DEO	OFFICE OF DRIN AND MUNICIPAL POLICY AND F	DEPARTMENT OF ENVIRONMENTAL QUALITY	
Original Effective Date:	Subject:		Category:
Unknown	Minimum Isolation Distances: Private and Public Water Wells		Internal/Administrative External/Non-Interpretive
Revised Date:	Program Name:		External/Interpretive
November 2003	Well Construction Program		Type:
Reformatted Date:	Number:	Page:	D Policy
April 1, 2015	ODWMA-368-127-011	1 of 6	☐ Procedure ⊠ Policy and Procedure

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.

INTRODUCTION:

Michigan law requires that certain minimum isolation distances be maintained when constructing a new water well (private or public) near a potential contamination source. The actual location of the well will often be determined by factors other than sources of contamination or geologic conditions. Land surface features, such as steep slopes and poorly drained areas, are considerations in the location of the well. Whenever possible, wells should be located at higher elevations than the surrounding areas to decrease the potential for contamination.

In general, minimum isolation distances should not be the standard. In some cases – for example a well installation near a groundwater contamination site – the isolation distance should be maximized to provide the well owner with the best possible chance of maintaining a safe water supply.

For Private and Type III and Type II Public Water Supplies, local health departments (LHDs) have the authority to increase isolation distance based on various factors, such as groundwater conditions or contamination sources. The LHDs also have the authority to decrease the isolation distance from a well to a potential source of contamination through the use of deviations. Deviations are issued on a case-by-case basis; maintaining public health protection is essential. Criteria for issuance of deviations are set forth in R 325.1613 of the Groundwater Quality Control Rules, promulgated pursuant to Part 127, Water Supply and Sewer Systems, of the Public Health Code, 1978 PA 368, as amended (Act 368); and R 325.10809 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399) Rules.

AUTHORITY:

Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399)

Groundwater Quality Control (Part 127 of Act 368)

STAKEHOLDER INVOLVEMENT:

The March 10, 2015, revisions to this policy and procedure were a result of the DEQ, Michigan Department of Agriculture and Rural Development, and Natural Resources Conservation

Number: ODWMA-368-127-011

Subject: Minimum Isolation Distances: Private and Public Water Wells

Page 2 of 6

Service (NRCS) meeting in 2013 and 2014 and collaborating to create a Memorandum of Understanding, as described under the "Comments" section.

DEFINITION:

Deviation – A reduction in isolation between the well and a source of contamination, granted in writing by the LHD.

POLICY:

The following lists sources of contamination and the well isolation distances required from those sources by state codes. The DEQ and LHDs have authority to issue deviations from these minimum isolation distances on a case-by-case basis. Criteria for issuance of deviations are set forth in R 325.1613 and R 325.10809.

* = For the isolation distances marked with a single asterisk, the isolation distance is for a source of contamination, which is not specifically listed in the rules. However, the source of contamination is interpreted as belonging to a general contamination source group (i.e., a sewage holding tank is the same as a septic tank), which is listed in the rules; therefore, the isolation distance listed in this document is **required**.

** = For the isolation distances marked with a double asterisk, the isolation distance is for a source of contamination, which is not specifically listed in the rules. However, the DEQ has established a **recommended** isolation distance based on the contaminant involved, the risk to public health, and other factors. Under the general authority of an LHD Health Officer's responsibility to protect public health, a Health Officer may modify this recommended isolation distance, either increasing or decreasing it, on a case-by-case basis.

REQUIRED MINIMUM ISOLATION DISTANCE (FEET)			
	Part 127 of		
Contamination Source	Act 368	Act 399	
		IIb and III	I and IIa
Agricultural Chemical/Fertilizer Storage or	150	800	2000
Preparation Area			
Animal/Poultry Yard	50	75	200
Brine Wells/Injection Wells	**150	**800	**2,000
Building or Projection thereof	3	3	3
Cemetery/Graves	**50	*75	*200
Cesspool	50	75	200
Chemical Storage	150	800	2,000

Number: ODWMA-368-127-011

Subject: Minimum Isolation Distances: Private and Public Water Wells

Page 3 of 6

REQUIRED MINIMUM ISOLATION DISTANCE (FEET) cont'd			
	Part 127 of		
Contamination Source	Act 368	Act	399
		IIb and III	I and IIa
Contaminant Plumes (Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended [Act 451])	**150	**800	**2,000
Contaminant Plumes (Part 213, Leaking Underground Storage Tanks [LUST], of Act 451, or LUST Sites)	**150	**800	**2,000
Drainfield	50	75	200
Drywell	50	75	200
Footing Drains	10	10	10
Fuel/Chemical Storage Tanks – Underground or Above-Grade, and Associated Piping			
- depot/tank farm	300	800	2,000
 1,100 gal. or larger, without secondary containment 	300	800	2,000
 1,100 gal. or larger, with secondary containment 	50	800	2,000
 less than 1,100 gal., which store motor or heating fuel for noncommercial purpose(s) or consumptive use on premises where fuel is stored 	50	800	2,000
 less than 1,100 gal., which store motor fuel for commercial purpose(s) 	*50	800	2,000
 located in a basement, regardless of size 	*50	800	2,000
Grease Trap	50	*75	*200
Kennels	50	*75	*200
Landfill or Dump Sites (active or inactive)	800	800	2,000
Liquid Petroleum (LP) Tanks (see Comments, Page 5)			
Liquid Waste Draining Into the Soil	50	*75	200
Metering Station for Pipelines	*300	*300	*300
Municipal Wastewater Effluent or Sludge Disposal Area (land surface application or subsurface injection)	300	800	2,000

Number: ODWMA-368-127-011

Subject: Minimum Isolation Distances: Private and Public Water Wells

Page 4 of 6

REQUIRED MINIMUM ISOLATION DISTANCE (FEET) cont'd			
	Part 127 of	. .	
Contamination Source	Act 368	Act	399
Oil or Gas Wells	300	300	300
Other Wastewater Handling or Disposal Unit	50	*75	*200
Petroleum Product Processing or Bulk Storage	300	800	2,000
Pipelines			,
- gas, oil, etc.	*300	*300	*300
- natural gas (see Comments, Page 5)			
Privy/Outhouse	50	75	200
Seepage Pit	50	75	200
Septage Waste (land application area)	800	800	2,000
Septic Tank	50	*75	*200
Sewage Lagoon Serving a Single Family Dwelling	50	75	200
Sewage Lagoon Effluent – Land Application Area	50	800	2,000
Sewage or Liquid Waste Draining Into Soil	50	*75	*200
Sewage Pump Chamber, Transfer Station, or Lift Station	50	75	200
Sewers			
 buried gravity sewer (sanitary or storm) – service weight or heavier ductile iron or cast iron, or Schedule 40 PVC, all with watertight joints 	10	75	200
 buried pressure sewer (sanitary or storm) watertight joints (pressure tested after installation to 100 psi), equivalent to Schedule 40 or SDR 21, and meets or exceeds ASTM Specifications D1785-91 or D2241-89 	10 (by written deviation only)	75	200
 buried gravity or pressure sewer (sanitary or storm), constructed of materials not meeting the specifications listed in the two categories above, or the materials are unknown 	50	75	200

Number: ODWMA-368-127-011

Subject: Minimum Isolation Distances: Private and Public Water Wells

Page 5 of 6

REQUIRED MINIMUM ISOLATION DISTANCE (FEET) cont'd			
	Part 127 of	_	
Contamination Source	Act 368	Act 399	
		IIb and III	I and IIa
Sump Pit			
 receiving other than household waste (footing drain, roof drain, etc.) 	10	10	10
 receiving household waste (laundry, softener backwash, sink waste, etc.) 	50	75	200
Surface Water (lake, river, stream, pond, ditch, etc.)	10	75	200
Unfilled Space Below Ground Surface (except an approved basement, basement offset, or crawl space beneath a single family dwelling)	10	10	10

COMMENTS:

Natural gas and LP are not considered sources of groundwater contamination because of the volatile gas nature of the fuels. If leaks occur, the gases escape into the atmosphere. Leaked gases do not migrate downward into the soil. Wells should be sufficiently isolated from natural gas lines or LP tanks to minimize the potential for damage to the lines or tanks during well construction or repair, trenching of water lines, etc., and to allow accessibility to the well.

To address the concerns regarding locating new manure, fuel, and chemical storage structures within the isolation area of existing wells on farms, a protocol was developed in 2005 by the DEQ to construct certain facilities on farms within the 800-foot isolation area of Type IIB and Type III Public Water Supplies. It was incorporated by the NRCS into their agency's process for evaluating and funding relevant farm construction projects.

This protocol was the foundation for the development of a Memorandum of Understanding [MOU] Between Michigan Department of Agriculture and Rural Development and Michigan Department of Environmental Quality in 2014 for the purpose of delineating the respective roles and responsibilities regarding state agency evaluation of isolation distances of existing drinking water wells from new and existing sources of contamination on farm operations. This MOU includes *"Procedure A: Public Well Isolation Distances – Criteria for Reducing the Well Isolation Distance from Major Sources of Contamination,"* which was expanded and updated July 21, 2014.

The DEQ believes the protocol facilitates improvements on farms and protects the farm drinking water supplies. While the intent of the protocol is to site or evaluate existing sources of contamination with reduced isolation to existing water wells, it may be used to assist the LHD where the consideration of deviations for new construction is necessary.

Number: ODWMA-368-127-011

Subject: Minimum Isolation Distances: Private and Public Water Wells

Page 6 of 6

PROCEDURES:

Step	Who	Does What
1	LHD Staff	Consider the minimum isolation distance requirements when issuing well construction permits, reviewing water well records, and conducting well final inspections.
2	LHD Staff	Issue written deviations to reduce the minimum isolation distance requirements while still protecting public health.
3	Registered Water Well Drilling Contractor	Drill water wells that meet the minimum isolation requirements in Part 127, or as documented in a written deviation.

REFERENCE:

Memorandum of Understanding Between Michigan Department of Agriculture and Rural Development and Michigan Department of Environmental Quality, Regarding State Agency Collaboration on Evaluating Well Isolation Distance on Farm Operations, effective September 4, 2014.

Compliance with Part 127 shall be based on the statute and rules promulgated under Part 127. Nothing in this policy and procedure shall be used in an enforcement action brought against a Registered Water Well Drilling Contractor or Pump Installer. This policy and procedure shall expire on December 31, 2016, unless superseded before that date.

OFFICE CHIEF APPROVAL:

Liane J. Shekter Smith, P.E., Chief Office of Drinking Water and Municipal Assistance

DEPUTY DIRECTOR APPROVAL:

Jim Sygo, Deputy Director

MEMORANDUM OF UNDERSTANDING BETWEEN MICHIGAN DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT AND MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Regarding State Agency Collaboration on Evaluating Well Isolation Distance on Farm Operations

I. Purpose

2

This Memorandum of Understanding (MOU) between the Michigan Department of Agriculture and Rural Development (MDARD) and the Michigan Department of Environmental Quality (MDEQ) is entered into for the purpose of delineating the respective roles and responsibilities regarding state agency evaluation of isolation distances of existing drinking water wells from new and existing sources of contamination on farm operations.

II. Period of Agreement:

This MOU shall be effective and ongoing once both parties have signed the agreement.

III. Authority:

The MDARD is statutorily charged under the Michigan Right to Farm Act, Public Act 93 of 1981, as amended, with the siting of new and expanding livestock production facilities. Furthermore, the MDARD is statutorily charged under the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, Part 87 (Groundwater and Freshwater Protection), as amended, with the programming and operation of the Michigan Agriculture Environmental Assurance Program (MAEAP).

The Michigan Commission of Agriculture and Rural Development, hereinafter referred to as the Commission, is statutorily charged under the Michigan Right to Farm Act, Public Act 93 of 1981, as amended, with the responsibility for the development and annual review of generally accepted agricultural and management practices for farms and farm operations, hereinafter referred to as GAAMPs. Furthermore, the Commission is statutorily charged under the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, Part 87 (Groundwater and Freshwater Protection), as amended, with the development and annual review of the MAEAP Verification Standards for farms and farm operations seeking MAEAP verification.

The MDEQ is statutorily and constitutionally charged under the Public Health Code, Public Act 368 of 1978, Part 127, and the Safe Drinking Water Act, Public Act 399 of 1976, with the responsibility of oversight for the protection of public water supplies.

The MDARD and MDEQ recognize the need to protect the air, water, and natural resources of the state from pollution, impairment, or destruction while maintaining a viable agriculture industry.

IV. Responsibilities:

• • •

> Michigan Department of Agriculture and Rural Development The MDARD will adhere to the following procedures when evaluating the isolation distance from an existing drinking water well to a new or existing source of contamination:

- a. The well isolation distance will be evaluated according to the **Public Well Isolation Distances** CRITERIA FOR REDUCING THE WELL ISOLATION DISTANCE FROM MAJOR SOURCES OF CONTAMINATION (Procedure A attached).
- b. If the well does not meet the criteria outlined in Procedure A, then the PROCEDURE FOR SITE SPECIFIC EVALUATION OF WELL ISOLATION DISTANCES FROM SOURCES OF POTENTIAL CONTAMINATION ON FARM OPERATIONS (Procedure B attached) will be utilized. A well that does not meet the criteria in Procedure A will be evaluated by MDARD to determine if a further reduction in isolation distance may be acceptable.

The MDARD will work with local conservation district staff and industry partners providing technical support to farm operations to educate them on the procedures.

The MDARD will work with farm operations to educate them on the classification of their water supply and advise them to contact the appropriate agency for assistance with meeting any responsibilities under the Michigan Safe Drinking Water Act, Public Act 399 of 1976, as amended.

Michigan Department of Environmental Quality

The MDEQ will work with the MDARD to provide written evaluations on wells not meeting the criteria established in Procedure A.

The MDEQ will make recommendations, as appropriate, on matters relating to environmental concerns regarding public water supplies on farms and farm operations, and foster cooperation between MDARD and MDEQ.

The MDARD and the MDEQ agree to exercise their respective roles and responsibilities, as specified herein, for the purpose of protecting the air, water, and natural resources of the state from pollution, impairment, or destruction while maintaining a viable agriculture industry.

V. Termination of Agreement:

This agreement may be terminated by 30-day written notice by either party.

VI. Modification of Agreement:

This agreement may be modified by mutual agreement only in writing and signed by both parties.

VII. **Agency Contacts:**

> Michigan Department of Agriculture and Rural Development Michelle Crook, Environmental Stewardship Division (517) 284-5625, crookm@michigan.gov

Michigan Department of Environmental Quality Dana DeBruyn, Non-Community and Private Drinking Water Supplies Unit (517) 284-6524, debruynd@michigan.gov

VIII. Signatories

> In witness whereof, the parties sign their names as evidence of their approval of this MOU.

For the Michigan Department of Agriculture and Rural Development:

ma alimo Jamie Clover Adams, Director

For the Michigan Department of Environmental Quality:

Dan Wyant, Director

.4.14

Date

PROCEDURE A

Public Well Isolation Distances

CRITERIA FOR REDUCING THE WELL ISOLATION DISTANCE FROM MAJOR SOURCES OF CONTAMINATION

THESE CRITERIA ARE APPLICABLE TO EXISTING TYPE IIA, TYPE IIB AND TYPE III PUBLIC WATER SUPPLIES ON AGRICULTURAL OPERATIONS WHERE IT IS NECESSARY TO UPGRADE AN EXISTING WASTE STORAGE STRUCTURE, HANDLING AREA, OR TANK FOR MAJOR SOURCES OF CONTAMINATION WITHIN THE ISOLATION DISTANCE OF A DRINKING WATER WELL. THESE CRITERIA MAY ALSO BE USED IN CONJUNCTION WITH THE A*SYST TOOLS AND REQUIRMENTS USED FOR MAEAP VERIFICATION. TANKS OR STRUCTURES THAT COMPLY WITH APPLICABLE REGULATIONS AND ARE LOCATED IN ACCORDANCE WITH THIS PROCEDURE IS CONSIDERED TO BE COMPLYING WITH THE REQUIREMENTS TO MAINTAIN ISOLATION DISTANCE FROM THE WELL TO THE CONTAMINANT SOURCE.

- A TYPE II WATER SUPPLY IS CLASSIFIED AS ANY NON-COMMUNITY PUBLIC WATER SUPPLY.
 - A TYPE IIA WATER SUPPLY IS AN OPERATION WITH 25 OR MORE EMPLOYEES AND A MONTHLY AVERAGE WATER USE OF 20,000 GALLONS PER DAY OR MORE (TOTAL OF ALL WELLS ON SITE).
 - A TYPE IIB WATER SUPPLY IS AN OPERATION WITH 25 OR MORE EMPLOYEES AND USING LESS THAN 20,000 GALLONS PER DAY.
- A TYPE III WATER SUPPLY IS ANY DAIRY OPERATION THAT DOES NOT MEET THE REQUIREMENTS ABOVE OR A FARM OPERATION WITH 1-24 EMPLOYEES.

THE ISOLATION DISTANCE FROM MAJOR SOURCES OF CONTAMINATION FOR TYPE IIA WATER SUPPLY WELLS IS 2,000 FEET.

FOR TYPE IIB AND TYPE III WATER SUPPLY WELLS, THE ISOLATION DISTANCE IS 800 FEET.

Type IIA – Reduction allowed down to 1,000 feet Type IIB and Type III – Reduction allowed down to 400 feet:	Type IIA – Reduction allowed down to 500 feet Type IIB and Type III – Reduction allowed down to 200 feet:
Where the following protection factors are documented:	Where the following protection factors are documented:
A or	A + B or, E + B + C or,
B + C or,	A+Cor, E+D
	A + E or, F (agrichemical and fuel storage only)

PROTECTION FACTORS:

A – Based on groundwater flow direction, well is up-gradient from the contamination source

B – Confining material of 10 feet continuous clay, 10 feet of continuous shale, or 20 feet continuous clay mixture

C - Well casing depth is 100 feet or more

D - B (minimum of 10 feet of continuous clay, 10 feet of continuous shale, or 20 feet continuous clay mixture) + C (minimum of 60 feet casing depth) = 100 feet or more

E – Manure storage constructed with flexible membrane liners, or reinforced concrete, or steel, or solid manure stacking facility with concrete floor constructed in accordance with USDA Natural Resources Conservation Service field office technical guide standard for Waste Storage Facility (313), and the well sited or graded to protect the water supply in the event of failure. The structure must have been built within the 15 years prior to the well assessment, or be certified by a professional engineer that the structure provides equivalent environmental protection. Plain concrete liners do not meet this criteria.

07/21/2014

PROCEDURE A

F - Fuel storage facilities without secondary containment meeting factor D may be reduced to 500 feet for a Type IIA well or 200 feet for Type IIB and Type III. Agrichemical containment facilities (secondary containment required) and fuel storage facilities *with secondary containment* (meeting the regulating agencies requirements) may be reduced further. The actual isolation distance when secondary containment is present should be maximized to the extent possible and not less than 200 feet for Type IIA, nor less than 75 feet for a Type IIB or Type III.

Additional Requirements for Siting New Major Sources of Contamination:

Wells must be properly constructed and unused wells properly plugged, in accordance with Part 127. Wells must be sampled and bacteriologic and nitrate standards levels must meet drinking water standards.

In order for a manure storage structure to be considered for an isolation distance reduction under this procedure, the structure must be built to NRCS standards or verified as environmentally equivalent.

The local health department shall be provided with a copy of the decision wherever this protocol is used to reduce isolation from an existing well to a new major source of contamination. Deviations from isolation distances authorized through issuance of well construction permits may incorporate additional criteria in accordance with PA 399 of 1976, or PA 368 of 1978, Part 127. It is the owner's responsibility to maintain the well in good working condition and in accordance with the permit conditions.

Additional Requirements for Evaluating Existing Components (Wells and Major Sources of Contamination):

Wells must appear to be properly constructed (evidence by good maintenance, age, and integrity as identified with the A*SYST tools used for MAEAP verification) and unused wells properly plugged, in accordance with Part 127. Wells must be sampled and bacteriologic and nitrate standards levels must meet drinking water standards.

In order for a manure storage structure to be considered for an isolation distance reduction under this procedure, the structure must be built to NRCS standards within the last 15 years or verified as environmentally equivalent.

The local health department shall be provided with a copy of the decision wherever this protocol is used to reduce isolation from an existing Type IIA or IIB well to an existing major source of contamination. Deviations from isolation distances authorized through issuance of well construction permits may incorporate additional criteria in accordance with PA 399 of 1976, or PA 368 of 1978, Part 127. It is the owner's responsibility to maintain the well in good working condition and in accordance with the permit conditions.

07/21/2014

PROCEDURE B

PROCEDURE FOR SITE SPECIFIC EVALUATION OF WELL ISOLATION DISTANCES FROM SOURCES OF POTENTIAL CONTAMINATION ON FARM OPERATIONS

THIS PROCEDURE APPLIES TO EXISTING TYPE IIA, TYPE IIB, AND TYPE III PUBLIC WATER SUPPLIES ON AGRICULTURAL OPERATIONS WHERE IT IS NECESSARY TO UPGRADE OR EVALUATE AN EXISTING WASTE STORAGE STRUCTURE, HANDLING AREA, TANK, AGRICHEMICAL HANDLING AREA, OR FUEL STORAGE AREA FOR MAJOR SOURCES OF CONTAMINATION WITHIN THE ISOLATION DISTANCE OF A PUBLIC WELL.

FOR AN AGRICULTURAL OPERATION TO BE FOUND TO BE IN CONFORMANCE WITH THE GENERALLY ACCEPTED AGRICULTURE AND MANAGEMENT PRACTICES FOR SITE SELECTION AND ODOR CONTROL FOR NEW AND EXPANDING LIVESTOCK FACILITIES, OR TO BE VERIFIED UNDER THE MICHIGAN AGRICULTURE ENVIRONMENTAL ASSURANCE PROGRAM, MDARD MUST EVALUATE THE MANURE STORAGE AREAS, AGRICHEMICAL STORAGE, AND FUEL STORAGE AREAS TO DETERMINE WHETHER APPROPRIATE CONSTRUCTION STANDARDS WERE FOLLOWED. DURING THIS REVIEW THE WELL ISOLATION DISTANCE IS EVALUATED TO ENSURE THE PROPER ISOLATION WAS MAINTAINED. IN THE EVENT A WELL DOES NOT MEET THE MINIMUM ISOLATION DISTANCE AS DEFINED IN RULE OR THE REDUCED ISOLATION DISTANCES OUTLINED IN *PUBLIC WELL ISOLATION DISTANCES CRITERIA FOR REDUCING THE WELL ISOLATION DISTANCE FROM MAJOR SOURCES OF CONTAMINATION*, A SITE SPECIFIC EVALUATION SHALL BE CONDUCTED. THE PURPOSE OF THIS EVALUATION IS TO DETERMINE IF SITE SPECIFIC CONDITIONS PROVIDE ADEQUATE PROTECTION OF THE RESOURCES.

Upon receipt of a request for evaluation of a well not meeting the established reduction criteria:

MDARD shall:

- 1. Provide a review by the engineering staff of the site specific information and determine whether conditions exist that allow for a site specific reduced isolation distance.
 - 2. Upon the approval by the MDARD engineering staff, the engineers will submit to MDEQ all available site specific information (*Site Specific Well Reduction Review Request*).
 - 3. Work with MDEQ to provide any additional site information to assist MDEQ in their evaluation.

MDEQ shall:

- 1. Review the information received and consult with MDARD engineering staff on the evaluation.
- 2. Provide MDARD a written determination (*Site Specific Well Reduction Review Request*) of the well consisting of one of the following options:
 - a. Denled
 - b. Approved
 - c. Approved with site-specific conditions