

**WW TREATMENT - GENERAL  
WW EFFLUENT DISPOSAL - STREAM DISCHARGE  
WW SLUDGE DISPOSAL  
WW SLUDGE TREATMENT  
WW TREATMENT - PHYSICAL/CHEMICAL  
WW TREATMENT - PRIMARY SETTLING**

**at the Mainside Advanced Sewage Treatment Plant**

1. Version, Date. 2, 23 Oct 07 (EMS)
2. Purpose This procedure summarizes actions implemented to mitigate adverse environmental impacts associated with the following wastewater (WW) practices at the Mainside (Advanced) Sewage Treatment Plant (STP):
  - a. WW Treatment - General
  - b. WW Effluent Disposal - Stream Discharge
  - c. WW Treatment - Physical/Chemical
  - d. WW Sludge Treatment
  - e. WW Sludge Disposal
  - f. WW Treatment - Primary Settling

The SOPs for each practice are all provided within this single document (vs. stand-alone), as they are all related to operations specific to the Mainside STP.

3. Applicability

- a. Audience. This procedure is primarily for the Mainside WW STP Plant Supervisor, Operators, and Utility System Repair Operators (helpers).
- b. Scope. This procedure applies to MCB, Quantico and its tenant commands, contractors, and subcontractors operating at the Installation. This procedure encompasses WW treatment procedures at the Mainside STP

4. Definitions. The following definitions are provided to support this procedure:

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a. Caustic - substance that can corrode or burn away other substances by chemical action, especially a strong alkali.

b. Effluent - treated liquid waste discharged from a sewage system, factory, or other industrial plant.

c. Enterococi - Enterococcus is a type of lactic acid bacteria. Important clinical infections caused by Enterococcus include urinary tract infections, bacteremia, bacterial endocarditis, diverticulitis, and meningitis.

5. Responsible Parties. The following parties within the Facilities Division (G-5), Facilities Logistics Support Service (FLSS) Section are responsible for WW STP Procedures at MCB, Quantico:

a. Mainside Advanced STP Plant Supervisor, General Foreman

b. Mainside Advanced STP Operators

c. Mainside Utility System Repair Operators (helpers)

d. FLSS Utilities Section (Shop 61)

6. Procedures (Instructions for Operational Control) for WW Stream Discharge. The Virginia Department of Environmental Quality (DEQ) requirements per VPDES Permit No. VA0028363 are provided as Volume III, Appendix 3A of the Mainside STP O&M Manual. The permit allows for discharge in accordance with effluent limitations, monitoring requirements, and other conditions set forth to an unnamed tributary to the Quantico Bight of the Potomac River.

a. Effluent Limitations and Monitoring Requirements

(1) Outfall 001 - STP

(a) There shall be no discharge of floating solids or visible foam in other than trace amounts.

(b) The permittee (MCB Quantico) is authorized to discharge STP process water to Outfall 001, provided effluent is limited to the conditions set forth and monitored as specified within the permit.

(2) Outfall 002 - Stormwater

(a) There shall be no discharge of process water from this outfall.

(b) There shall be no discharge of floating solids or visible foam in other than trace amounts.

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(c) During the period beginning with the permits effective date and lasting until the permit expiration date, the permittee is authorized to discharge from Outfall 002. Such discharges are limited and monitored as specified within the permit.

b. Additional Monitoring Requirements, Quantification Levels, and Compliance Reporting

(1) Monitoring Requirements are summarized in Volume 1, Table 1-1 of the Mainside STP O&M Manual and provided in detail within Volume 3 Appendix E, of the Mainside STP O&M Manual

(2) Compliance Reporting shall be determined for Monthly, Weekly, and Daily maximum reporting requirements as specified in the permit as provided in Volume III, Appendix 3A of the Mainside STP O&M Manual.

c. Other Requirements and Special Conditions

(1) A written notice and plan of action shall be submitted to the DEQ when the monthly average flow of influent to the STP reaches 95% of the design capacity over a three month period.

(2) Notice shall be provided to the DEQ if:

(a) An introduction of new pollutants occurs from an industrial discharger subject to Section 301 or 306 of the Clean Water Act and the State Water Control Law.

(b) Any substantial change in the volume or character of pollutants being introduced to the treatment works.

7. Procedures (Instructions for Operational Control) for WW Physical/Chemical Treatment. The Physical and Chemical Treatment Procedures Performed at the Mainside STP include:

a. Screening - Refer to Volume 1, Chapter 2, of the Mainside STP O&M Manual.

b. Grit removal - Refer to Volume 1, Chapter 3, of the Mainside STP O&M Manual.

c. Sideline equalization - Refer to Volume 1, Chapter 4, of the Mainside STP O&M Manual

d. Biological nutrient removal - Refer to Volume 1, Chapter 6, of the Mainside STP O&M Manual.

e. Process air compressor systems - Refer to Volume 1, Chapter 7, of the Mainside STP O&M Manual.

f. Final clarification - Refer to Volume 1, Chapter 8, of the Mainside STP O&M Manual.

g. Filtrations - Refer to Volume 1, Chapters 10 and 11, of the Mainside STP O&M Manual.

h. Post Aeration - Refer to Volume 1, Chapter 12, of the Mainside STP O&M Manual.

i. UV Disinfection - Refer to Volume 1, Chapter 13, of the Mainside STP O&M Manual.

j. Flow Measurement - Refer to Volume 1, Chapter 14, of the Mainside STP O&M Manual.

k. Caustic feed system - Refer to Volume 1, Chapter 17, of the Mainside STP O&M Manual.

l. Alum feed system - Refer to Volume 1, Chapter 18, of the Mainside STP O&M Manual.

m. Polymer addition for liquid- Refer to Volume 1, Chapter 19, of the Mainside STP O&M Manual.

8. Procedures (Instructions for Operational Control) WW Primary Settling. Primary treatment procedures, including primary settling are provided in Volume 1, Chapter 5, of the Mainside STP O&M Manual.

9. Procedures (Instructions for Operational Control) for WW Sludge Treatment.

a. Return Activated Sludge (RAS), Waste Activated Sludge (WAS), and Scum Systems - Refer to Volume 1, Chapter 9, of the Mainside STP O&M Manual.

b. Anaerobic digestion - Refer to Volume 1, Chapter 15 of the Mainside STP O&M Manual.

c. Centrifuge Dewatering - Refer to Volume 1, Chapter 16 of the Mainside STP O&M Manual.

d. Polymer addition for dewatering- Refer to Volume 1, Chapter 20 of the Mainside STP O&M Manual.

10. Procedures (Instructions for Operational Control) for WW Sludge Disposal. After dewatering and treatment, a conveyor transports the sludge cake to a series of belt conveyors that drop sludge into a roll-off dumpster. A licensed waste hauler will transport the dumpster for disposal at a sanitary landfill. Refer to Volume 1, Chapter 16 of the Mainside STP O&M Manual.

11. Inspection and Corrective Action

Procedures for Inspection and Corrective Action are provided within Volume 3, Appendices F and G of the Mainside STP O&M Manual.

a. Appendix F of the Mainside STP O&M Manual provides a description of reports, inspection checklists and records associated with the Mainside STP operations, including:

- (1) Daily Operator Log Sheets
- (2) Monthly Discharge Monitoring Report
- (3) Emergency Condition and Accident reports, prepared as required
- (4) Annual Reports summarizing performance and operations, and the maintenance costs

b. Appendix G of the Mainside STP O&M Manual provides Inspection Forms and Logs including:

- (1) Toll Call Log Sheet
- (2) Vehicle Dispatch Forms
- (3) Dry Chemical Weight Logs
- (4) pH Workstation Logs
- (5) Dry Chemical Weight Logs
- (6) Temperature Logs
- (7) Dry Chemical Weight Logs
- (8 )Dissolved Oxygen (DO) Meter Calibration Logs
- (9) Dry Chemical Weight Logs

11. Internal Communication

Procedures for internal communication are provided within Volume 3, Appendices F, G and H, of the Mainside STP O&M Manual.

12. Training/Awareness

a. Training requirements are described in detail within Volume 3, Appendix H, Roles and Responsibilities, of the Mainside STP O&M Manual.

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b. EMS facilitates training on this ESOP, to the target audience mentioned in paragraph 3.a.

c. All other training occurs on the job.

13. Emergency Preparedness and Response

All emergency response procedures are provided in Volume 3, Appendix I of the Mainside STP O&M Manual.

14. References and Related Documents. The following references are relevant to this procedure:

a. USEPA Safe Drinking Water Act of 1974

b. Mainside STP Operation and Maintenance Manual, prepared by CH2M HILL, August 2004

13. Document Revision History. The following provides a history of revisions of this SOP:

Revision Number	Date	Revision Made By	Section	Page	Summary of Change and Reason	Signature
2	10/23/07	EMS Section	2	1	added additional practice	SMR

14. Document Owner. This document has been reviewed and approved by the document owner. Any revisions or future updates to the procedure will be completed by the document owner as needed.

a. Document Owner. Mr. Tom Sperlazza, Utilities General Foreman, Shop 80 (Mainside Advanced STP Plant)

b. Document Approval. Mr. Bruce Frizzell, Chair, EMS Core Team