORY MANDATES

Water quality management plans are required by Section 303(e) of the Clean Water Act (CWA) [33 USC § 1251 et seq.] as implemented by 40 CFR 130 et seq. The State Water Control Law Section 62.1-44.15(13) as implemented by the Permit Regulation states AC. No permit may be issued: . . . 7. For any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA; [9 VAC 25-31-50, Prohibitions C.7., July 1996].

## Item 3. STATEMENT OF CONCLUSION

The Potomac-Shenandoah River Water Quality Management Plan is an existing regulation. Merck, Inc. has requested changes to the wasteload allocations in its VPDES discharge permit. The changes will enable Merck to expand its production. The proposed amendment reflects the use of a new more sophisticated mathematical model based upon actual stream data. The model indicates that the proposed BOD<sub>5</sub> and TKN loadings for the entire ten mile segment of the South Fork Shenandoah River will maintain existing water quality. The high degree of treatment provided by the Merck WWTF will maintain compliance with the dissolved oxygen water quality standard in the South Fork Shenandoah River.

Amending the Potomac-Shenandoah River Water Quality Management Plan by increasing BOD<sub>5</sub> and TKN wasteloads for Merck will protect existing water quality, ensure beneficial uses of the South Fork Shenandoah River and sustain the economic well being of the communities through which it flows. Treating the waste water will contribute to the protection of the health and safety of the citizens of Rockingham County.

#### Item 4. STATEMENT OF PROCESS FOR CONSIDERING ALTERNATIVES

The DEQ will, during the notice of Intended Regulatory Action and the Notice of Public comment request comments on or alternatives to the amendment. The Department has developed two alternatives. The recommended alternative is the least costly and eliminates the uncertainty of waiting until repeal of the existing WQMPs. These are technical issues dealing with a site specific entity on the South Fork Shenandoah River.

##### Recommended Alternative I:

Amend the Potomac-Shenandoah River Water Quality Management Plan, specifically VR 680-16-14, to reflect the use of the more sophisticated mathematical Model for the South Fork Shenandoah River segment 1-4a. Retain the segment=s Plan classification as WQL Water Quality Limiting.

##### Alternative II:

Deregulate all water quality management plans for the entire state.

Reason Alternative II was not chosen: Executive Order 15 (94) required the review of Water Quality Management Plan (WQMP) regulations. The Department of Environmental Quality (DEQ) proposed the repeal of 17 existing water quality management plans and replacement of the plans with one non-regulatory statewide plan. This proposal included the Potomac-Shenandoah River Water Quality Management Plan. The process for deregulating all water quality management plans for the entire state has begun but may not be completed prior to Merck needing the additional BOD<sub>5</sub> and TKN loadings. Permits can not be issued, reissued or modified that are inconsistent with water quality management plans (9 VAC 25-31-50, Prohibitions, C.7.). Deregulation has been delayed beyond the time frame for the planned reissuance of Merck=s permit.

In compliance with the SWCB=s Public Participation Guidelines (VR 680-41-01:01), the DEQ will, during the Notice of Intended Regulatory Action and the Notice of Public Comment, include the proposed amendment and alternatives, and request comments from the public on these and any other alternatives. The DEQ will also request comments on the costs and benefits of these alternatives or other alternatives the public may wish to provide.

The DEQ intends to hold one public meeting on this proposed amendment no less than 30 days after it is published in the Virginia Register of Regulations. The intent of the public meeting is to further explain the proposed amendment and to allow for verbal comments

as requested from the public regarding the amendment.

Item 5. FAMILY IMPACT STATEMENT

The DEQ has considered the impact of the proposed amendment on family formation, stability and autonomy. Increasing the wasteload allocations for this facility will enable them to expand production and provide a more stable employment base in the area. Adoption of the amendment will have an indirect positive impact on families by providing the potential for job and economic growth. Water quality would be maintained while supporting this need.

Regulatory components of the existing water quality management plan are being implemented through the VPDES permit program. The VPDES permit program together with the water quality management planning program help sustain and improve the quality of the waters of the Commonwealth. This results in a better quality of life through cleaner water for drinking, swimming, fishing, and other recreation.

CONTACT PERSON

Questions on this proposal should be referred to:

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