(Revised Date: 7/30/14)

Cropping System for Fruit Producers -- Verification Standards

A boxed risk level indicates the level required for environmental assurance verification.

Bold Black print indicates a violation of state or federal regulation.

Bold blue italic print indicates a management practice consistent with a specified 2014 Right-to-Farm (RTF) Generally Accepted Agricultural Management Practices (GAAMPs).

RISK QUESTION	LOW RISK – 3 (RECOMMENDED)	MEDIUM RISK – 2 (POTENTIAL HAZARD)	HIGH RISK - 1 (SIGNIFICANT HAZARD)	RECORDS OR EVIDENCE FOR MAEAP VERIFICATION	REFERENCE OR GUIDANCE DOCUMENT
NUTRIENT MANAGEMENT PRACTICES - GENERAL					
1.00) Has there ever been a formal Right to Farm complaint against the farm?	There has never been a Right to Farm complaint, or the concern was not verified, or the concern was resolved.		There was a formal Right to Farm complaint and the concern has not resolved.	Producer's verbal indication of complaint history.	
1.01) How often are fields tested for nutrient levels (P, K, Ca, Mg) and pH?	***All fields*** are ***sampled and tested*** (both tissue and soil) ***on a regular basis,*** at least every four years.	***All fields*** are ***sampled and tested*** (either tissue or soil) every four years or producer plans to bring tests up to date.	Fields have not been soil or tissue tested within the past four years.	Field names or map. Acres in the cropped portions of the field. Up-to-date soil test and tissue analysis reports, or schedule to bring all tests up to date.	MSU Extension Bulletin: E-852, Fertilizing Fruit Crops MSU Extension Bulletin: E-498, Sampling Soils for Fertilizer and Lime Recommendations, frequency of soil sampling ***2014 RTF Nutrient Utilization GAAMPs, Section III: Fertilization Practices for Land Application, Soil Fertility Testing and Tissue Analysis, #7***
1.04) How are all sources of nutrients considered when making fertilization decisions?	***Credit taken for nutrients supplied by organic matter, legumes and manure or other biological materials*** (biosolids). Fertilizer rates are reduced accordingly.	When organic matter, legumes, manure or other biological materials (biosolids) are used, fertilizer rates are sometimes reduced.	When organic matter, legumes, manure or other biological materials (biosolids) are used, rates are not reduced.	Written records available, showing nutrient credits utilized.	MSU Extension Bulletins: E-2904, Nutrient Recommendations for Field Crops in Michigan and WQ-25, Nutrient Management to Protect Water Quality ***2014 RTF Nutrient Utilization GAAMPs, Section III: Fertilization Practices for Land Application, Nutrient Credits, #9***

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NUTRIENT MANAGEMENT PRACTICES – GENERAL (CONTINUED)					
1.05) How are fertilizer application rates determined?	***Consistent with Michigan State University*** (MSU) ***recommendations.*** When MSU recommendations are not available, other land-grant university recommendations developed for the region may be used. (Based on site-specific, block-by-block soil and tissue analysis.)	Consistent with Michigan State University (MSU) recommendations, based on composite analysis representing the whole farm.	Fertilizer rates are not based on tissue or soil analysis.	Applications consistent with MSU recommendations (MSU soil test printout or calculated MSU recommendations on file). When MSU recommendations are not available, applications are consistent with industry standards.	MSU Extension Bulletin: E-852, Fertilizing Fruit Crops and WQ-25, Nutrient Management to Protect Water Quality ***2014 RTF Nutrient Utilization GAAMPs, Section III: Fertilization Practices for Land Application, Fertilizer Recommendations, #8***
1.06) How are nutrient management plans for each field annually developed and followed?	Annual nutrient plan is developed on a block-by-block basis to meet crop nutrient needs and minimize loss of nutrients to the environment.	A nutrient plan is developed each year for each crop species. Soil or tissue tests are up-to-date.	Nutrient plan is not developed, or the same plan is used for more than four years.	Annual nutrient plan by field or crop grown.	
1.07) Is fertilizer application equipment checked for proper adjustment?	***Application equipment is checked for rate of application and placement.*** Over- and under-applications are monitored and corrected.		Application equipment is not checked.	Name of person responsible for fertilizer applicator adjustments and the dates of adjustments.	***2014 RTF Nutrient Utilization GAAMPs, Section III: Fertilization Practices for Land Application, Fertilizer Application Equipment Adjustment, #14*** Equipment Manufacturers Publications: ASAE Standards or Circular Z-138

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NUTRIENT MANAGEMENT PRACTICES - GENERAL (CONTINUED)					
1.08) What soil nutrient management records are kept?	***Records of soil tests and tissue analysis reports and quantities of nutrients applied to individual fields*** or blocks ***are maintained.***	Partial nutrient management records are kept. Complete nutrient management records will be kept in the future, for review at time of reverification.	Minimal or no nutrient management records kept.	Three years of records – or five years, if applying manure – or plans to begin keeping records. Soil fertility tests and/or tissue analysis results. Date(s) of application(s). Nutrient composition of fertilizer or other material used. Amount of nutrient-supplying material applied per acre. Method of placement of applied nutrients.	***2014 RTF Nutrient Utilization GAAMPs, Section III: Fertilization Practices for Land Application, Recordkeeping, #13*** RECORDS - Soil fertility tests and/or plant analysis results - Previous crop grown and yield harvested - Date(s) of nutrient application(s) - Nutrient composition of fertilizer or other material used - Amount of nutrient-supplying material applied per acre - Method of application and placement of applied nutrients - The name of the individual responsible for fertilizer applicator calibrating and the dates of calibration - Vegetative growth and cropping history of perennial crops
1.09) When not in use, where are loaded planting and spray supply vehicles (trailers and trucks) parked to protect water resources from accidental fertilizer and pesticide spills and mischievous activities?	Supply vehicle is returned to a secure location when not in use. Fertilizer and pesticides are properly stored more than 150 feet down gradient from any well.		Fertilizer and pesticide (including treated seed) supply vehicle is left in an unsecured location. Or, Fertilizer and pesticides are **stored less than 150 feet from any well.**	Map showing where vehicle(s) should not be parked adjacent to any well. No evidence vehicles left in an unsecured location.	**Public Health Code, Public Act 368 of 1978, Part 127: Water Supply and Sewer Systems**

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NUTRIENT MANAGEMENT PRACTICES					
1.13) How are commercial phosphorus fertilization rates determined?	***Based on soil tests or plant tissue analysis using MSU recommended rates.*** If soil test exceeds 150 ppm Bray P1 (300 lb/A), phosphorus is discontinued.		Phosphorus fertilizer is applied without regard to soil or tissue analysis.	Commercial P management consistent with Nutrient GAAMPs.	MSU Extension Bulletin: E-852, Fertilizing Fruit Crops ***2014 RTF Nutrient GAAMPs, Section III: Fertilization Practices for Land Application, Phosphorus Management Practices, #11a***
NUTRIENT MANAGEMENT PRACTICES - MANURE MANAGEMENT PRACTICES (IF MANURE IS NOT USED , SKIP THIS SECTION.)					
1.14) What manure management records are maintained?	Complete application ***records of manure analysis, soil test results and rates of manure application for individual fields are maintained.***	A minimum of one season of manure application records, or partial application records have been kept. Complete manure application records will be kept immediately and will be available for review at the time of re-verification.	Minimal or no records are maintained.	Additional nutrient management records that are needed if manure is used in the cropping system: - Dates(s) of manure application and incorporation, when applicable - Rate of manure application - Weather conditions during application of manure - Field conditions during application of manure - Manure/wastewater quantities produced and nutrient analysis results - Records of rental or other agreements for application of manure/wastewater on land not owned by the producer - Records of manure/wastewater sold or given away to other landowners	***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, #40*** Additional records required are: - Dates(s) of manure application and incorporation, when applicable - Rate of manure application - Weather conditions during application of manure - Field conditions during application of manure - Manure/wastewater quantities produced and nutrient analysis results - Records of rental or other agreements for application of manure/wastewater on land not owned by the producer - Records of manure/wastewater sold or given away to other landowners

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NUTRIENT MANAGEMENT PRACTICES - MANURE MANAGEMENT PRACTICES (CONTINUED)					
1.15) How is the nutrient content of manure determined?	***Laboratory analysis for percent dry matter (solids), ammonium N, and total N, P and K.***	Book values or standard nutrient content values used.	Manure nutrient content is unknown or not considered.	All manure analysis or book values on file.	***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, Manure Analysis, #31***
1.16) How are desired manure application rates achieved?	Manure analysis (book value, manure test or mass balance) and ***field application rates are known.***		Manure application rate is not known.	Rate of manure applied known for all spreaders. Records indicate date of calibration.	***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, Method of Manure Application, #34***
1.17) How is manure generally applied to fields?	***Manure is incorporated within 48 hours or injected into the soil, and/or conservation practices*** (residue management, perennial crops, cover crops, etc.) ***are used to protect against runoff and erosion losses to surface waters.***	Manure is generally surface applied and conservation practices are employed to reduce the risk of runoff.	Manure is applied in a manner that results in ponding, soil erosion losses, or manure runoff to adjacent property, drainage ditches or **discharges directly to surface water.**	Manure application records.	**NREPA PA 451 of 1994, Part 31: Water Resource Protection Act** ***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, Method of Manure Application, #35***
1.18) How are streams, wetlands, farm ditches and other water bodies protected from manure runoff?	***Manure is incorporated within 48 hours or injected. Or, surface applications are not done within 150 feet of surface water. Or, filter strips, riparian buffer strips, and other conservation practices are maintained between fields and surface waters on the farm and around surface water inlets.***	Conservation practices are maintained on some fields.	Manure is applied within 150 feet of surface waters and not incorporated without conservation practices. And/or manure occasionally reaches neighbor's property.	Field maps with setbacks identified. Records of manure incorporation.	***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, Method of Manure Application, #35***

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NUTRIENT MANAGEMENT PRACTICES - MANURE MANAGEMENT PRACTICES (CONTINUED)					
1.19) How are manure nitrogen application rates managed?	***Manure and N fertilizer are applied at rates that do not exceed the N requirements of the crop*** and are credited toward fertilizer needs.	Manure nitrogen credits are considered but not to their full extent.	Commercial nitrogen is not reduced to account for manure nitrogen credits.	Manure rates do not exceed crop N needs, consistent with GAAMPs.	MSU Extension Bulletin E-852: Fertilizing Fruit Crops ***2014 RTF Nutrient Utilization GAAMPs, Fertilization Practices For Land Application, Nitrogen Management Practices, #10a*** ***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, Manure Nutrient Loadings, #32***
1.20) How are manure phosphorus application rates managed?	***High testing fields (>150 ppm Bray P1) do not receive manure, and fields between 75 and 150 ppm P receive no more than 4 years, crop P removal, if one-year application is impractical.***	High testing fields (>150 ppm Bray P1) removed from spreading plan, but crop removal rates are not followed.	Manure application rates are not based on soil tests and/or crop removal rates.	Manure rates do not exceed crop P needs. If developing a Crop Nutrient Management Plan (CNMP), refer to USDA-NRCS 590 Standard.	***2014 RTF Nutrient Utilization GAAMPs, Section VIII: Land Application of Conditionally-Exempted Organic By-Products, Composted Organic By-Products, and By-Product Liming Materials, #33*** ***2014 RTF Manure Utilization GAAMPs, Section V: Manure Application to Land, Manure Nutrient Loadings, #33***
1.21) How is manure and/or compost <u>temporarily</u> stockpiled in relation to surface water?	***Manure stockpiles are kept at least 150 feet from surface waters or areas subject to flooding unless conservation practices are used to protect against runoff and erosion losses to surface waters.***		Manure stockpiles closer than 150 feet to surface waters or areas subject to flooding, and conservation practices are not used to protect against **runoff and erosion losses to surface waters.**	Appropriate temporary manure stockpiling management demonstrated.	**NREPA PA 451 of 1994, Part 31: Water Resource Protection Act** ***2014 RTF Manure Management and Utilization GAAMPs, Section III: Odor Management, Stacked Solid Manure, #15 (General Guidance)***

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NUTRIENT MANAGEMENT PRACTICES - MANURE MANAGEMENT PRACTICES (CONTINUED)					
1.22) What management practices are used to reduce odors and pests from manure temporarily stockpiled in the field?	***Stockpiled manure is at least 150 feet away from non-farm homes and stockpiled manure is covered with a tarp, straw or other materials or additives are used to reduce odors and pests.***	***Stockpiled manure is at least 150 feet away from non-farm homes.***	Stockpiled manure is closer than 150 feet to non-farm homes.	Appropriate temporary manure stockpiling management demonstrated.	***2014 RTF Manure Management and Utilization GAAMPs, Section III: Odor Management, Stacked Solid Manure, #15 (General Guidance)***
1.23) How long is manure stockpiled in the field?	***Manure is spread as soon as field and weather conditions allow, and does not exceed six months; or twelve months if covered with an impermeable cover.***		Manure stockpiled for more than six months without a cover, or more than twelve months with an impermeable cover.	Appropriate temporary stockpiling management demonstrated.	***2014 RTF Manure Management and Utilization GAAMPs, Section III: Odor Management, Stacked Solid Manure, #15 (General Guidance)***
1.24) How are fields selected for spreading on frozen and snow-covered ground?	No winter applications.	Manure application risks index (MARI) is completed for each field receiving winter manure application. Fields receiving winter manure applications have met MARI criteria for Low or Very Low and ***no liquid manure is applied on slopes greater than 3%, and no solid manure is applied to slopes over 6%.***	Applications are made to fields where runoff to water resources may occur.	MARI completed for each field receiving winter manure application, or spreading plan does not include winter spreading.	NRCS MARI ***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, Timing of Manure Application, #39***
1.25) How are field tiles managed to prevent manure discharge to surface water?	***Liquid manure is prevented from reaching tile lines.*** Management practices are in place to prevent runoff to surface inlets. Tile line outlets are monitored.		Tile outlets are not monitored for manure discharge.	Tiled fields identified on map. Records of tile flow before and after application (flow, rate, color and odor).	***2014 RTF Manure Management and Utilization GAAMPs, Section V: Manure Application to Land, Method of Manure Application, #36***

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NUTRIENT MANAGEMENT PRACTICES – BIOSOLIDS MANAGEMENT PRACTICES (IF BIOSOLIDS ARE NOT USED , SKIP THIS SECTION.)					
1.27) How are biosolids with pathogens prevented from contacting crops grown for human consumption?	Biosolids with pathogens present (Class B biosolids) are applied only to non-bearing trees and plant areas, or harvest restrictions are followed. (Class A biosolids are essentially pathogens free with no restrictions for land application. Class B biosolids have low levels of pathogens and have restrictions and harvest intervals when land applied.)		**Biosolids with pathogens present (Class B biosolids) are applied to active fruit production areas without regard to harvest restrictions.**	Application records kept for Biosolids applications and can be compared with fruit production records.	**Federal Rule 40 CFR, Part 503** **Michigan Part 24, Land Application of Biosolids Rules**
1.28) Has nutrient content information on the biosolids applied to the farm been received?	Received laboratory analysis for percent dry matter (solids), ammonium N (NH4-N), and total N, P and K, and utilize nutrient credits when planning nutrient program.		Have not received any biosolids analysis information.	Biosolids analyses on file.	Michigan Part 24, Land Application of Biosolids Rules
1.29) How are the rates of biosolids (in gallons or dry tons per acre) and applied biosolids nutrients known?	Received actual biosolids application rates from the biosolids generator or its land application contractor. Nutrient rates are consistent with MSU recommendations.		Have not received any biosolids rate or nutrient application information.	Biosolids application rates on file.	Michigan Part 24, Land Application of Biosolids Rules

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SOIL AND WATER CONSERVATION PRACTICES					
2.01) Have environmentally sensitive areas been identified (land near surface water, highly erodible soils, soils with high leaching or runoff potentials, wells, surface drains and inlets) that require additional management when applying nutrients and pesticides?	Environmentally sensitive areas are identified. Family members, employees, and contractors are aware of and understand the management practices to protect these areas.	Some environmentally sensitive areas are identified.	Environmentally sensitive areas are not considered.	Areas identified on field maps with appropriate management or setbacks. -Next to surface waters -Fields with shallow groundwater -Fields with water wells -Areas near surface water inlets -Fields with highly erodible soils -Fields with highly leachable soils -Fields with high runoff potential Training/communications plan to inform workers and contractors of appropriate management or setbacks.	
2.02) Is soil erosion under control on the farm fields?	Soil erosion losses are within tolerances as documented by the revised universal soil loss equation (RUSLE2) and the Wind Erosion Prediction System (WEPS). Minimal evidence of erosion and no evidence of erosion of concentrated water flows. Cover crop may be in place.	RUSLE2 and WEPS are run on fields that are not: In pasture or hay ground, or no-till planting systems. Receiving fall tillage, with >30% residue on less than 12% slopes. Receiving more than one pass fall tillage that leaves fields rough with >40% residue and less than 8% slopes. And regardless of fall tillage, spring tillage leaves > 20% residue. And for all of the above there is no evidence of sheet, rill or gully erosion.	Excessive soil erosion is occurring on the farm.	RUSLE2 and WEPS calculations completed and on file.	NRCS RUSLE2 NRCS WEPS

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PEST MANAGEMENT PRACTICES - PESTICIDE APPLICATION					
3.10) How are surface and groundwater protected in and near fields from pesticide contamination?	Pesticide labels with groundwater and surface water advisory statements are followed.		**Labeled directions are not followed.** Spray is applied adjacent to or over the top of surface water, tile drain inlet or well. Other field restrictions are ignored.	Field maps indicating pesticide label setbacks and other restrictions are followed. Plan identifies sensitive areas and how they are treated. Drift management plan available.	**MDARD Pesticide Regulation 637: Pesticide Use** **Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)**
3.12) Are the purchasers and applicators of restricted-use pesticides (RUP) certified applicators?	***The purchaser and applicator of RUP comply with certification requirements.***		**Non-certified and unsupervised applicators use RUP.**	RUP certification confirmed.	**NREPA PA 451 of 1994, Part 83, Pesticide Control** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices***
3.14) If pesticides are mixed and loaded in the field, how are they handled?	A mixing and loading pad is used. Mixing and loading is done more than 150 feet from any well and more than 50 feet from surface waters.	Mixing and loading is done in different locations in the field, more than 150 feet from a private well, more than 800 feet from a public well and more than 50 feet from surface waters. A mixing and loading pad is not used.	Pesticides are mixed and loaded at the same spot in the field year after year without a pad.	Proper pesticide mixing and loading demonstrated.	MDEQ Water Bureau Criteria for reducing the 800-foot minimum well isolation distance for major sources of contamination without secondary containment

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PEST MANAGEMENT PRACTICES - PESTICIDE APPLICATION (CONTINUED)					
3.15) How are empty pesticide containers rinsed and disposed?	***Containers are triple-rinsed or power rinsed, punctured*** and returned to dealer, properly recycled, or disposed of in a licensed landfill. Bags are returned to dealer or taken to licensed landfill. Properly rinsed containers can be disposed in a dumpster that is taken to a licensed landfill.	**Disposal of empty containers and bags on the farm property.**	**Disposal of partially filled containers. Burning of containers on the farm property.**	Evidence of containers being recycled.	**NREPA PA 451 of 1994, Part 115: Solid Waste Management,** and **Part 55: Air Pollution Control Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Disposal of Pesticide Containers***
3.16) Do pesticide applicators read and follow the label instructions?	***Everyone using pesticides follows label and labeling instructions.***		**Label and labeling instructions are not always followed.**	Evidence that labels are followed.	**Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Pesticide Labels***
3.18) Is a spill kit immediately available to pesticide applicators in the field?	***A spill kit*** containing a shovel, absorbent material, PPE and a container ***is immediately available.***		**No spill kit is available** or no plan is in place to contain spills.	Adequate spill clean-up kit present.	**MDARD Pesticide Regulation 637: Pesticide Use** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Applications and Standards for Use***
3.19) How is excess spray mixture disposed?	***Spray mixture is applied to labeled site at or below labeled rate of application.***		**Spray mixture dumped at farmstead or in nearby field or pond.**	Satisfactory explanation of procedures for excess spray mixtures.	**MDARD Pesticide Regulation 637: Pesticide Use** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Excess Spray Mixtures and Rinsates***

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PEST MANAGEMENT PRACTICES - PESTICIDE APPLICATION (CONTINUED)					
3.20) How is the sprayer system rinsed?	***Sprayer system rinsed on pad or in field. Rinse water applied to labeled site at or below labeled rate of application.***		Sprayer rinsed out at farmstead. **Rinse water dumped at farmstead or in nearby field or pond.**	Satisfactory explanation of procedures for rinsing sprayer system.	**MDARD Pesticide Regulation 637: Pesticide Use** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Excess Spray Mixtures and Rinsates***
3.21) How is the proper and safe operation of pesticide application equipment ensured?	***Equipment is correctly calibrated at least annually and leaks are minimized to apply intended rate and distribution pattern.***		**Pesticide application equipment is not properly calibrated.**	Date of annual equipment calibration recorded.	**MDARD Pesticide Regulation 637: Pesticide Use** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Equipment Use and Calibration***
3.22) How are pesticide applications assured to remain on-target and minimize off-target pesticide spray drift?	***A written drift management plan is utilized that minimizes off-target drift.***	Pesticide applications follow labeled instructions for target pests, but no drift management plan is utilized.	**Spraying operations are completed regardless of weather conditions or forecast, and regardless of the potential of off-target drift.**	Written drift management plan on file.	**MDARD Pesticide Regulation 637: Pesticide Use** ***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Applications and Standards For Use, #2, Pesticide Drift***

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PEST MANAGEMENT PRACTICES - PESTICIDE APPLICATION (CONTINUED)					
3.24) What pesticide application records are kept?	***Accurate records are maintained of all agricultural crop applications of pesticides for at least three years.***	Partial pesticide records are kept. Complete pesticide application records will be kept in the future, for review at the time of reverification.	No pesticide records kept. Chemicals used are known by memory or invoices only.	Pesticide records for the past three years on file (or plans to maintain records). - Date of application - Time of application - Pesticide brand/product name - Pesticide formulation - EPA registration number - Active ingredient(s) - Restricted-entry interval - Rate per acre or unit - Crop, commodity, stored product, or site that received the application - Total amount of pesticide applied - Size of area treated - Applicator's name - Applicator's certification number - Location of the application - Method of application - Target pest - Carrier volume per acre Additional optional records: - Full or alternate-row application - Weather conditions - Pest monitoring records and predictive model timing used - Follow-up evaluation of action taken	***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Record Keeping (See Table)*** USDA Federal Record Keeping Regulations Worker Protection Standards RECORDS: - Date of application - Time of application - Pesticide brand/product name - Pesticide formulation - EPA registration number - Active ingredient(s) - Restricted-entry interval - Rate per acre or unit - Crop, commodity, stored product, or site that received the application - Total amount of pesticide applied - Size of area treated - Applicator's name - Applicator's certification number - Location of the application - Method of application - Target pest - Carrier volume per acre Additional optional records: - Full or alternate-row application - Weather conditions - Pest monitoring records and predictive model timing used - Follow-up evaluation of action taken

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PEST MANAGEMENT PRACTICES - PESTICIDE APPLICATION (CONTINUED)					
3.30) How are agricultural pollution emergencies handled?	Call 911, sheriff, fire or emergency services department for personal safety issues. ***All uncontained spills or releases should be reported to the MDARD Agriculture Pollution Emergency Hotline: 1-800-405-0101***, or the MDEQ Pollution Emergency Alerting System: 1-800-292-4706.		**No contact to state or local authorities. Spill discharges directly to surface water.**	Farm emergency plan on file, or local emergency telephone numbers immediately available.	***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, Agriculture Pollution Emergencies*** **NREPA PA 451 of 1994, Part 31: Water Resource Protection Act**
WATER USE					
4.01) If the groundwater and surface water pumps have a combined capacity to pump more than 100,000 gallons per day (70 gallons per minute) for agricultural purposes, has water use been registered and reported to the State of Michigan?	Pump capacity is less than 100,000 gallons per day (70 gallons per minute). Or, Register and report annual water use to Michigan Department of Agriculture and Rural Development by April 1.		**Pump capacity is greater than 100,000 gallons per day (70 gallons per minute) and water use is not reported to the State of Michigan.**	Farm records indicate compliance.	**NREPA PA 451 of 1994, Part 327: Great Lakes Preservation**

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WATER USE (CONTINUED)					
4.02) Have new or increased large quantity water withdrawals been registered (pumping capacity greater than 70 gpm or 100,000 gallons per day for systems established after July 9, 2009)?	The Water Withdrawal Assessment Tool (WWAT) was used to determine if a proposed withdrawal or expansion is likely to cause an Adverse Resource Impact, and to register the water withdrawal with MDEQ, prior to beginning the withdrawal. The WWAT and registration site is: http://www.miwwat.org/		**Pump capacity is greater than 100,000 gallons per day (70 gallons per minute) and water use is not reported to the State of Michigan.**	Producer's verbal indication of compliance with regulation.	**NREPA 451 of 1994, Part 327: Great Lakes Preservation.**
4.03) Is there an unused well located in the cropping area?	No unused well, or abandoned well properly sealed.	Unused well temporarily abandoned properly: -Meets minimum isolation distances -Is disconnected from any water distribution piping. -Has the top of the casing securely capped.	**Unused, unsealed well in cropping area.**	Unused well(s) properly sealed or temporarily abandoned.	**Public Health Code, Public Act 368 of 1978, Part 127: Water Supply and Sewer Systems**
IRRIGATION MANAGEMENT PRACTICES - SYSTEM MANAGEMENT (IF IRRIGATION IS NOT USED, SKIP THIS SECTION.)					
5.01) Are all sprinkler systems operated to minimize drift and off-target application?	***All sprinkler systems are operated to minimize drift and off-target application.*** No off-target irrigation application present.	Most sprinkler systems operated to minimize drift and off-target application. Few off-target irrigation applications occur.	Sprinkler systems are often operated under windy conditions. Water is sprayed over roads, adjacent property or structures.	No field evidence of off-target applications.	***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, System Management, #4***

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IRRIGATION MANAGEMENT PRACTICES - RECORD KEEPING					
5.03) Are proper irrigation system management records collected and retained for use in decision-making and for reference in case of complaints?	Irrigation system management records are collected and retained, including: ***- Crop type and location.*** ***- Source of the water used.*** ***- Date,*** method ***and amount of each irrigation water application.*** ***- All system inspections and repairs that influence uniformity and leaks.*** ***- Calibration of fertigation and chemigation equipment, if used.*** ***- Records on system uniformity evaluation.***	Most of irrigation system management records are collected and retained. Plan to maintain complete irrigation records.	Few or no irrigation system management records are collected or retained.	Irrigation records on file, or plans to maintain records.	**NREPA PA 451 of 1994, Part 327: Great Lakes Preservation** ***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, Record Keeping, #7-10***
IRRIGATION MANAGEMENT PRACTICES - IRRIGATION SCHEDULING					
5.04) How is irrigation scheduling used to determine when it is necessary to irrigate and how much water should be applied during each irrigation event?	Irrigation water is scheduled on the basis of: ***- Available soil water for each unit scheduled.*** ***- Depth of rooting for each crop irrigated.*** ***- Allowable soil moisture depletion at each stage of crop growth.*** ***- Measured, estimated or published evapotrans-piration data to determine crop water use.*** ***- Measured rainfall in each field irrigated.***	Irrigation water is scheduled on the basis of observed soil moisture content and/or daily water crop usage.	Irrigation water is applied at a set rate per week if no precipitation is received.	Scheduling system evident by records.	***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, Irrigation Scheduling, #11-17***

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IRRIGATION MANAGEMENT PRACTICES - APPLICATION PRACTICES TO AVOID RUNOFF AND LEACHING					
5.05) Is there a rain gauge in every irrigated field?	***Every field is being managed for irrigation has a rain gauge in the field.*** Rain events are observed and used in conjunction with irrigation scheduling.	Most fields have a rain gauge; plan to have gauge in all fields.	No rain gauges OR only one rain gauge at the farmstead.	Rain gauges in all irrigated fields, or plan to maintain in all fields.	***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, Irrigation Scheduling, #17 (General Guidance)***
5.06) Is irrigation water runoff and ponding minimized?	***Sprinkler application rates are below the soil infiltration rate.*** Nutrient leaching is minimized.	Most sprinkler application rates are below the soil infiltration rate. Some runoff and ponding is present.	Sprinkler application rates exceed the soil infiltration rate. Runoff and ponding is commonly visible.	No indication of significant runoff or ponding in irrigated fields.	***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, Application Practices, #20***
5.07) Have all irrigation systems been evaluated for application uniformity?	***All irrigation systems have been evaluated for uniformity.*** Corrections are made to the system to improve uniformity.	Some irrigation systems have been evaluated for uniformity. Remainder of systems scheduled to be evaluated.	Irrigation system uniformity has not been evaluated.	Uniformity tests on file. Schedule for evaluating systems that have not been evaluated.	***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, System Management, #2***

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IRRIGATION MANAGEMENT PRACTICES - APPLICATION PRACTICES TO AVOID RUNOFF AND LEACHING (CONTINUED)					
5.08) How is the amount of irrigation water delivered accurately determined?	***All water applications are accurately determined—*** -by knowing actual flow delivered (GPM) and time of application. -or, by using a flow meter. -or, by average output caught with system evaluation.	Water applications are estimated or based on rates given by the irrigation vendor or installation company.	Water application amounts not determined. Excess application occurs.	Irrigation water delivered by irrigation system is accurately determined.	***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, System Management, #1***
5.10) How far is the fertilizer/pesticide chemigation storage located from surface water (ponds, streams, rivers, drains, etc.)?	***200 feet or greater.***	***Less than 200 feet with appropriate security measures.***	Less than 200 feet.	Appropriate chemigation storage isolation from surface water.	***2014 RTF Pesticide Utilization and Pest Control GAAMPs, Section II: Pesticide Utilization and Pest Control Practices, On Farm Storage and Containment of Pesticides, 1a***

RISK QUESTION	LOW RISK – 3 (RECOMMENDED)	MEDIUM RISK – 2 (POTENTIAL HAZARD)	HIGH RISK – 1 (SIGNIFICANT HAZARD)	RECORDS OR EVIDENCE FOR MAEAP VERIFICATION	REFERENCE OR GUIDANCE DOCUMENT
IRRIGATION MANAGEMENT PRACTICES – WELLHEAD PROTECTION					
5.12) Is the irrigation well adequately protected from contamination from pesticides and fertilizers when fertigation and chemigation is used?	***Anti-backflow device is installed,*** and agricultural chemical/fertilizer storage and preparation areas are at least 150 feet from the well, or at least 150 feet from the well or at least 50 feet from the well with secondary containment.	***Anti-backflow device is installed,*** agricultural chemical/fertilizer storage and preparation areas have secondary containment, but **storage and preparation areas are less than 50 feet from the well.**	**No anti-backflow device,** no secondary containment and **less than 150 feet isolation distance from irrigation well.**	Adequate protection of the well provided.	**Public Health Code, Public Act 368 of 1978, Part 127: Water Supply and Sewer Systems** ***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, Application Practices, #23***
5.13) If the irrigation well is interconnected with a surface water source, is the well protected from backflow (back pressure and back siphonage) from the surface water into the well?	***Anti-backflow device is installed*** that protects the well from back pressure and back siphonage into the well.		**No anti-backflow device installed.**	Anti-backflow device installed.	**Public Health Code, Public Act 368 of 1978, Part 127: Water Supply and Sewer Systems** ***2014 RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, Application Practices, #22***
5.14) How far is the irrigation fuel tank from a storm drain, surface water or designated wetland?	Tank is more than 50 feet away or has some other engineering control present that would control or divert a spill from reaching a storm drain, surface water or designated wetland.		**Tank is 50 feet or less away from surface water** and without an engineering control in place.	Appropriate fuel storage isolation distance from surface water. Engineering control, such as double-walled tank or dike.	**Fire Prevention Code, Public Act 207 of 1941, Section 29.5c**

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IRRIGATION MANAGEMENT PRACTICES – WELLHEAD PROTECTION (CONTINUED)					
5.15) Is a horizontal sock well (HSW) present in the cropping system?	-HSW outlets are clearly identified as not being suitable for human consumption. -HSW is completely separated (no common piping) from any potable water supply system. -HSW meets isolation distance requirements the entire horizontal length of the HSW -Both ends of the HSW are identified.	-HSW outlets are clearly identified as not being suitable for human consumption. -HSW is completely separated (no common piping) from any potable water supply system. -HSW meets isolation distance requirements the entire horizontal length of the HSW, except for chemigation/fertigation systems during active use season that have ***backflow prevention device*** and secondary containment. -Both ends of the HSW are identified	**HSW is being used for human consumption, shares common piping with a potable water supply, does not have both ends clearly identified, or does not meet State of Michigan isolation distances for its entire horizontal length.**	Low or medium risk criteria are present or demonstrated.	**Public Health Code, Public Act 368 of 1978, Part 127: Water Supply and Sewer Systems** and/or **Safe Drinking Water Act, Pubic Act 399 of 1976** ***Current RTF Irrigation Water Use GAAMPs, Section II: Generally Accepted Agricultural and Management Practices for Irrigation Water Use, Application Practices, #22***
OTHER ENVIRONMENTAL RISKS IN THE CROPPING SYSTEM					
6.03) Are there other activities, products, processes/equipment, services, byproducts and/or wastes in the cropping areas that pose contamination risks to groundwater or surface water?	No risk(s) identified.	Risk(s) identified and plan to mitigate the contamination risk(s).	No plan to mitigate contamination risk(s).	No other environmental risks found in cropping areas.	