MISSOURI DEPARTMENT OF NATURAL RESOURCES

WATER PROTECTION PROGRAM

INDUSTRIAL STORMWATER PERMITS

**LAND APPLICATION MANAGMENT PLAN TEMPLATE**

INSTRUCTIONS

This Land Application Management Plan template is a resource to help regulated land application facilities comply with the conditions found in their Missouri State Operating Permit (MSOP). This template may be utilized by facilities permitted under the authorization of a general or site-specific MSOP.

First you should thoroughly read and understand your MSOP prior to completing this template. Each operating permit may have similar requirements, but they are not all the same. You can view all general and site specific permits at <https://dnr-new.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater>.

The land application management plan template is an editable document so you can easily add your facility’s specific information, add additional text or tables, and delete any sections that are not applicable. Some sections of this plan may only require brief information while other sections are more in-depth.

The department has made every effort to develop a template that should meet most of the MSOP minimum requirements. However, it is the permit that establishes the requirements, not the template. Therefore, if the template conflicts with any provision of the permit, the permit requirements prevail.

This template must be kept at the facility and made available to the department upon request, however, it should not be sent to the Department unless specifically requested or required in the permit.

MO 780-2945 (7-21)

**Land Application Management Plan**

Insert Facility Name

Insert Facility Address

Insert Facility City, State, Zip Code

Insert Facility Telephone Number (if applicable)

Missouri State Operating Permit Number

Click or tap here to enter text.

Date Created

\_\_ \_\_ / \_\_ \_\_ / \_\_ \_\_

Date Revised

\_\_ \_\_ / \_\_ \_\_ / \_\_ \_\_

Insert Name of Person who created this document: Click or tap here to enter text.

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# 1.0 INTRODUCTION

## 1.1 Purpose

A Land Application Management Plan is developed, implemented and maintained to help the facility owner(s)/operator(s) organize and maintain all records and requirements of Missouri State Operating Permit # MOG822xxx. Land application practices not covered under the MOG822xxx MSOP may require additional information to be included in the management plan per the MSOP requirements. The plan will give the owner(s)/operator(s) the ability to address all land application rate criteria, best management practices, written procedures for employees, as well as emergency and maintenance information. The plan will provide checklists and guidance documents to fulfill permit requirements. The plan also provides calculations for ensuring loading rates are being achieved.

# 2.0 FACILITY DESCRIPTION

## 2.1 Facility Information

### Facility

Facility Name: Click or tap here to enter text.

Facility Address: Click or tap here to enter text.

City/State/Zip: Click or tap here to enter text.

County: Click or tap here to enter text.

Telephone: Click or tap here to enter text.

Email: Click or tap here to enter text.

Permit number: Click or tap here to enter text.

Primary Industrial Activity SIC Code: Click or tap here to enter text.

Latitude/Longitude Main Entrance: Click or tap here to enter text.

Briefly describe what the facility does, provide a summary of the design of the facility including average daily flows, hourly flows, design application dosage rate or irrigation rates, number and location of land application field design average organic loadings:

Click or tap here to enter text.

## 2.2 Land Application Locational Information

Field Name or Number: Click or tap here to enter text.

Number of Total Acres: Click or tap here to enter text.

Number of Total Acres able to be applied: Click or tap here to enter text.

Latitude: Click or tap here to enter text. Longitude: Click or tap here to enter text.

Name & Address of Property Owner: Click or tap here to enter text.

Receiving Stream: Click or tap here to enter text.

Field Name or Number: Click or tap here to enter text.

Number of Acres: Click or tap here to enter text.

Latitude: Click or tap here to enter text. Longitude: Click or tap here to enter text.

Name & Address of Property Owner: Click or tap here to enter text.

Receiving Stream: Click or tap here to enter text.

Field Name or Number: Click or tap here to enter text.

Number of Acres: Click or tap here to enter text.

Latitude: Click or tap here to enter text. Longitude: Click or tap here to enter text.

Name & Address of Property Owner: Click or tap here to enter text.

Receiving Stream: Click or tap here to enter text.

\*Add additional entries as necessary or attach list under Appendix B

## 2.3 Facility Contact Information

### Facility Owner(s)

Name: Click or tap here to enter text.

Address: Click or tap here to enter text.

City/State/Zip: Click or tap here to enter text.

Telephone: Click or tap here to enter text.

Email: Click or tap here to enter text.

### Facility Operator(s)

Name: Click or tap here to enter text.

Address: Click or tap here to enter text.

City/State/Zip: Click or tap here to enter text.

Telephone: Click or tap here to enter text.

Email: Click or tap here to enter text.

### Primary Contact

Name: Click or tap here to enter text.

Title: Click or tap here to enter text.

Telephone: Click or tap here to enter text.

Email: Click or tap here to enter text.

### Secondary Contact

Name: Click or tap here to enter text.

Title: Click or tap here to enter text.

Telephone: Click or tap here to enter text.

Email: Click or tap here to enter text.

## 2.4 Site Description and Activities

Insert a brief summary of what the facility does:

Click or tap here to enter text.

## 2.5 General Location Map

Appendix B: Includes a map of the facility and a map of each location for all land application sites. The land application site maps shall include details for setback distances.

## 2.6 Land Application Agreements and Template form

Appendix C: Includes a copy of all land application agreements and a template form for the land application agreement.

## 2.7 Land Application Maps

Insert a diagram and map of the system in place at the facility. Showing all lines, pumps and application fields. Please insert these maps in Appendix B.

* Land application field maps must show all property lines, wells, sinkholes, roads, buildings and streams. Please be mindful that setback distance can change per construction and/or operating permit conditions, and all permits should be read carefully to follow your facility’s specific permit.
* Setback Distances for Surface Land Application:
  + - 1. Within 300 feet of a Class W or mitigated wetland
      2. Within 300 feet upstream of streams, lakes or reservoirs, with the designated use of drinking water supply, any public or privately

owned well or other drinking water supply

* + - 1. 100 feet of any classified perennial or intermittent streams or tributaries
      2. 100 feet of any public or privately owned ponds or lakes
      3. 300 feet from sinkholes or other direct conduit to groundwater
      4. 500 feet of an Outstanding State Resource Water or Outstanding National Resource Water
      5. 1,000 feet upstream of streams, lakes or reservoirs identified as critical habitat for endangered species
      6. 1,000 feet upstream of biocriteria reference locations
      7. 150 feet from occupied residence, public building or public use area
      8. 50 feet from property lines, public roads or drainage ditch
* Setback Distances for Subsurface Land Application:

1. 10 feet from the property line

* The map shall include any fixed/permanent application system in place at the facility, including all lines, pumps and application fields, in Appendix B.

# 3.0 Equipment Manufacturer Information

## 3.1 Material Inventory

Include a list of all equipment manufacturers and their contact information. Detail any serial numbers for each piece of equipment. Provide a list of expected troubleshooting and remedies for each piece of equipment and what tools are needed to fix the part (this can typically be found with the manufacturer). Add additional rows as necessary. (You may add an appendix for manuals developed by the manufacturer instead of utilizing the below table).

|  |  |
| --- | --- |
| Name of Equipment: Click or tap here to enter text. | Model #:Click or tap here to enter text. |
| Manufacturer Name: Click or tap here to enter text. | Contact Information (phone number, email, names, etc.): Click or tap here to enter text. |
| Expected troubleshooting for equipment: Click or tap here to enter text. | Tools needed to fix the issue: Click or tap here to enter text. |
| Name of Equipment: Click or tap here to enter text. | Model #:Click or tap here to enter text. |
| Manufacturer Name: Click or tap here to enter text. | Contact Information (phone number, email, names, etc.): Click or tap here to enter text. |
| Expected troubleshooting for equipment: Click or tap here to enter text. | Tools needed to fix the issue: Click or tap here to enter text. |
| Name of Equipment: Click or tap here to enter text. | Model #:Click or tap here to enter text. |
| Manufacturer Name: Click or tap here to enter text. | Contact Information (phone number, email, names, etc.): Click or tap here to enter text. |
| Expected troubleshooting for equipment: Click or tap here to enter text. | Tools needed to fix the issue: Click or tap here to enter text. |

## 3.2 Equipment Repair/Replacement Information

Any type of work or repairs made to the equipment is required to be recorded and retained for a minimum of five years. (Details should include all parts replaced, condition of parts, service dates and date of repair) Please refer to Appendix E for an organizational chart to fulfill this requirement.

## 4.0 Utility and Emergency Response Contact Information

## 4.1 Utility Provider Inventory

List of all the utility providers for the facility and their contact information (example: Water, Sewer, Gas, Telephone lines, Internet, Missouri DIG RITE, etc.).

|  |  |  |
| --- | --- | --- |
| Name of Utility Provider | Telephone # for Utility Provider | Additional contact information for Utility Provider |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

## 4.2 Emergency Response Inventory

List of all Emergency Response Agencies and their contact information (Police Department, Fire Department, etc.)

|  |  |  |
| --- | --- | --- |
| Name of Emergency Response Agency | Telephone # for Agency | Additional contact information for Agency |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

## 4.3 Missouri Department of Natural Resources Emergency Inventory

Missouri Department of Natural Resources 24- hour Emergency Response Hotline 573-634-2436

Missouri Department of Natural Resources Regional Office Information:

Regional Office District: Click or tap here to enter text.

Regional Office Contact Name: Click or tap here to enter text.

Regional Office Phone Number: Click or tap here to enter text.

Regional Office Address: Click or tap here to enter text.

# 5.0 Daily Operations

## 5.1 Summary of Operations

Include a summary of the daily operations of the facility, broken down in detail so that new employees have a clear understanding of how the equipment operates. Refer to Section 5.2 for startup procedures, refer to Section 5.3 for shutting down procedures, refer to Section 4.2 for emergency contacts, refer to Section 6.0 for sampling/monitoring requirements:

Click or tap here to enter text.

## 5.2 Startup Procedures

Summarize briefly how to start up the facility to ensure that all components are correctly turned on and properly set for correct land application to occur. Refer to Appendix D for a checklist of startup procedures and record keeping.

* Detail the procedures for nighttime irrigation
* Operation procedure for the irrigation equipment controls

Click or tap here to enter text.

## 5.3 Shutdown Procedures

Summarize briefly how to properly shut down the equipment including emergency conditions, such as weather or equipment malfunctions:

* Procedure for winterizing the irrigation equipment
* Include necessary step-by-step instructions for shutting down during an emergency

Click or tap here to enter text.

## 5.4 Grazing and Harvesting

Include a list of all fields that would have grazing and harvest deferments, following irrigation, due to pathogen concerns. Grazing deferments are defined as:

1. 14 days from grazing or forage harvesting during the period from May 1- October 31
2. 30 day from grazing or forage harvesting during the period from November 1- April 30

* Click or tap here to enter text.

# 6.0 Permit Requirements

## 6.1 Permit Requirements

A copy of your Missouri State Operating Permit and permit requirements should be included in this plan. Include a list of typical permit requirements and any additional requirements not listed. Insert a copy of your MSOP in Appendix A. You can view a copy of the MSOP at: <https://dnr-new.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater>.

*Example of MOG822 permit requirements:*

* *Facility is required to be signed up and submitting documents via Electronic Discharging Monitoring Reporting (eDMR) System.*
* *Include a map of all land application and subsurface disposal areas.*
* *Permit requires Annual Wastewater Sampling requirements.*
* *Permit requires daily monitoring requirements depending on what type of system the facility has.*
* *Permit has restrictions on loading rates that can be land applied.*
* *Permit does not allow for solids of 0.5 inches in diameter or greater to be land applied.*
* *Land application cannot occur during frozen, snow-covered or saturated conditions.*
* *Sludge cannot be land applied on area used for human consumption or public use areas.*
* *Facility shall develop and implement a Land Application Management Plan.*
* *Facility employees shall be trained on proper land application techniques.*
* *Earthen storage basins shall operate as a no-discharge system and conform to daily monitoring requirements, and berms are to be well maintained.*
* *Subsurface disposal requires a Class V injection well certification.*

Click or tap here to enter text.

## 6.2 Sampling Requirements

Please complete or update the table(s) below based on your specific permit requirements. Remove any tables not necessary or add tables as needed. Additional math calculations along with the below listed ones can be found at: <https://dnr-new.mo.gov/document-search/no-discharge-operator-math>.

Click or tap here to enter text.

*Example for MOG822 MSOP:*

*Annual Sampling Requirements for SIC Codes 20xx*

|  |  |
| --- | --- |
| *Total Kjeldahl Nitrogen (TKN)* | *Monitoring Only* |
| *Total Phosphorus as “P”* | *Monitoring Only* |
| *Total Sodium* | *Monitoring Only* |
| *Total Suspended Solids* | *Monitoring Only* |
| *Total Chloride as CL* | *Monitoring Only* |
| *Oil and Grease* | *Monitoring Only* |
| *pH* | *6.0-9.0* |

*Annual Sampling Requirements for SIC Codes 5812*

|  |  |
| --- | --- |
| *Total Sodium* | *Monitoring Only* |
| *Total Suspended Solids* | *Monitoring Only* |
| *Total Chloride as CL* | *Monitoring Only* |
| *Oil and Grease* | *Monitoring Only* |
| *pH* | *6.0-9.0* |

*Earthen Storage Basin Monitoring Requirements*

|  |  |
| --- | --- |
| *Storage Basin Freeboard* | *Monthly measurement* |
| *Precipitation* | *Daily 24 hour estimate* |

*Irrigation Requirements*

|  |  |
| --- | --- |
| *Irrigation Period* | *Daily total* |
| *Volume Irrigated* | *Daily total* |
| *Application Area in acres* | *Daily total* |
| *Application Rate* | *Daily total* |

*Application Loading Rates*

|  |  |
| --- | --- |
| *Total Kjeldahl Nitrogen* | *150 lbs/acre/year* |
| *Oil and Grease* | *1000 lbs/acre/year* |
| *pH* | *6.0-9.0* |

## 6.3 Calculations for Loading Rates

Calculations for configuring land application loading rates per acre shall not exceed 0.2 inches/hour; 0.5 inches per day; 1.0 inches per week; and 24 inches per year.

* One inch of land-applied waste water per acre is equivalent to 27,154 gallons.
* 0.2 inches per hour x 27,154 gallons = 5,430.8 gallons per acre per one hour
* 0.5 inches per day x 27,154 gallons per acre = 13,577 gallons per day per acre

**EXAMPLE:** *How many total gallons can I land apply on one acre in a calendar year?*

Maximum application rate= 24 inches/acre/year

One inch/acre= 27,154 gallons

27,154 gallons/acre/year x 24 inches/acre= 651,696 total gallons/acre/year

**EXAMPLE:** *Calculate the Oil & Grease loading rates for a land application event.*

Sample result for Oil & Grease= 5.0 mg/L

1mg/L = 0.0000083 lbs

If the sample result for Oil & Grease is 5.0 mg/L, to calculate pounds use the following equation:

5.0 mg/L x 0.0000083 lbs = 0.0000415 lbs

* If you land applied 100,000 gallons over 20 acres:
  + Multiply 0.0000415 lbs x 100,000 gals = 4.15 lbs.
  + Then take the 4.15 lbs and divide by the number of acres
  + 4.15 lbs divided by 20 acres = 0.2073 lbs/acre

# 7.0 Sampling Procedures

## 7.1 Sampling Procedures

Insert a brief summary of sampling procedures including how to collect and ship wastewater samples for analysis and contact information for the laboratory. If the facility performs its own sampling Quality Assurance/Quality Control (QA/QC), records shall be kept on-site and all documents retained for a minimum of five years. Refer to Appendix F which includes an organizational chart for maintaining record-keeping of QAQC.

Click or tap here to enter text.

# 8.0 Occupational Safety and Health Administration (OSHA) Requirements

## 8.1 OSHA Requirements

Insert a brief summary of all Occupational Safety and Health Administration (OSHA) requirements for the facility. Place any supporting documents in Appendix Q:

Click or tap here to enter text.

# 9.0 l Safety Data Sheets (SDS)

## 9.1 SDS Requirements

Insert a copy of all Safety Data Sheets for all chemicals stored or utilized on-site. SDSs should be obtained from the manufacturer of the products used. Contact your provider if needed. Please read the SDS for appropriate dosage rates for each chemical, what the chemical is used for, and what the spill response would be for each chemical. Place copies of all SDS in Appendix P.

# 10.0 Employee Training

## 10.1 Training Requirements

Your MSOP requires a provision for providing training to all personnel involved in the material handling, material storage and land application processes. Proof of training must be made available to the department upon request. A training log template is retained in Appendix G of this plan.

# 11.0 Land Application Management Plan Revisions

## 11.1 Revision Requirements

If any changes are made to this plan they are to be logged and kept within the plan. The changes need to be detailed, including the date the change was made, reason for the change and who made the change. Refer to Appendix H for a log to organize the revisions. Addition of land application fields will also require department’s approval and a geohydrologic evaluation.

# 12.0 Inspections

## 12.1 Introduction

The Land Application Management Plan and Missouri State Operating Permit require several different types of inspections on different components of the facility. Refer to your MSOP as not every permit is identical.

## 12.2 Equipment Overview: daily, weekly and monthly requirements

A schedule must be developed and implemented for checking and observing all pump chambers, pumps, valves, floats, motors, control panels, switches, all pipelines, alarms, center pivots, traveling guns, sprinkler heads of any kind, oil and water separators, grease interceptors, and Supervisory Control and Data Acquisition (SCADA) systems that meets any daily, weekly and/or monthly requirements. Multiple parts of this section may be applicable to facilities, as to all equipment within the treatment process needs to be checked. Refer to Appendix I for maintaining these records.

## 12.3 Pump Requirements

A schedule must be developed and implemented for checking all pump speeds, suction and discharge pressures. This is to be recorded on a monthly basis and retained for five years. Refer to Appendix J for maintaining these records.

## 12.4 Calculation Requirements

A summary of calculation changes to the system must be recorded. Detail any calculations used to adjust dosage and irrigation rates, date it was adjusted, who adjusted it and why it was adjusted. Refer to Appendix K for maintaining these records.

## 12.5 Septic Tank Requirements

A schedule must be developed and implemented for inspecting all septic tanks located at a fixed facility. A record of all maintenance on the septic tanks is to be recorded. Detail when solids were removed, location of final disposal, and if any maintenance or repairs were made. Refer to Appendix L for maintaining these records.

## 12.6 Observation Requirements

A schedule must be developed and implemented for observing the land application fields during irrigation. Detail the name of the inspector, date inspection occurred, weather conditions, soil conditions, any setback requirements, property fencing, warning signs, whether or not equipment is functioning correctly, if any repairs were made, and the date repairs were completed. Refer to Appendix M for maintaining these records.

## 12.7 For Lagoon System Requirements

A schedule must be developed and implemented for observing the physical components of the facility that meet any daily, weekly and/or monthly requirements of this plan and permit conditions. (*Example: looking for floating solids, scum, foul odors, signs of the lagoon going septic and signs of rodent damage to lagoon berms).* Refer to Appendix N for maintaining these records. For more information about no-discharge lagoon system please refer to: <https://dnr-new.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater/no-discharge-treatment>.

* Monthly freeboard readings are required. Ensure you have a good measurement board that makes it easy to read and it is set in the correct location.
* Daily rainfall records are required.
* Develop a routine schedule for mowing the berms to keep free from woody vegetation, keeping the cattails and duckweed out of the lagoon.
* Keep records of any sludge removal or maintenance performed on the lagoon.

## 12.8 Subsurface Soil Dispersion Requirements

A schedule must be developed and implemented for observing physical and mechanical components of the facility that meet any daily, weekly and/or monthly requirements of this plan and permit conditions. Refer to Appendix O for maintaining these records.

* Develop a routine schedule for mowing the drip field.
* Develop a list of equipment that cannot be used on the drip field.
* Observe physical components of the drip field to ensure there are no failures and vegetation is growing uniformly over the field.
* Check equipment and keep records of any repairs made to the system.
* Include details of the loading rates for the drip field and what vegetation/crops can be grown in the drip field.
* Summarize of any erosion repairs.

Facility must register as a Class V Injection Well with the Missouri Geological Survey Program. Their contact phone number is 573-368-2100. The registration form can be found at: <https://dnr-new.mo.gov/document-search/class-v-well-inventory-form-mo-780-1774>.

# APPENDIX A- MISSOURI STATE OPERATING PERMIT

*See Section 6.1 – Includes a copy of your facility’s Missouri State Operating Permit (MSOP)*

# APPENDIX B- FACILITY GENERAL LOCATION MAP

*See Section 2.5* - *Insert a map of the facility and map(s) of all land application sites, detailing setback distances, showing all above and below ground lines, application equipment, and pump locations.*

# APPENDIX C- LAND APPLICATION AGREEMENT FORM

*See Section 2.6 - Insert a copy of all land application agreements. Below is a template form for the land application agreements.*

**Land Application Agreement**

I, the landowner, agree Click or tap here to enter text to accept *(type of material)\_\_\_\_\_\_\_\_* from *(facility name) ,* to be spread on *(number)* acres, of my land. The land is located at *(enter address) ,* and in *(Name of)* County.

The *(facility name)* operates under Missouri State Operating Permit *(Number) .*

The landowner will be provided with a receipt/documentation of each land application that occurs on their property, detailing the date of land application, total gallons applied and the type of material that was land applied.

Landowner Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Permit Holder Signaure\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name, Address, and Telephone of land owner:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# APPENDIX D- START UP RECORD KEEPING

*See Section 5.2 -* *A checklist for startup procedure record-keeping*:

|  |  |
| --- | --- |
| Date: | Signature: |
| Detail what changes were made to startup  procedures: | Reason for Change: |
| Issues that occurred during startup procedures: | |
| Date: | Signature: |
| Detail what changes were made to startup procedures: | Reason for Change: |
| Issues that occurred during startup procedures: | |
| Date: | Signature: |
| Detail what changes were made to startup procedures: | Reason for Change: |
| Issues that occurred during startup procedures: | |
| Date: | Signature: |
| Detail what changes were made to startup procedures: | Reason for Change: |
| Issues that occurred during startup procedures: | |
| Date: | Signature: |
| Detail what changes were made to startup procedures: | Reason for Change: |
| Issues that occurred during startup procedures: | |

# APPENDIX E- EQUIPMENT REPAIR REQUIREMENTS

*See Section 3.2 - An organizational chart to fulfill equipment repair requirements*:

|  |  |
| --- | --- |
| Date: | Signature: |
| Work/Repair made on equipment detailing condition of part(s): | |
| Additional Information: | |
| Date: | Signature: |
| Work/Repair made on equipment detailing condition of part(s): | |
| Additional Information: | |
| Date: | Signature: |
| Work/Repair made on equipment detailing condition of part(s): | |
| Additional Information: | |
| Date: | Signature: |
| Work/Repair made on equipment detailing condition of part(s): | |
| Additional Information: |  |
| Date: | Signature: |
| Work/Repair made on equipment detailing condition of part(s): | |
| Additional Information: | |
| Date: | Signature: |
| Work/Repair made on equipment detailing condition of part(s): | |
| Additional Information: | |

# APPENDIX F- QAQC REQUIRMENTS

*See Section 7.1*- *An organizational chart to fulfill QAQC requirements:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date: | | Signature: | | | |
| Equipment Type (pH, DO): | | Serial #: | | | |
| Lot # for Reagent: | Expiration Date for Reagent: | | Reagent # | | |
|  |  |  |
| Meter Reading: | | |  |  |  |
| Pass/Fail: | | | | | |
| Temperature Reading for Meter: | | Pass/Fail: | | | |
| Temperature Reading for Certified: | | Pass/Fail: | | | |
| Notes: | | | | | |
| Date: | | Signature: | | | |
| Equipment Type (pH, DO): | | Serial #: | | | |
| Lot # for Reagent: | Expiration Date for Reagent: | | Reagent # | | |
|  |  |  |
| Meter Reading: | | |  |  |  |
| Pass/Fail: | | | | | |
| Temperature Reading for Meter: | | Pass/Fail: | | | |
| Temperature Reading for Certified: | | Pass/Fail: | | | |
| Notes: | | | | | |
| Date: | | Signature: | | | |
| Equipment Type (pH, DO): | | Serial #: | | | |
| Lot # for Reagent: | Expiration Date for Reagent: | | Reagent # | | |
|  |  |  |
| Meter Reading: | | |  |  |  |
| Pass/Fail: | | | | | |
| Temperature Reading for Meter: | | Pass/Fail: | | | |
| Temperature Reading for Certified: | | Pass/Fail: | | | |
| Notes: | | | | | |
| Date: | | Signature: | | | |
| Equipment Type (pH, DO): | | Serial #: | | | |
| Lot # for Reagent: | Expiration Date for Reagent: | | Reagent # | | |
|  |  |  |
| Meter Reading: | | |  |  |  |
| Pass/Fail: | | | | | |
| Temperature Reading for Meter: | | Pass/Fail: | | | |
| Temperature Reading for Certified: | | Pass/Fail: | | | |
| Notes: | | | | | |

# APPENDIX G- TRAINING LOG

*See Section 10.1 -* *A training log template to fulfill permit requirement record-keeping.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Topic Reviewed | Employee Name | Employee Signature | Management Signature |
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# APPENDIX H- LAND APPLICATION MANAGEMENT PLAN REVISIONS

*See Section 11.1 – A record must be made of any and all revisions made to the land application management plan.*

|  |  |
| --- | --- |
| Date: | Signature: |
| Detail changes made to the plan: | |
| Reason for the changes to the plan: | |
| Date: | Signature: |
| Detail changes made to the plan: | |
| Reason for the changes to the plan: | |
| Date: | Signature: |
| Detail changes made to the plan: | |
| Reason for the changes to the plan: | |
| Date: | Signature: |
| Detail changes made to the plan: | |
| Reason for the changes to the plan: | |
| Date: | Signature: |
| Detail changes made to the plan: | |
| Reason for the changes to the plan: | |
| Date: | Signature: |
| Detail changes made to the plan: | |
| Reason for the changes to the plan: | |

# APPENDIX I- EQUIMENT INSPECTIONS

*See Section 12.2- A checklist for equipment inspections*

|  |  |  |  |
| --- | --- | --- | --- |
| Date: | | Signature | |
| Pump Chambers:  Notes: | Condition: Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| All pumps:  Notes( name/#/all): | Condition:  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Main Valves:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Floats:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Motors:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Control Panels:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Main Switches:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Aboveground Pipelines:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Belowground Pipelines:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| All alarms:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| SORA Systems:  Notes (name/#/all): | Condition  Good/Bad? | Repairs Made: Y/N? Reason for repair: | Date Repair was completed: |
| Weather conditions: wet/dry | |  |  |
| Soil conditions: wet/dry | |  |  |
| Irrigated setback distances being met? Y/N Detail corrections made: | | | |
| Irrigation equipment functioning correctly? Y/N Detail condition of equipment:  Detail if repairs were made and on what piece:  Date repairs were completed: | | | |

# APPENDIX J- PUMP INSPECIONS

*See Section 12.3- A checklist for pump speeds and suction rates*

|  |  |
| --- | --- |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Date: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |
| Date: | Signature: |
| Pump name/number: | |
| Pump rate: | Suction Pressure: |
| Pump Speed: | Discharge Pressure: |

# APPENDIX K- CALCULATION CHANGES

*See Section 12.4 -* *A record-keeping log for calculation changes*

|  |  |
| --- | --- |
| Date: | Signature: |
| Name/# of equipment calculation was changed at | |
| Calculation used for adjustment: | Why was the calculation adjusted: |
| Date: | Signature: |
| Name/# of equipment calculation was changed at |
| Calculation used for adjustment: | Why was the calculation adjusted: |
| Date: | Signature: |
| Name/# of equipment calculation was changed at |
| Calculation used for adjustment: | Why was the calculation adjusted: |
| Date: | Signature: |
| Name/# of equipment calculation was changed at |
| Calculation used for adjustment: | Why was the calculation adjusted: |
| Date: | Signature: |
| Name/# of equipment calculation was changed at |
| Calculation used for adjustment: | Why was the calculation adjusted: |
| Date: | Signature: |
| Name/# of equipment calculation was changed at |
| Calculation used for adjustment: | Why was the calculation adjusted: |
| Date: | Signature: |
| Name/# of equipment calculation was changed at |
| Calculation used for adjustment: | Why was the calculation adjusted: |
| Date: | Signature: |
| Name/# of equipment calculation was changed at |
| Calculation used for adjustment: | Why was the calculation adjusted: |

# APPENDIX L- SEPTIC TANK INSPECTIONS

*See Section 12.5 -* *A checklist for inspection for septic tanks.*

|  |  |
| --- | --- |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |
| Date: | Signature: |
| Repairs made Y/N? | What repairs were made: |
| Records of sludge removal Y/N | |

# APPENDIX M- LAND APPLICATION INSPECTIONS

*See Section 12.6 -* *A checklist for observing land application fields.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Month: | | | | | | Signature: | |
| Day | Irrigation hours per day | Application Rate  Inches/hour/acre | Volume irrigated  Gallons/day | | | | Application  Acres  total |
| 1 |  |  |  | | | |  |
| 2 |  |  |  | | | |  |
| 3 |  |  |  | | | |  |
| 4 |  |  |  | | | |  |
| 5 |  |  |  | | | |  |
| 6 |  |  |  | | | |  |
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| 31 |  |  |  | | | |  |
| Observations of the land application field during irrigation: | | | | | | | |
| Weather Conditions: Wet/Dry | | | | Soil conditions Wet/Dry | | | |
| Setback distances met Y/N? Detail corrections: | | | | | | | |
| Observations of the irrigation equipment during irrigation: Corrections made? | | | | | | | |
| Soil conditions Wet/Dry | | | | |

# APPENDIX N- LAGOON INSPECTIONS

*See Section 12.7 -* *A checklist for Lagoon Systems*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Month: | | | | | | |
| Signature: | | | | | | |
| Day | Monthly Freeboard Measurement in feet | Daily Precipitation in inches | Berms Mowed  Yes/No | Sludge Removed  Yes/No | Woody Vegetation  Yes/No | Rodent  Damage  Yes/No |
| 1 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |
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| Observations of physical components of the system (no scum, floating solids, foul odors, no signs of going septic) Also include details on woody vegetation and rodent removal: | | | | | | |

# APPENDIX O- SUBSURFACE INSPECTIONS

*See Section 12.8 -* A *checklist for Subsurface Systems*

|  |  |
| --- | --- |
| Date: | Signature: |
| Observations of the Drip field (no signs of lateral failure and good vegetation growth: | |
| Drip field mowed and no woody vegetation Y/N? | |
| Mechanical components functioning correctly Y/N? Corrections made?: | |
| Loading calculations correct Y/N? | |
| Current crop on the Drip Field: | |
| Erosion Concerns Y/N? Corrections made: | |
| Date: | Signature: |
| Observations of the Drip field (no signs of lateral failure and good vegetation growth: | |
| Drip field mowed and no woody vegetation Y/N? | |
| Mechanical components functioning correctly Y/N? Corrections made?: | |
| Loading calculations correct Y/N? | |
| Current crop on the Drip Field: | |
| Erosion Concerns Y/N? Corrections made: | |
| Date: | Signature: |
| Observations of the Drip field (no signs of lateral failure and good vegetation growth: | |
| Drip field mowed and no woody vegetation Y/N? | |
| Mechanical components functioning correctly Y/N? Corrections made?: | |
| Loading calculations correct Y/N? | |
| Current crop on the Drip Field: | |
| Erosion Concerns Y/N? Corrections made: | |
| Date: | Signature: |
| Observations of the Drip field (no signs of lateral failure and good vegetation growth: | |
| Drip field mowed and no woody vegetation Y/N? | |
| Mechanical components functioning correctly Y/N? Corrections made?: | |
| Loading calculations correct Y/N? | |
| Current crop on the Drip Field: | |
| Erosion Concerns Y/N? Corrections made: | |

# APPENDIX P- SDS DOCUMENTATION

*See Section 9.0*- *Insert SDS sheets*

# APPENDIX Q- OSHA DOCUMENTS

*See Section 8.1 for details about OSHA Requirements. Please insert any supporting documents required by OSHA.*