

Water Quality – Ground water

RESOURCE PROBLEM DEFINITIONS	QUALITY CRITERIA	ASSESSMENT TOOL	LAWS & REGULATIONS	EFFECTIVE PRACTICES
<p>Ground water contaminants-pesticides. Adversely impacts the desired use of the ground water (for example, atrazine in drinking water). Pesticides mean all chemicals used to manage pests including weeds, insects, animals and diseases.</p>	<p>Where pesticides are stored and/or applied, the overall soil-pesticide leaching rating is at Low or Very Low Risk to Human Health, using the current version of the Soil-Pesticide Screening tool. OR The pest management component of a conservation plan minimizes the movement of pesticides below the root zone.</p>	<p>Soil-Pesticide Screening Tool</p>	<p>Safe Drinking Water Act Michigan groundwater laws & regulations Michigan Pesticide Control Act</p>	<p>Agrichemical Containment Facility (702) Conservation Crop Rotation (328) Irrigation Water Management (449) Pest Management (595) Well Decommissioning (351)</p>
<p>Ground water contaminants- nutrients. Adversely impacts the desired use of the ground water (for example, nitrates in drinking water resulting from the production, storage and/or application of fertilizer, animal waste, sludge, etc.)</p>	<p>Where nutrients are stored and/or applied, leaching index rating is Low, using the current version of the Leaching Index. OR A Certified Nutrient Management Plan minimizes the movement of nutrients below the root zone. In the case of livestock operations, the collection, storage and transfer of manure minimizes movement of</p>	<p>Leaching Index MARI Purdue MMP MSUNM</p>	<p>Safe Drinking Water Act Michigan groundwater laws and regulations</p>	<p>Agrichemical Containment Facility (702) Closure of Waste Impoundments (360) Composting Facility (317) Cover Crop (340) Irrigation Water Management (449) Nutrient Management (590) Waste Storage Facility (313) Waste Utilization (633) Well Decommissioning (351)</p>

	nitrates to ground water at the farmsite.			
<p>Ground water contaminants-pathogens. Contamination by pathogens adversely impacts the use of water (example-bacteria from surface runoff may be carried into wells through cracked well casings). Pathogens include bacteria, virus, protozoans and fungi.</p>	All direct conduits to groundwater are eliminated or pathogen movement to the conduit is minimized.	Water Sample	Public Health Laws and Regulations	Waste Storage Facility (313) Waste Utilization (633) Well Decommissioning (351)

**Table 1 – Quality Criteria for Resource Sustainability
Water Quality – Surface water**

RESOURCE PROBLEM DEFINITIONS	QUALITY CRITERIA	ASSESSMENT TOOL	LAWS & REGULATIONS	EFFECTIVE PRACTICES
<p>Surface water contaminants-pesticides. Adversely impacts the desired use of the surface water.</p>	<p>Where pesticides are stored and/or applied, the overall soil-pesticide risk rating for runoff (sediment –bound and in solution) is Low or Very Low Risk to Human Health, using the current version of the Soil-Pesticide Screening tool. OR The pest management component of a Conservation Plan minimizes the movement of pesticides transported offsite by runoff.</p>	<p>Water Quality Indicators Guide Farm*A*Syst</p>	<p>Clean Water Act Michigan Pesticide Control Act</p>	<p>Agrichemical Containment Facility (702) Conservation Crop Rotation (328) Cross Wind Stripcropping (589B) Cross Wind Trap Strip – Field (589C) Cross Wind Trap Strip-Filter (589C) Field Border (386) Filter Strip (393) Irrigation Water Management (449) Pest Management (595) Residue Management, Mulch Till (329B) Residue Management, No-Till & Strip Till (329A) Riparian Forest Buffer (391)</p>
<p>Surface water contaminants-livestock operations. Contamination by manure, polluted runoff, process wastewater and seepage from livestock operations. Utilization of agricultural waste adversely impacts water use.</p>	<p>The Field Assessment for Water Quality ranking is Good to Excellent. OR Collection, storage and transfer of manure, silage and wastewaters does not result in offsite movement to surface waters. A Certified Nutrient Management Plan</p>	<p>Water Quality Indicators Guide MARI Purdue MMP MSUNM</p>	<p>Clean Water Act Right To Farm Act NREPA Part 31</p>	<p>Closure of Waste Impoundments (360) Composting Facility (317) Constructed Wetland (656) Cover Crop (340) Cross Wind Trap Strip-Filter (589C) Field Border (386) Filter Strip (393) Filter Strip – Animal Waste Management (780) Irrigation Water Management (449) Nutrient Management (590)</p>

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	minimizes the offsite movement of manure and nutrients into surface waters.			Residue Management, Mulch Till (329B) Residue Management, No-Till & Strip Till (329A) Riparian Forest Buffer (391) Stream Crossing & Livestock Access (728) Waste Storage Facility (313) Waste Utilization (633)
Surface water contaminants- nutrients, sediments. Adversely impacts the desired use of the water (for example, phosphorus attached to sediment or dissolved in runoff promotes algal bloom and excessive weed growth).	The Field Assessment for Water Quality ranking is Good to Excellent. OR A Certified Nutrient Management Plan minimizes the movement of nutrients transported by water. The treated area does not contribute sediment at a level that adversely affects the intended use of the surface water.	Macroinvertebrate Inventory Water Quality Indicators Guide	Clean Water Act Right To Farm Act NREPA Part 31	Agrichemical Containment Facility (702) Contour Buffer Strips (332) Cover Crop (340) Cross Wind Stripcropping (589B) Cross Wind Trap Strip – Field (589C) Cross Wind Trap Strip – Filter (589C) Field Border (386) Filter Strip (393) Forest Harvest Trails and Landings (655) Grade Stabilization Structure (410) Grassed Waterway (412) Heavy Use Area Protection (561) Irrigation Water Management (449) Land Reconstruction, Abandoned Mined Land (543) Nutrient Management (590) Residue Management, Mulch Till (329B) Residue Management, No-Till & Strip Till (329A) Riparian Forest Buffer (391) Riparian Herbaceous Cover (390) Stream Channel Stabilization (584) Stream Habitat Improvement and Management (395)

**Table 1 – Quality Criteria for Resource Sustainability
Water (Surface and Ground) Quantity**

RESOURCE PROBLEM DEFINITIONS	QUALITY CRITERIA	ASSESSMENT TOOL	LAWS & REGULATIONS	EFFECTIVE PRACTICES
<p>Irrigation water source. Potential for unsustainable use of groundwater or surface water as a source for sprinkler irrigation.</p>	<p>Irrigation application rate does not exceed the adjusted application rate in inches per hour as determined using the method found in FOTG IV “Irrigation Water Management to Protect Ag Resources” conservation sheet.</p>	<p>EFH Chapter 15 National Irrigation Guide FOTG IV, “Irrigation Water Management to Protect Ag Resources” conservation sheet</p>	<p>NREPA Part 301</p>	<p>Irrigation Water Management (449)</p>

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**Table 2
Resource Concerns for Improving the Resource
WATER**

RESOURCE CONSIDERATION	RESOURCE CONCERNS	ASSESSMENT TOOL	LAWS & REGULATIONS
Excess amounts. Water that accumulates on the soil surface or in the soil profile and restricts the desired use of the land.	Seeps	EFH Chapter 14	
	Surface water	Michigan Wetland Mapping Conventions for Flooded or Poned Areas	NREPA, Part 303, Clean Water Act 404
	Subsurface water	EFH Chapter 14	NREPA Part 303, Clean Water Act 404
Deficient amounts. Inadequate amounts of water in the soil profile restrict the desired use of the land.		EFH Chapter 15, National Irrigation Guide, Farm Irrigation Rating System	
Restricted capacity. Loss of storage and/or conveyance capacity limits functions and desired use.	Small water conveyance systems (e.g., grassed waterways, ditches and culverts)		
	Water bodies, wetlands, streams, and lakes		

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