

OPERATION, MAINTENANCE AND REPLACEMENT PLAN

**SANDY RUN TREATMENT SYSTEMS
PROJECT NO. AMD 05(6757) 101.1
BROAD TOP TOWNSHIP, BEDFORD COUNTY
OPERATION, MAINTENANCE AND REPLACEMENT PLAN**

INTRODUCTION

This is the Operation, Maintenance and Replacement (OM&R) plan for three passive Acid Mine Drainage (AMD) Treatment Systems located in Sandy Run watershed, Broad Top Township, Bedford County, Pennsylvania. This passive AMD treatment project involves the collection and treatment of three acid mine drainage discharges that were degrading Sandy Run. These discharges emanate from a contiguous abandoned underground mine complex. The three AMD Treatment Systems identified in this agreement and accompanying OM&R plan are as follows:

- MP-10
- MP-11
- MP-12

Treated AMD from these systems flows to Sandy Run.

MP-10

This AMD treatment system consists of Diversion Ditch, Collection channels, AMD holding pond, Vertical Flow Pond (VFP), settling pond, flow control structures, and rock lined spillways.

MP-11

This AMD treatment system consists of Diversion Ditch, Collection channels, AMD holding pond, Vertical Flow Pond (VFP), settling pond, flow control structures, and rock lined spillways.

MP-12

This AMD treatment system consists of collection channels, small AMD collection pond, Vertical Flow Pond (VFP), settling pond, flow control structures, rock lined spillways and aerobic wetland.

All structures on these AMD treatment systems are classified as class (a) structures, which means that any structure failure on this system will not cause loss of life or serious damage to homes, buildings, utilities, highways or railroads.

The sponsors of this project are:

- WSI Sandy Run Landfill, Inc. ("OWNER"), owner of the land on which the project is located. OWNER's primary responsibilities are general maintenance, minor repairs, water sample collections and monitoring. BAMR (defined below) will help in maintenance of any items, which require considerable time and dollar amount or are beyond the capability of the OWNER, to accomplish at that time.
- Bureau of Abandoned Mine Reclamation, Cambria Office, Ebensburg District, DEP ("BAMR"). BAMR's primary responsibilities are providing technical support, major repairs, maintenance assistance for items which require considerable time and dollar amount, and replacement of structures.

The sponsors are responsible for the operations and maintenance of all structures so these AMD treatment systems continue to function properly. These AMD treatment systems were designed, based on the best available knowledge and technology, by the Cambria office staff of BAMR. It must be recognized that the technology of passively treating AMD is relatively new. All structures were designed for a 25-year life span with minimal operation and maintenance inputs by the sponsors. However, in order for these structures to perform to their design capability, periodic inspection and maintenance is required to maximize performance.

BAMR will also provide the OWNER with a complete set of as-built drawings including all details for the AMD Treatment System. These drawings will reflect, without limitation, the locations of buried facilities, pond depths, spillway elevations, pipe lengths and slopes, piping arrangements, stone size, size and location of each cell, and location of each monitoring point.

Operations

The OWNER will be responsible to perform routine maintenance of items listed under this section. BAMR will assist with the maintenance of any items that require considerable time and dollar amount or are beyond the capability of the OWNER to accomplish at that time. The OWNER will be responsible to inform BAMR, if possible in writing, for items that require BAMR's assistance.

Site specific instruction

To maintain the integrity of all project facilities, OWNER will inspect such facilities not less frequently than annually and after major rain events, earthquakes, droughts, or other natural or manmade occurrences that may affect the performance or integrity of the structure. A qualified inspector shall perform the inspections. The inspector will prepare a detailed inspection report identifying all problems within 45 days after each inspection and distributed the report as follows: one copy for the OWNER and three copies for the Cambria BAMR office. All materials used in repairing structures shall be of equal quality as, or better than, materials used in

originally constructing such structures, and in the same dimensions as shown on the "as-built plans" or as stated in the original specifications. The OWNER shall obtain prior BAMR approval for any repairs or modifications to the project, which approval will not be unreasonably withheld or delayed.

Water sampling and flow measurements:

OWNER will complete water sampling and flow measurements according to the schedule specified in this OM&R plan.

Water sampling, flow measurements, and monitoring:

In order to assess the efficiency and performance of these systems, water quality monitoring shall be completed by OWNER at the locations, and in accordance with, the schedule set forth below. The following water quality parameters shall be analyzed by the DEP lab or an approved laboratory using standard chemical testing procedures. If the OWNER prefers, BAMR will provide a collector sample ID # to be used for water testing at the DEP lab.

Parameters – The following will be sampled:

PH	Manganese
Acidity	Sulfates
Alkalinity	Ferrous Iron
Aluminum	Total Iron
Specific Conductance	

Samples will be collected at the 16 following points.

Point #1 (MP10 IN) MP10 Discharge into treatment system

Point#2 (MP10 OUT) MP10 Effluent

Point #3 (MP10 SAP) MP10 SAP Effluent

Point #4 (MP 10 SP) MP 10 Sed Pond Effluent

Point #5 (MP11 IN) MP 11 Discharge into treatment system

Point #6 (MP 11 OUT) MP 11 Effluent

Point #7 (MP 11 SAP) MP 11 SAP Effluent

Point #8 (MP 11 SP) MP 11 Sed Pond Effluent

Point # 9 (MP 12 IN) MP 12 Discharge into system

Point # 10 (MP 12 OUT) MP 12 Effluent

Point # 11 (MP 12 SAP) MP 12 SAP Effluent

Point # 12 (MP 12 SP1) MP 12 Sed Pond1 Effluent

Point # 13 (MP 12 SP2) MP 12 Sed Pond2 Effluent

Point # 14 (SRDS) Sandy Run Downstream of treatment systems

Point # 15 (SRUS) Sandy Run Upstream of treatment systems

Point # 16 (SEEP) Seep at PVC Pipe in wetland pond to SAP 12 out

Flow measurements:

OWNER will measure flow when collecting the water samples at points 1, 5 and 9

Schedule for Sampling:

OWNER will collect samples from all 16 sampling points twice a year, in June and December of each year.

Mechanical Maintenance including flushing:

VFP 10, 11 and 12 need to be flushed once every three months. The flushed water should not be discharged directly into the stream. Therefore, if necessary, OWNER will lower the water level in sediment pond 10 by pumping, before flushing VFP 10.

FLUSHING SEQUENCE

1. Pull all stoplogs out from the Agri Drain flow control structure located below VFP 10, 11 and VFP 12. As soon as these stoplogs are pulled out, the water will flush out into sediment ponds 10, 11 and 12 respectively.
2. Clean accumulated sediments on the stoplogs and inside the flow control structures.
3. Allow the water to flow until the flush water has cleared.
4. Once the flush water has cleared, put the stoplogs back into the flow control box and lock them.

Note: When necessary to lower the water level in these VFPs to minimize the leak rate, removing or rearranging one or two stoplogs can help to lower the water level in these ponds.

Maintenance:

BAMR will be responsible to perform maintenance of items listed under this section. The OWNER will be responsible for minor routine maintenance for listed items. The OWNER will also be responsible to inform BAMR, if possible in writing, for items that require BAMR's help.

Removal and disposal of accumulated precipitate or sediment:

Settling ponds:

Eroding soil particles and precipitate from chemical reactions will fill the settling ponds. BAMR shall maintain all settling ponds by removing collected precipitate when the volumes of the settling ponds are reduced by one half. BAMR may dispose of accumulated precipitate within the project area at such location as designated by OWNER. BAMR shall maintain inlet and outflow points so that they are stable, clear of debris and obstructions and protected from erosion.

Litter Control:

BAMR will keep the water inlet area for all structures free from sediment, leaves, and any other foreign objects. This is very important for the efficient operation of the system.

Maintenance of channels; Industrial cleaning of pipes; Repairing damage after major storm events; and Repairing cracks or leaks:

Permanent Seeding:

BAMR shall lime, fertilize and reseed the permanent seeding on the project site as necessary to maintain a stable nonerosive ground cover thereon.

Spillways and outfall ditches:

BAMR shall maintain the spillway and outfall ditch structures so that they are stable and not eroding. BAMR shall keep the channels free of any obstructions or debris that can restrict water flow in the channels. BAMR shall clean out ditches that carry acid mine drainage when precipitate reduces their capacity by one half. BAMR will pay particular attention to the stability of these rock waterways to assure that there is no rock movement.

Access Road and pipe culverts:

BAMR shall maintain the access road and pipe culverts under the road so that the project site can be easily accessed for maintenance and monitoring. BAMR shall keep the pipe culverts free of

any obstructions. BAMR and OWNER shall keep the gate locked to prevent unauthorized vehicular access to the project site.

Piping:

BAMR shall maintain the pipes carrying discharge water by cleaning precipitate from them at such time as flow through the pipes is reduced by 25 percent.

Adding limestone, compost, sand or gravel:

After few years of operation, some structures in this system may need limestone, compost and sand or gravel for efficient functioning. Upon written notice from the OWNER that this kind of service is necessary, BAMR shall perform such service.

Repairing vandalism damage:

BAMR shall repair any damage to project systems done by vandalism to ensure the continued proper functioning of this system. The OWNER personnel should inform BAMR immediately about this kind of damage.

Adjusting grades or outlet structures:

Periodically, BAMR will adjust grades on outlet structures for proper functioning of the system. The OWNER should let BAMR know if they suspect this kind of problem.

Replacement

BAMR will be responsible for items listed in this section. Systems have a designed life expectancy of 25 years. Once that design life is exceeded, much of the system will need to be recharged or replaced. Replacement will involve much of the same effort originally needed to construct the system. Changes in technology and water quality and quantity will need to be considered to determine if the size and/or design of the system must be changed. Replacement considerations include:

Estimating BMP (Best Management Practice) design life; Determining replacement responsibility, including a successor, in the event of the original project sponsor's inability to carry out these responsibilities; Determining approximate costs for the following possible needs: removing accumulated sediments, replacing defective valves, water control structures, re-sizing the system to accommodate changed water quality or quantity, recharging organic matter layer on wetlands, recharging limestone rock.

The signing of this Operation, Maintenance and Replacement (O, M & R) Plan by an authorized representative of each of the Sponsors indicates that the Sponsors have reviewed the O, M & R plan for the Sandy Run AMD Treatment System and concur with the assigned responsibilities and obligations.

IN WITNESS WHEREOF, the sponsors hereto have hereunto set their hands and seal the day and year written here.

Signing of this plan was completed on November 29, 2006

WITNESS:

Bureau of Abandoned Mine Reclamation
Cambria Office
Department Of Environmental Protection

Patricia

J. Scott Horrell
J. Scott Horrell, Environmental Program Manager

WSI Sandy Run Landfill, Inc.
995 Landfill Road
Hopewell, PA 16650

Beth A. Delbaugh

David Florance

David Florance
Director, President, and Chief Operating Officer

COMMONWEALTH OF PENNSYLVANIA

Notarial Seal

Beth A. Delbaugh, Notary Public
Silver Spring Twp., Cumberland County
My Commission Expires June 29, 2010

Member, Pennsylvania Association of Notaries