COVER SHEET
STANDARD OPERATING PROCEDURE

Operation Title: **MONITORING WELL MAINTENANCE AND DEVELOPMENT**

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DISTRIBUTION;

( ) Division of Remediation……...By:_____ Date:_____

1.0 APPLICABILITY

This Standard Operating Procedure (SOP) applies to all programs in the Maine Department of Environmental Protection's (MEDEP or Department) Division of Remediation (DR). It is also applicable to all parties that may submit data that will be used by the MEDEP/DR.

This SOP is not a rule and is not intended to have the force of law, nor does it create or affect any legal rights of any individual, all of which are determined by applicable statutes and law. This SOP does not supersede statutes or rules.

2.0 PURPOSE

The purpose of this document is to describe the MEDEP/DR procedure for maintaining and developing groundwater monitoring wells. Groundwater monitoring wells that are not part of an active monitoring program must be sealed in accordance with the Bureau's *Guidance for Well and Boring Abandonment* (January 7, 2009) unless the well is to be kept viable for possible future use. This SOP specifies the procedures to be followed to maintain monitoring wells (actively part of a long-term monitoring program and those not part of a program) that are not actively being sampled but are to be kept for possible future use. Additionally, if sampling time period is greater than 3 years for an active monitoring program, the wells should be maintained annually following this procedure. Periodic maintenance of monitoring wells is necessary to preserve the ability to collect representative samples.

This document also specifies the procedure for development of wells that have been unused or not maintained prior to the collection of samples from them. Wells that have not been used as monitoring points for a time period of greater than 3 years should be developed prior to collecting groundwater samples following this procedure.

3.0 RESPONSIBILITIES

All MEDEP/DR Staff must follow this procedure when performing this task. All Managers and Supervisors are responsible for ensuring that their staff are familiar with and adhere to this procedure. MEDEP/DR staff reviewing data by outside parties are responsible for assuring that the procedure (or an equivalent) was utilized appropriately.

4.0 DEFINITIONS

1) MONITORING WELL. A well installed for the purpose of monitoring groundwater quality at a facility regulated by the Department. Generally, a monitoring well consists of the following components:

    - A screened interval, or section of the well surrounded by a filter pack silica sand to allow infiltration and monitoring of groundwater at a specific depth within an aquifer;

- A solid riser pipe extending from the top of the screened interval to the ground surface. Depending on the well design the riser pipe may terminate just below the ground surface or extend above the ground surface; and

- A protective casing. For riser pipes ending just below the ground surface, the casing typically consists of a locking steel road box; for riser pipes extending above the ground surface, the casing generally consists of a steel pipe with a locking cap. Protective casings are sealed into the ground surface using cement or a mixture of bentonite and cement to prevent infiltration of surface water into the well.

2) IN-ACTIVE MONITORING WELL. A monitoring well that, pursuant to Department recommendation or approval, is not routinely sampled as part of an active groundwater monitoring program but is to be maintained for recording groundwater levels or potential sample collection at a future date.

5.0 GUIDELINES AND PROCEDURES

5.1 MONITORING WELL INSPECTION

All monitoring wells must be inspected annually and repaired as necessary to maintain their viability for possible future use. The following steps must be taken and documented as part of the annual inspection.

HEALTH AND SAFETY CONSIDERATIONS: If the well is contaminated above drinking water standards, the following steps must be performed by personnel who are trained and certified to work on sites contaminated by hazardous substances. Appropriate personnel protective equipment must be used.

5.1.1 Assess the ability to access and identify the well. The well must be kept unobscured by vegetation or other obstructions so that it can be easily found. The well cap or casing must be clearly marked to avoid any confusion as to its identity within the monitoring well network.

5.1.2 Assess of the condition of the protective casing including the surface seal and lock. Replace the lock if it is missing or broken and note any deficiencies in the protective casing. If the well casing and/or riser are damaged or loose, determine if repairs are feasible and if the well remains viable or should be abandoned.

5.1.3 Measure and record the depth to water in the well and the total depth of the well. To avoid cross contamination of other wells in the monitoring network, be sure to follow standard decontamination protocols when using non-dedicated equipment.

5.2 MONITORING WELL MAINTENANCE AND DEVELOPMENT

Monitoring well screens can become clogged with sediment, precipitation of dissolved inorganics, and/or by biologically mediated reactions if not used regularly. The following steps must be taken

and documented as part of monitoring well maintenance to keep the well screens in hydraulic connection with the groundwater surrounding the well.

5.2.1 Measure and record the depth to water in the well and the total depth of the well. A weighted tape works best in determining if the well bottom feels “solid” or “soft” with accumulated fines. To avoid cross contamination of other wells in the monitoring network, be sure to follow standard decontamination protocols when using non-dedicated equipment.

5.2.2 Aggressively purge a minimum of three well volumes of water from the well, or until the well is completely evacuated, using a bailer or submersible pump. Adjust the submersible pump depth while purging to dislodge accumulated fines across the well screen and near the well bottom. Do not force a submersible pump downward, as too many fines can clog the intake, especially for certain types of submersible pumps. A surge block can also be used to dislodge fines prior to using a bailer or submersible pump. Take care not to introduce contaminants to the well by following standard decontamination procedures if using non-dedicated equipment. Note the amount of water purged, final water level and any indication of contamination, such as color, odor or foaming.

5.2.3 Measure and record the depth to water in the well and the total depth of the well. To avoid cross contamination of other wells in the monitoring network, be sure to follow standard decontamination protocols when using non-dedicated equipment.

5.2.4Secure the well and document its final condition.

6.0 DOCUMENTATION

All site work, including well maintenance and development, must be documented as described in the MEDEP/DR SOP# RWM-DR-013 - Documentation of Field Activities and Development of A Trip Report. Use of specialized sampling forms is allowed, following the procedure outlined in DR-013. Recommendations for well maintenance, repair, or abandonment should be communicated to the well owner for implementation.

028-Well-Maintanence-Development-FINAL-2021 - B Blais

Final Audit Report 2021-12-23

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