

BEST MANAGEMENT PRACTICES

January 2023



General Information

Permittee Name: Hardin County Water District No. 1
Mailing Address: 1400 Rogersville Rd. Radcliff, KY 40160
General Manager: Mr. Stephen Hogan
Phone Number: 270-351-3222

Water Treatment Plant Information

WTP Name: Pirtle Spring Water Treatment Plant
Physical Address: 1500 Shipley Rd. Cecilia, KY 42724
County: Hardin
WTP Latitude (d/m/s): 37.698179"N
WTP Longitude (d/m/s): 86.108661"W
WTP Design Capacity: 3.1 MGD
WTP Average Production: 3.05 MGD
WTP Raw Water Intake Source: Pirtle Spring 0924 and Gray Lane Well 1162
Permitted Withdrawal Volume: Pirtle Spring - 3.1 MGD
Gray Lane Well - 2.88 MGD from 12/01-04/30
1.152 MGD from 05/01 - 11/30
WTP Type: Conventional
Raw Water Additives: Activated Carbon, Potassium Permanganate, NALCO 8158 (aluminum chloride hydroxide sulfate), 30% Sodium Hydroxide, 0.6 ppm Chlorine Gas
Finished Water Additives: Hydrofluosilicic Acid, Liquid Ammonium Sulfate, 2.5-3.0 ppm Chlorine Gas

Wastewater Treatment Plant Information

Wastewater Type:	Filter backwash water/Clarifier blow-off sludge
Wastewater Flow Rate:	34,000 gpd
Number of Outfalls:	1
Outfall Latitude (d/m/s):	37°41'50.41"N
Outfall Longitude (d/m/s):	86°6'31.18"W
Wastewater Treatment Type:	Two lagoons approximately 1,000,000 gallons each
Receiving Water Body:	Head of Rough River
Nearest Downstream PWS:	Leitchfield, KY
Distance to Downstream PWS:	28.6 miles
Stream Segment Use Designation:	Warm Water Aquatic Habitat
Stream Segment Antidegradation	
Categorization:	Exceptional Water

*A site plan of PWP is located in Appendix I

Best Management Practices Policy and Objectives

POLICY

It is the policy of Hardin County Water District No. 1 (District) to operate its facilities including Pirtle Spring Water Treatment Plant (PWP) in an environmentally responsible manner. This includes identifying all in-house chemicals; designing, building, and maintaining up-to-date facilities for leak prevention; educating staff regarding proper procedures in the event of an emergency spill/leak; and coordinating District employees, local emergency response team members, and the community at large in an effort to prepare for the worst case scenario at the PWP.

OBJECTIVES

The intent of the Best Management Practices (BMP) is to promote education, training and accountability for pollution prevention efforts - specifically storm-water. The objectives of this BMP plan and associated plans including the Risk Management Plan (RMP), Wellhead Protection Plan, etc. are threefold:

- First, to recognize the chemicals that pose a risk of polluting the environment.
- Second, to document the design and implementation of prevention efforts including facilities and operational controls.
- Third, to establish response procedures.

BMP Committee

The BMP Committee shall consist of the following members:

Mr. Chris Gohman	Water Plant Supervisor
Mr. David Burkhead	Maintenance/Controls Specialist
Mr. Daniel Linder	Water Quality/Measurement Specialist
Mr. Cameron Cochran	Pirtle WTP Operator

The following shall be the duties and responsibilities of the aforementioned committee:

- Develop the extent of the BMPs
- Make recommendations to management regarding educational prevention and emergency preparedness programs
- Review current policies relating to the BMPs
- Identify and prioritize toxic and hazardous substances and the potential for accidental release
- Incorporate BMPs into Standard Operating Procedures (SOPs) and see that the BMPs are practiced
- Establish reports forms and a filing system for tracking records
- Educate/train pertinent personnel (and contract laborers) regarding procedures for emergency release response, cleanup, and regulatory agency notification
- Periodically evaluate the effectiveness of current BMPs and make necessary updates/modifications

Risk Identification / Assessment and Pollution Prevention

As with any other water treatment facility, PWP is located close to its source. With this close proximity to a Kentucky waterway, there comes a much greater responsibility in being a good environmental steward. Not only does the District withdraw water responsibly, the District also takes every necessary precaution to discharge water responsibly - in the form of runoff during storm-water events as well as from its wastewater lagoons.

Sources of potential pollutants to this nearby waterway include the chemicals used in the water treatment process. All chemicals are stored inside the newly renovated facility at PWP. (There is no chemical storage located outside.) Some chemicals, including hydrofluosilicic acid, Liquid Ammonium Sulfate (LAS), and a cationic polymer (NALCO 8158) are stored in 5000 gallon bulk tanks. The LAS and polymer are also held in a smaller 200 gallon day tanks and the hydrofluosilicic acid is also held in a smaller 80 gallon day tank. Granular potassium permanganate is contained in sealed 55 lb drums. Liquid potassium permanganate is held in a 300 gallon bulk tank. (Chlorine gas storage and accidental release policies are addressed in detail in the Risk Management Program for the District.)

PWP acquired an important chemical pollution prevention system with the installation of the SCADA system as a part of the plant upgrade. The SCADA system conveys moment by moment accounts of chemical tank levels, feeding rates, etc. and can be programmed to trigger an alarm if the tank levels drop to a certain point (i.e. - leak).

Several other design provisions have been made to equip PWP for proper environmental protection. Each chemical storage tank is surrounded by a concrete containment area that is designed to hold the entire volume of the tank. There is also a drain in the lowest portion of each of these areas that contains a sump line that can pump the chemical(s) back to the tank fill area into a storage vessel OR directly into the wastewater lagoon system.

The wastewater lagoon system is made up of two 1,000,000 gallon detention ponds. The normal influent of these ponds includes all water labeled as waste in the treatment process - the sludge that sinks to the bottom of the two clarifiers as well as the water that has been used to wash the filters. The effluent of these lagoons is settled, neutral (pH) water that is capable of maintaining aquatic life. The outfall of these detention ponds is valved so that the water being discharged into the Head of Rough River can be controlled. The outfall is located downstream of Pirtle's intake and 28.6 miles upstream from the nearest public water system. Discharge from the lagoons is sampled once a month and analyzed for total residual chlorine, pH, temperature, total

suspended solids, and total recoverable aluminum. Results are sent monthly on a Discharge Monitoring Report to the KY Division of Water as a part of the NPDES program.

The sludge drying pit is stationed next to the two detention ponds and has the capacity of the two detention ponds put together. It is used as a drying bed for the sludge that settles from the detention ponds. Every few years, the sludge is removed from the bottom of the lagoons and transferred into this area for drying. After the few years drying time, the dirt is ready for land application.

The layout of the exterior lot of PWP has several design features intended for pollution prevention as well. The parking lot is graded to minimize standing water. All concreted areas are bordered with curbing with the exception of a designed flow area in one corner of the parking lot that leads to a drainage ditch filled with rip rap. There is also grassland located between PWP's facilities and Rough River. These features greatly aid erosion control and pollution prevention efforts.

PWP personnel make pollution prevention a part of their daily routine. They are trained to physically walk the plant every hour of every shift in order to check tanks, injector systems, and feed lines for any signs of damage or leaks. They use caution when filling the potassium permanganate tank and carefully supervise the filling of the other chemical storage tanks by outside vendors. They are trained in the use of chemical clean up materials including Hazorb booms which are located in the shop room and make every effort to keep all areas clean and dry. Any wash water used to clean up chemical spills is sent through the sanitary sewer. Plant personnel sweep and discard loose debris in trash bags, keeping in mind that this should never be hosed down to the storm ditch.

Maintenance personnel also make pollution prevention a part of their daily routine. District vehicles are regularly cleaned and inspected. Regular maintenance of District vehicles is performed by an outside vendor at an off-site facility. Any cleaning and maintenance of District equipment is performed inside the bay area. This area has a sealed concrete floor that allows for easy clean up of leaks/spills. There is also a large catch basin in the floor that catches and contains any grit and grime, allowing District personnel appropriate disposal opportunities. Oil that is drained from lawn mowers and any other District equipment is properly contained and taken to recycling facilities.

Reporting/Housekeeping/Training

BMP inspection forms and incident reports shall be filled out by the Responsible Party and kept on file at PWP for a minimum of three years. An example of a these forms is located in Appendix II. If requested, a report will also be sent to the appropriate Division of Water field office in Louisville:

Louisville Regional Office
9116 Leesgate Rd.
Louisville, KY 40222-5084

All PWP personnel practice good housekeeping techniques in their daily activities to reduce or eliminate pollution potential. The following is a list of practices, most of which have already been mentioned, that must be adopted by PWP personnel.

- Sweep the parking lots and other paved areas periodically to remove debris. Dispose of debris in trash bags or cans. Do NOT wash debris down the storm ditch.
- Provide an adequate number of trash receptacles and place them in commonly used areas. Pick up litter and other waste on the spot.
- Inspect trash cans periodically. Repair or replace leaky cans and always cover them when placing them outside.
- Recycle or dispose of wastes appropriately.
- Store materials such as grease, paints, detergents, metals, and raw materials in appropriately labeled containers. Store materials inside to prevent contact with rain.
- Maintain vehicles and equipment regularly. Check for and repair leaks. Use drip pans and other appropriate storage vessels during maintenance activities.

The goal of the District is to have well-trained, knowledgeable, friendly staff. Employees must be attentive to source water awareness and pollution prevention. If any employee is unclear about what their responsibilities are regarding any of the BMPs listed in this manual, it is their responsibility to address questions to management. The BMP manual will be reviewed and signed off on annually or as necessary for new staff members.

BMP Incident Response

In the event of a complete chemical tank rupture, the following procedures should be followed:

1. Shut down the plant immediately.
2. Contact Mr. Chris Gohman, PWP Supervisor and Mr. David Burkhead, Maintenance/Controls Specialist. They will follow up the chain of command as deemed necessary.
3. Contact the chemical vendor or other company if necessary and request a tanker to be brought on-site immediately. A list of chemical vendors and associated contact information will be posted on the bulletin board.
4. Using the sump line that is already in place in each of the chemical storage areas and making sure to avoid direct contact with the chemical, pump the leaked chemical back to a tanker as soon as it arrives.
5. Wash down the chemical storage area with a hose, again avoiding direct contact with the chemical. Pump this solution directly to the lagoon.
6. Repair/replace the bulk tank as needed.
7. Put the plant back on-line as soon as it can be accomplished safely and effectively.