DEQ	WASTE MANAGEMENT AND RADIOLOGICAL PROTECTION DIVISION POLICY AND PROCEDURE		DEPARTMENT OF ENVIRONMENTAL QUALITY
Original Effective Date: May 31, 1994 Revised Date: January 26, 2018 Reformatted Date: December 14, 2012	Subject: Laboratory Reporting Limits for use with Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 115)		Category: ☐ Internal/Administrative ☒ External/Non-Interpretive ☐ External/Interpretive Type: ☐ Policy ☐ Procedure ☒ Policy and Procedure
	Program Name: WMRPD-Solid Waste Section, Solid Waste Programs		
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A Department of Environmental Quality (DEQ) Policy and Procedure cannot establish regulatory requirements for parties outside of the DEQ. This document provides direction to DEQ staff regarding the implementation of rules and laws administered by the DEQ. It is merely explanatory, does not affect the rights of or procedures and practices available to the public, and does not have the force and effect of law. DEQ staff shall follow the directions contained in this document.

ISSUE:

The attached tables list reporting limits (RLs) that are applicable to groundwater, secondary collection system, and leachate monitoring performed pursuant to licenses and/or permits issued under Part 115. The purpose of this policy guidance document is to advise Waste Management and Radiological Protection Division (WMRPD) staff reviewing proposed groundwater monitoring programs, approved under Part 115, of laboratory detection limits considered immediately acceptable to the WMRPD with no further review. Detection limits, including practical quantitation limits that meet the attached published limits, will be considered approvable limits under Part 115. It will also outline procedures for reviewing proposed detection limits that are higher relative to those considered immediately acceptable, in order to ensure that no contamination has occurred because of Part 115 activities.

AUTHORITY:

R 299.4905(2)(c), and R 299.4907(4) of the administrative rules for Part 115.

STAKEHOLDER INVOLVEMENT:

Michigan Waste and Recycling Association – Technical Standards Committee.

DEFINITIONS:

- Method Detection Limit: A method detection limit (MDL) is the minimum concentration of a substance which can be measured and reported with 99 percent confidence, for which the analyte concentration is greater than zero, and which is determined from analysis of a sample in a given matrix that contains the analyte.

- Reporting Limit: A reporting limit (RL) is the lowest concentration of an analyte that can be reliably detected by the DEQ Environmental Laboratory in actual environmental samples in most instances. The RLs are derived from MDLs. The RL is equal to, or greater than, the MDL.

- Practical Quantitation Limit: A practical quantitation limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory conditions and is based on all of the following: quantitation, precision and accuracy, normal operation of the laboratory, and the practical need in a compliance monitoring program to have a sufficient number of laboratories available to conduct the analyses.

POLICY:

The attached tables list chemical analytical methods and RLs for water. The RLs were developed by the DEQ Environmental Laboratory for use in environmental contamination, detection, compliance, and response activities. Note that these RLs are subject to change depending on changes in technology, methods, or United States Environmental Protection Agency requirements. To reflect these changes, the WMRPD will update this policy guidance document as new RLs are issued, but no more than once a year. These RLs are to be used by WMRPD staff reviewing proposed groundwater monitoring program laboratory detection limits. If the proposed detection limit meets the RLs attached, then those limits will be considered immediately acceptable to the WMRPD with no further review. Procedures for reviewing proposed RLs, PQLs, or MDLs that are higher relative to those considered immediately acceptable are also outlined below.

PROCEDURES:

"Reporting limits" is a term used by the DEQ Environmental Laboratory. The RL term is a generic term used to provide staff guidance on a detection limit that if met, would meet the intent of an approvable detection limit (either MDL or PQL). The MDLs are the minimum concentration of a substance which can be measured and reported with 99 percent confidence, for which the analyte concentration is greater than zero, and which is determined from analysis of a sample in a given matrix that contains the analyte. The RLs are derived from MDLs. The RL is equal to, or greater than, the MDL. The RL reflects the DEQ Environmental Laboratory's ability to achieve this level of detection on actual environmental samples in most instances. For ease of reporting, some RLs are rounded up to achieve consistency within an analyte group. The RL list provides general detection limits that serve as performance standards for evaluating a laboratory's capabilities. The WMRPD believes that these RLs for detection monitoring programs to be appropriate to meet statutory requirements for the following reasons:

- The WMRPD considers the RLs established by the DEQ Environmental Laboratory to be a reasonable performance standard for laboratories that do testing for environmental detection monitoring programs.

- Low detection limits are necessary to detect and react to a release into the environment at the earliest possible opportunity.

- The DEQ Environmental Laboratory will be used to analyze samples that are collected by WMRPD staff to evaluate the performance of environmental detection monitoring programs. Any resulting regulatory action would be based on the DEQ analytical data above the RLs.

The attached RLs are to be used by WMRPD staff for the development, evaluation, and implementation of any environmental detection monitoring programs that are required pursuant to Part 115 of Act 451, and the administrative rules promulgated thereto. The WMRPD considers the routine achievement of these RLs by any laboratory utilized to analyze data for environmental detection monitoring programs to be generally acceptable (exceptions are discussed in the following material). Proposed RLs may be lower than those listed.

Please note that some of the RLs listed in the attached tables are lower than the detection limits used in other environmental programs which do not focus on timely detection of releases from regulated units. The WMRPD, in consultation with the DEQ Environmental Laboratory, is willing to consider and evaluate detection limits other than those published by the DEQ depending on site specific conditions and sample/laboratory limitations. Exceptions may be made for specific analytes for which there is matrix interference. Also, exceptions may be made for analytes that occur naturally in groundwater at high levels. For example, if the background concentration of chloride in groundwater is 100 parts per million (ppm), then it may not be necessary to require that the facility meet a 1 ppm detection limit. A regulated entity proposing RLs, MDLs, or PQLs higher than those listed herein should include a discussion as to how the proposed RLs or PQLs will meet the statutory requirements for a detection monitoring program capable of detecting a release.

A facility requesting an alternate detection level may be asked to provide documentation to the WMRPD to support their request. The documentation should include, but not be limited to, method procedures, use of a field blank, all raw data, quality assurance, and quality control data (instrument calibration, precision and accuracy, surrogates, and internal standards).

The method(s) listed are used by the DEQ Environmental Laboratory to achieve the listed RL. Alternate methods that can achieve the required RLs can be used with prior DEQ approval.

ATTACHMENT: Laboratory Reporting Limits for use with Part 115.

DIVISON DIRECTOR APPROVAL:

Jack Schinderle, Director
Waste Management and Radiological Protection Division

Date 2/2/18

ATTACHMENT A

Laboratory Reporting Limits for Use with Part 115

PRIMARY INORGANIC INDICATORS
(Part 115 R 299.4450)

PARAMETER	*SUGGESTED METHOD	REPORTING LIMIT (ug/l)
CHLORIDES	325	1,000
IRON	6010B	20
SULFATES	375.1	2,000
TOTAL INORGANIC NITROGEN	353.2	20
TOTAL DISSOLVED SOLIDS	160.1	20,000

ALTERNATE INORGANIC INDICATORS
(Part 115, R 299.4451)

PARAMETER	*SUGGESTED METHOD	REPORTING LIMIT (ug/l)
MAGNESIUM	7450	1,000
MANGANESE	6010B	5
POTASSIUM	7610	100
SODIUM	7770	1,000
BICARBONATE ALKALINITY	. . . . .	10,000
CARBONATE ALKALINITY	. . . . .	10,000
CALCIUM	7140	1,000
PHENOLICS	9066	10
CYANIDE	9010	5
TOTAL ORGANIC CARBON	415.2	500
CHEMICAL OXYGEN DEMAND	410.4	5,000
BORON	6010B	20

*EPA Methods
1) Methods for Chemical Analysis of Water and Waste 1983
2) SW – 846

METALS
(Part 115, R 299.4452)

PARAMETER	METHOD	REPORTING LIMIT (ug/l)
ANTIMONY	6020	1
ARSENIC	7060A	1
BARIUM	6010B	5
BERYLLIUM	6010B	1
CADMIUM	7131A	0.2
	*6010B	*5
CHROMIUM	7191	1
	*6010B	*20
COBALT	6010B	15
COPPER	7211	1
	*6010B	*10
LEAD	7421	1
	*6010B	*50
NICKEL	6010B	2
SELENIUM	7740	1
SILVER	7761	0.2
THALLIUM	7841	2.0
VANADIUM	6010B	2
ZINC	6010B	10

* Detection limit and method for routine leachate analysis.
These limits may not be acceptable when trying to obtain a waiver from groundwater monitoring.

PRIMARY VOLATILE ORGANIC CONSTITUENTS
(Part 115, R 299.4453)
Suggested method: SW 846 Method 8260

PARAMETER	REPORTING LIMIT (ug/l)
BROMODICHLOROMETHANE	1.0
BROMOFORM, TRIBROMOMETHANE	1.0
CARBON TETRACHLORIDE	1.0
CHLOROBENZENE	1.0
CHLOROETHANE, ETHYL CHLORIDE	5.0
CHLOROFORM, TRICHLOROMETHANE	1.0
DIBROMOCHLOROMETHANE, CHLORODIBROMOMETHANE	1.0
O-DICHLOROBENZENE, 1,2-DICHLOROBENZENE	1.0
P-DICHLOROBENZENE, 1,4-DICHLOROBENZENE	1.0
1,1-DICHLOROETHANE, ETHYLIDENE CHLORIDE	1.0
1,2-DICHLOROETHANE, ETHYLENE DICHLORIDE	1.0
1,1-DICHLOROETHYLENE, 1,1-DICHLOROETHENE	1.0
CIS-1,2-DICHLOROETHYLENE, CIS-1,2-DICHLOROETHENE	1.0
TRANS-1,2-DICHLOROETHYLENE, TRANS-1,2-DICHLOROETHENE	1.0
1,2-DICHLOROPROPANE, PROPYLENE DICHLORIDE	1.0
CIS-1,3-DICHLOROPROPENE	1.0
TRANS-1,3-DICHLOROPROPENE	1.0
METHYL BROMIDE, BROMOMETHANE	5.0
METHYL CHLORIDE, CHLOROMETHANE	5.0
METHYLENE BROMIDE, DIBROMOMETHANE	1.0
METHYLENE CHLORIDE, DICHLOROMETHANE	5.0
METHYL IODIDE, IODOMETHANE	1.0
1,1,1,2-TETRACHLOROETHANE	1.0
1,1,2,2-TETRACHLOROETHANE	1.0
TETRACHLOROETHYLENE, TETRACHLOROETHENE, PERCHLOROETHYLENE	1.0
1,1,1-TRICHLOROETHANE, METHYL CHLOROFORM	1.0
1,1,2-TRICHLOROETHANE	1.0
TRICHLOROETHYLENE, TRICHLOROETHENE	1.0
TRICHLOROFLUOROMETHANE	1.0
1,2,3-TRICHLOROPROPANE	1.0
VINYL CHLORIDE	1.0
BENZENE	1.0
ETHYL BENZENE	1.0
STYRENE	1.0
TOLUENE	1.0
XYLENES	2.0

SECONDARY ORGANIC CONSTITUENTS
(Part 115, R 299.4454)
Suggested method: SW 846 Method 8260

PARAMETER	REPORTING LIMIT (ug/l)
ACETONE	20.0
ACRYLONITRILE	5.0
BROMOCHLOROMETHANE	1.0
CARBON DISULFIDE	1.0
1,2-DIBROMO-3-CHLOROPROPANE, DBCP	5.0
1,2-DIBROMOETHANE, ETHYLENE DIBROMIDE, EDB	1.0
METHYL ETHYL KETONE, 2-BUTANONE	5.0
4-METHYL-2-PENTANONE, METHYL ISOBUTYL KETONE	5.0
TRANS-1,4,-DICHLORO-2-BUTENE	1.0
2-HEXANONE, METHYL BUTYL KETONE	5.0