

**Water Technical Sheet (WTS) – 2A  
May 2017**

**Minimum Information for an Operations and Maintenance (O&M) Manual for  
Pump-and-Treat Facilities and Dewatering Operations**

**This document is solely intended as guidance to the regulated community. It shall not replace best professional judgment and does not relieve the permittee from compliance with their permit or water pollution control law. The items outlined in this WTS are recommendations only to allow for an expedient review by NDEP’s Bureau of Water Pollution Control.**

**Failure to address these recommendations may cause a significant delay in the approval of your project or request.**

**The manual should be wet-stamped and signed by a Professional Civil/Environmental Engineer (PE), Nevada Certified Environmental Manager (CEM), or other qualified professional. The manual should be bound in a three-ring binder and include the following information:**

- 1) Table of Contents:
  - a. A table of contents with page numbers and lists of all figures;
- 2) Introduction:
  - a. Provide a brief description of the facility and the reason the discharge requires a separate Discharge Permit from NDEP.
- 3) Site Map:
  - a. Provide an aerial map of the site and photos of the different elements of the treatment system including well locations along with their corresponding well identification numbers and coordinates.
- 4) Collection System Description:
  - a. Describe the collection system that collects the contaminated water or groundwater and transports it to the treatment system or dewatering pump station.
  - b. Provide an inspection schedule of the various components of the collection system.

- c. Provide a sample of the record-keeping log sheet and describe how to complete the log sheet.
- d. Discuss the electrical power source and an alternative power source.
- e. Include a schematic of the power distribution system and the control system for the collection system and describe the preventive maintenance of the electrical system.

5) Pump and Treat facilities:

- a. Discuss the number of recovery wells, the depth of each well, the estimated static water level in each well and the diameter of the piping from the well to the treatment system. Include the pump sizes for each well and their depths.
- b. If the pump-and-treat facility treats air and water, describe the air collection system including pumps, piping, air/water separators, thermal/catalytic oxidizers and emission system.
- c. Describe the treatment method including any oil/water separators, pre-filters, carbon canisters and any other appurtenances that make up the treatment system.
- d. If the treated water is reinjected through an Underground Injection Control (UIC) Permit, list the UIC Permit number and describe the number of injection wells, their individual depths, the functions of the individual plant units and the operational procedures for each unit.

6) Dewatering Operations:

- a. Describe the collection system including pipe sizes, location of sumps and a schematic of the collection system.
- b. Describe the treatment system including any pre-filters, carbon canisters and any other appurtenances that comprise the treatment system.
- c. Discuss the change-out schedule of the media in the carbon canisters to ensure that breakthrough does not occur.
- d. Describe how to detect breakthrough using sampling points downstream of each of the carbon canisters.

7) Treatment Description (if applicable):

- a. Describe the treatment method that removes pollutants prior to discharge off-site.

- b. If using a single canister treatment system, provide written authorization from NDEP that this system is acceptable.
- c. If descaling or anti-fouling chemicals are used in the treatment system, describe their purpose and use and list all of the chemicals used for this type of treatment.
- d. Provide written evidence that the chemicals are safe if discharged into the receiving waters.
- e. For each system, describe the flow measuring system and discuss the procedure to calibrate the flow measuring device.
- f. Discuss the electrical power source and an alternative power source.
- g. Include a schematic of the power distribution system and the control system for the collection system and describe the preventive maintenance of the electrical system.

8) Monitoring Schedule and Reporting:

- a. Discuss the water quality monitoring required by the Discharge Permit along with a schedule and where to file the report.
- b. Describe in detail the procedure to accurately complete the quarterly Discharge Monitoring Report (DMR).
- c. List the location of the sampling point and discuss the methods used to collect samples and preserve them, if necessary.
- d. Provide a list of equipment, supplies and chemicals required for the water quality samples.
- e. Provide a sample of a record-keeping log sheet with a description of how to complete the record.
- f. List the pollutants the facility treats and Permit limits associated with each pollutant.

9) Maintenance:

- a. Provide a schedule for maintaining all equipment, including ancillary equipment.
- b. Provide a list of appropriate spare parts to have available on site.
- c. List all equipment with appropriate data along with the name, address and telephone number for parts, replacement and repair.
- d. Indicate where all shop drawings, manufacturer's manuals, test data and "as-built" construction drawings are stored.

10) Emergency:

- a. List all alarms at the facility, describe their function and where the alarm will be displayed.
- b. Provide 24-hour telephone numbers to notify all appropriate health, emergency, safety and regulatory agencies.

11) Safety:

- a. Develop a plan for continuing safe operation and maintenance.
- b. Highlight areas of potential hazards and methods to avoid accidents.
- c. Discuss proper housekeeping necessary for a safe working environment.

12) Appendices:

- a. Include all appropriate items that have not been included elsewhere. This might include the following items:

- Discharge Permit
- Sample DMR
- Sample operation and maintenance reports
- Suppliers