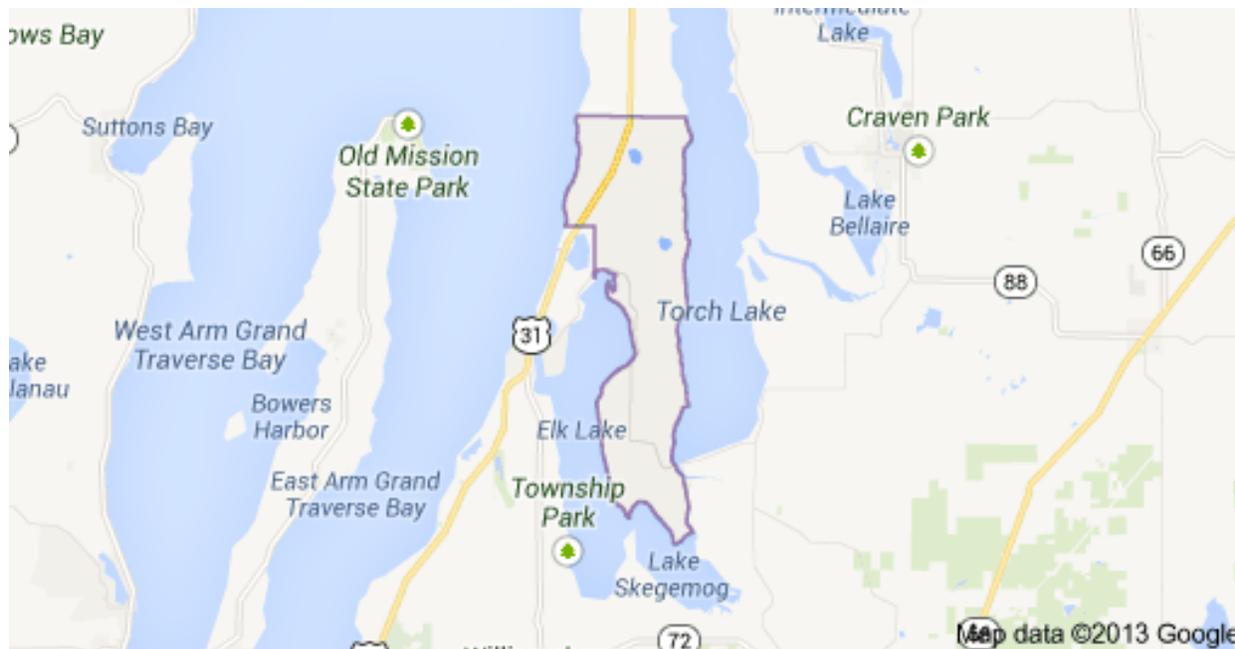


**MILTON TOWNSHIP ORDINANCE – ANNUAL REPORT
DEC 2013 THROUGH DEC 2014**



Introduction:

Milton Township lies in Antrim County, bordered by Lake Michigan, Elk Lake, Lake Skegemog and Torch Lake. These surface water resources give relevance to implementing an ordinance that evaluates existing water and wastewater systems serving private and public facilities in order to protect and preserve these natural resources. The Milton Township **Septic Inspection and Property Transfer Ordinance** was adopted October 8, 2012, to *“protect public health and to prevent or minimize the degradation of groundwater and surface water quality by malfunctioning sewage treatment and disposal systems (STDS) and to assure safe water supplies...”* The Time of Transfer (TOT) ordinance also acts as a mechanism to provide information, to buyers and sellers of real estate, regarding the operational status of existing water and wastewater systems serving private residences and commercial facilities.

The ordinance requires an inspection of the water and wastewater systems prior to the time of property transfer. In order to assure consistency of inspections and accurately determined compliance with the District Sanitary Code, Milton Township entered into an Inter Governmental Agreement (IGA) requiring the Health Department of Northwest Michigan (HDNWM) to conduct all TOT evaluations and to annually report to the Township, upon their request.

Section I, A (2.), states in part:

“Provide the Township with an annual report, at no cost to the Township, regarding the number of evaluations conducted in the Township in the preceding year and the number of evaluations that failed to meet the standards of sections 5 and 7 of the Ordinance”.

The following report outlines the findings of the second year of the ordinance and suggests some improvements to enhance the information gathered through the process.

Findings:

From the standpoint of timely delivery of service and identifying potential problems, we believe the program to be a success. From December 2013 to December 2014 there were forty-three (43) TOT evaluations conducted. No systems were considered failed at the time of inspection; however, multiple sites (21) would not allow any future additions without upgrading the existing sewage disposal system to meet current code requirements. Of these 21 sites, two (2) sites did not meet code requirements and would require an off-site drainfield location if/when any changes to the existing structure were proposed. Multiple properties (5) had space limitations on-site that need to be considered when the existing sewage disposal system is replaced. In addition to the observations noted above, there were numerous other deficiencies and recommendations documented by this department (see attached worksheet).

Water Supply Systems:

Most water supply systems reviewed were in substantial compliance with Part 127 of Act 368, **Michigan’s Well Construction and Pump Installers Code**, and were found to have acceptable water quality. There were some deficiencies identified and appropriate recommendations were made by HDNWM field staff on the final report.

Water Quality – Generally, water quality was found to be very good. Eighty-six (86) water quality tests were collected by HDNWM field staff, and the water samples were analyzed for bacteriology and partial chemistry parameters. **Nitrates** ranged from less than 0.1 mg/L to as high as 10.3 mg/L. The EPA Maximum Contaminant Level (MCL) for nitrates is 10 mg/L. The two homes that had nitrates over the MCL were advised to not use the water for cooking or consumption purposes. Bottled water was to be used unless a treatment system, such as a reverse osmosis filter, was installed. No **nitrites** were found in any of the samples collected. The MCL for nitrates is 1 mg/L and all samples taken came back with less than 0.1 mg/L. Two **bacteriology** tests were positive for coliform bacteria. These wells were required to be chlorinated and follow up samples were collected. In one case, the follow up sample was non-detect (ND); in the second case, a repeat chlorination and bacteriology test was advised due to a second positive sample. There were other results that showed elevated results in aesthetic water quality analytes such as; Calcium (Ca or hardness), Iron (Fe), Sodium (Na) and Chlorides (Cl).

Well Construction – Most well construction elements were in compliance with Part 127 – Act 368 of the Public Acts of 1978 and very few construction issues were cited. Commonly cited construction issues include older style overlapping well caps, no record of a well permit or well log, inadequate isolation to

the septic system, no pressure relief valve, and a sample tap that was either not present or was located less than 8 inches off the ground. One flowing well was improperly air gapped which could potentially lead to contamination of the well.

Location—Wells must be properly isolated from a variety of potential sources of contamination to reduce their vulnerability of becoming contaminated. The district sanitary code requires a minimum of 50 feet isolation from any component of a septic system and 50 feet from buried fuel oil tanks. The sanitary code also requires wells to be completed twelve (12) inches above grade and not located in a well pit. During inspections, several wells (7) were found to not be properly isolated from septic systems and two wells were unable to be located (buried well head). Three wells were located in well pits and one of these pits was flooded with several inches of water. Isolation and location issues were noted and recommendations were made to conduct routine water quality monitoring and to relocate the well and/or septic system when replacing either system.

Required Action – No wells required action during this time frame; however, multiple recommendations were made regarding replacing overlapping well caps, securing electrical conduit, correctly controlling flowing well discharge, and using approved conduit.

Wastewater:

A majority of systems evaluated were found to be functioning properly and met the code requirements when installed. Below are some of the issues identified which do not meet the conditions of failure, as outlined in the District Sanitary Code, but which were reported and provided with recommendations.

Site Conditions – Systems were identified that were installed in areas with site limitations that could contribute to poor system performance and/or premature failures. Most systems were installed in favorable conditions, but a small number were installed in areas that presented shallow seasonal high groundwater conditions, unacceptable soils and sites with significant space limitations.

Construction/Location— Proper STDS design and installation can extend the life expectancy of systems, provide for enhanced system performance and prevent contamination of surface or groundwaters. During the evaluations, several systems were noted as having construction deficiencies or being improperly designed for site conditions:

- No effluent filter present
- Drainfield undersized for soil conditions and number of bedrooms
- Septic tank was less than 1000 gallons (minimum size)
- Component of septic system inadequately isolated to surface water
- No high water alarm installed for pump chamber
- Vegetation overgrowth on drainfield
- Root intrusion into septic tank and drainfield
- No outlet baffle present
- Riser recommended due to depth of tank
- Inadequate isolation to seasonal high groundwater
- Driveway was constructed over drainfield

- Outlet baffle was crumbling into septic tank
- System was not installed where permitted
- Drainfield was not constructed of approved material
- Leaking forcemain

Functional Status – Even considering the issues above, most systems were functioning satisfactorily and were not creating a public health issue. There were some systems that were failing, were in a state of failure or were being compromised by external factors. Although not representing a failure, several systems were identified as having a root intrusion problem or a suspected root intrusion problem. Root intrusion can lead to premature failure of a septic system, plugging lines and working into septic tanks and pump chambers. The more serious issue encountered was drainfields installed within 48 inches of seasonal high groundwater. One of these systems was most likely installed in the seasonal high water table which can lead to hydraulic overloading, failure of the system and potential impairment of ground and surface waters. Two drainfields were compromised by the construction of a driveway over all or part of the system.

Required Action – No sewage disposal system was considered failed at the time of inspection; however, 49% of the homes inspected (21 homes) would require upgrading the STDS at the time additions to the home were proposed. Reasons to upgrade the STDS include the drainfield being undersized, the septic tank having a capacity of less than 1000 gallons, inadequate isolation to surface water, and inadequate isolation to groundwater.

Program Improvements:

Over the last year, we have identified the need to change the process slightly to align better with our database tracking program and to clarify, for the consumer, the outcome of the report. In 2014, we changed the **Water Supply/Sewage Disposal Evaluation Report (EH-09)** to include a second bacteriology sample date and test result to indicate well chlorination and repeat sample. In January 2015 we are planning on sending a memo to realtors outlining the items that are needed in order to have a complete time of transfer application, as well as including a checklist to ensure all items are included with the application. Having all necessary items at the time of the application will ensure a more timely report turnaround. A new component of the report will include a sketch of the property along with locations and dimensions to the well and STDS. This sketch will be useful to both the new homeowner as well as our agency.

Part of the checklist includes uncovering the outlet lid of the septic tank. In 2014, twenty two (22) septic tanks were unable to be inspected due to unknown location or were inaccessible. Of these 22 tanks that were not inspected, 19 of these (44% of inspections) were due to the outlet lid of the septic tank not being left uncovered.

We also identified that there is a desire by the Township to have records of follow up activities conducted to resolve failed systems. This may take the form of permit documentation, final inspection

documentation and correspondence from the agency. We are planning to provide this information to the Township in the future.

Conclusions:

Since implementation of the Ordinance in October 2012, eighty-nine (89) evaluations have been conducted by the Health Department of Northwest Michigan. Three of these evaluations (3.3%) revealed a failed septic system that resulted in a subsequent septic permit through our department. One well was deemed a public health threat due to the shallow well depth, direct suction on the casing, and proximity to the septic tank. Since December 2013, two evaluations revealed site conditions that do not comply with current district sanitary code requirements and an off-site location will have to be located if there is a proposed change of use to the existing home.

As part of this report, an evaluation of wastewater system age was conducted and compared against the state average of system life expectancy. In 2014 there were a total of forty-three (43) wastewater inspections, fifteen (33%) of which had no permit documentation and likely predated the 1968 sanitary code for Antrim County or were installed without permits. The average age of the remaining twenty-nine (67%) systems was 24 years (ranging from 4 to 47 years). This is within the state average of 23-25 years for an on-site wastewater system and is believed to be noteworthy when considering the need for mortgage evaluation programs.

Overall, the implementation of the Ordinance has been a positive experience, both in working collaboratively with Milton Township and from a service delivery standpoint. Functionally, our staff has been able to provide evaluation services in a timely manner and have documented and addressed issues through recommended, restricted, and required actions.

A review of evaluations has shown that, for the most part, water and wastewater systems are functional, but that there are problems in some cases needing action. Very few systems resulted in no recommendations reported, indicating that, although functioning with respect to the definition of failure, there are construction or unseen performance issues. This may be directly related to the age of the system, either by compliance issues with sanitary or well construction code requirements or the systems functional status.

After the second year, we are continuing to evaluate and improve our process. We will continue to work closely with Milton Township representatives to provide the information necessary to fulfill the purpose of the **Septic Inspection and Property Transfer Ordinance** and to protect the citizens and environment of Antrim County.



Environmental Health Services
Water Supply/Sewage Disposal Evaluation Report

Counties of
Antrim, Charlevoix, Emmet, and Otsego

Computer ID #

Request #

Property Tax I.D. #

Present Owner:

Address:

Evaluation For:

City or Township:

Subdivision:

Lot #

Dwelling Occupied

If "no," last know date of occupancy:

Public Water Supply Available: [] Yes [] No

Public Sewer Available: [] Yes [] No

ON-SITE WATER SUPPLY:

Record of Permit Available: [] Yes [] No
Well Log Available: [] Yes [] No Well Depth: _____ Year installed: _____
Construction and location satisfactory: [] Yes [] No [] Unable to determine
Capacity and maintenance satisfactory: [] Yes [] No [] Unable to determine
Biological analysis: Date _____ [] Safe [] Unsafe
Date _____ [] Safe [] Unsafe
Nitrate Concentration: _____ ppm [] Satisfactory [] Above MCL
Nitrite Concentration: _____ ppm [] Satisfactory [] Above MCL
Known water problems in area: [] Yes [] No

ON-SITE SEWAGE DISPOSAL:

Record of Permit Available: [] Yes [] No Year installed: _____
Pumping Records Available: [] Yes [] No Date last pumped: _____
Septic Tank(s) available for inspection: [] Yes [] No
Tank Capacity: _____ gallons
Baffle in place: [] Yes [] No
Effluent filter present: [] Yes [] No
Evidence of Tank Failure: [] Yes [] No
Drainfield Identified: [] Yes [] No
Evidence of malfunction: [] Yes [] No
Soil type in area of drainfield: _____
Water Table Elevation: _____

Date of Investigation: _____

Environmental Health Representative: _____

- [] Yes [] No Required Action: Conditions that pose and imminent hazard and require immediate correction.
[] Yes [] No Recommended Action: Conditions that reduce potential for water supply or wastewater system failure (see comments on reverse).
[] Yes [] No Restricted Future Use: Future development will be restricted based upon existing property limitations for water and/or wastewater.

Table 1. Milton Township Time of Transfer Ordinance findings for December 2013 – December 2014. Number of cases (NOC) for each finding for both Water Supply and Sewage Disposal systems.

Water Supply		Sewage Disposal	
Finding	NOC	Finding	NOC
No well log	30	No future additions permitted without new septic	21
No well permit	21	Outlet not uncovered	19
Nitrates detected	19	No permit	15
No pressure relief valve	14	No effluent filter	14
Overlapping well cap	10	Drainfield undersized	8
Inadequate isolation	7	Less than 1000 gallon septic tank	7
Well pit	3	Inadequate isolation to surface water	5
Sample tap <8"	3	No high water alarm	5
No sample tap	3	Space limitations on-site	5
Nitrates over MCL	2	Vegetation overgrowth on drainfield	5
Coliform present	2	Root intrusion	3
Buried well head	2	No outlet baffle	3
Well pit flooding	1	Riser recommended	3
Flowing well discharge	1	Drainfield not identified	3
Pressure gauge not working	1	Septic tank not located	3
Shallow well (<25 feet deep)	1	Site conditions unsuitable (do not meet code)	2
Conduit not securely connected	1	Inadequate isolation to groundwater	2
Unapproved conduit	1	Driveway over drainfield	2
Well head <12 inches	1	Drainfield area not available on-site	1
		Baffle crumbling	1
		System not installed where permitted	1
		Drainfield not approved materials	1
		Leaking forcemain	1