

# BMP Inspection/Maintenance Procedures

## Denitrification with Conventional In Situ

### Included Practices:

50% Denitrification Units with Conventional In Situ

### BMP Definition:

Two Chamber aerobic treatment unit that uses nitrification and denitrification or recirculating media filter beds to treat wastewater followed by further filtering of effluent in drain fields.

### BMP Key Elements:

**Aeration Chamber-** Main compartment where air is mixed with wastewater to create nitrogen fixing bacteria.

**Air Blower-** Compressor that forces air into the aeration chamber.

**Baffles-** Structures made of plastic or metal placed around inlets/outlets to direct, dissipate, or draw in flow.

**Control Box-** Houses operating controls and sensors for system.

**Distribution System-** System of perforated pipes that dose out effluent to infiltration system.

**Effluent Screen -** Screen on outlet pipe.

**Infiltration System-** Drain field where effluent is filtered through soil.

**Inspection Pipes-** Pipe used to monitor wastewater levels and other tank components. Not to be used for maintenance.

**Pump-** Mechanical devices that move wastewater through system.

**Risers-** Watertight structure made of concrete or PVC located over inlets/outlets to provide access to manholes for inspection and maintenance.

**Septic Tank-** Watertight tank used to partially treat and separate wastewater.

**Settling Chamber-** Secondary chamber where sludge can be settled out and then reticulated through system

**Vents-** Vents from septic tanks that prevent the buildup of gases.

# BMP Inspection/Maintenance Procedures

## Denitrification with Conventional In Situ

### Inspection Procedures:

- Check area for woody vegetation.
- Check effluent screen for buildup.
- Check for odors around system.
- Check mechanical components and controls for malfunctions.
- Check that baffles, ladders, brackets, etc. are secured and not damaged.
- Check that covers on risers, manholes, and inspection pipes are closed, locked, and not damaged.
- Check that distribution system is in good working order.
- Check water levels in tanks; abnormal levels indicate leaks or clogs.
- Monitor alarms.
- Monitor sludge and scum levels in tanks and chambers.
- Test pH level.

### Maintenance Procedures:

- If pH is out of range, chemicals used within house could be affecting tank function.
- Maintain mechanical components and controls.
- Plug outlet in tank, remove and clean effluent screen making sure dirty material falls into tank.
- Pump tanks and chambers every 3-5 years.
- Remove woody vegetation that could damage system.
- Repair interior tank features and seal cracks when tank is empty.
- Repair or replace ladders, bracket, and other components.
- Repair, close, and lock risers, manholes, and inspection pipe covers.
- Drain and clean pipes in distribution system at least annually.

# BMP Inspection/Maintenance Procedures

## Denitrification with Enhanced In Situ

### Included Practices:

50% Denitrification with Enhanced In Situ

### BMP Definition:

Two Chamber aerobic treatment unit that use nitrification and denitrification or recirculating media filter bed to treat wastewater followed by further filtering of effluent in shallow-placed pressure dispersal or elevated sand mounds. .

### BMP Key Elements:

**Aeration Chamber-** Main compartment where air is mixed with wastewater to create nitrogen fixing bacteria.

**Air Blower-** Compressor that forces air into the aeration chamber.

**Baffles-** Structures made of plastic or metal placed around inlets/outlets in tanks to direct, dissipate, or draw in flow.

**Control Box-** Houses operating controls and sensors for system.

**Effluent Screen -** Screen on outlet pipe.

**Inlet-** Slotted pipeline for effluent to distribute through submerged wetland.

**Inspection Pipes-** Pipe used to monitor wastewater levels and other tank components. Not to be used for maintenance.

**Pump-** Mechanical device that moves wastewater through system.

**Risers-** Watertight structure made of concrete or PVC located over inlets/outlets to provide access to manholes for inspection and maintenance.

**Septic Tank-** Watertight tank used to partially treat and separate wastewater.

**Settling Chamber-** Secondary chamber where sludge can be settled out and then reticulated through system.

**Vegetation-** Vegetation adapted to site that provides extra filtration for effluent.

**Vents-** Vents from septic tanks that prevent the buildup of gases.

# BMP Inspection/Maintenance Procedures

## Denitrification with Enhanced In Situ

### Inspection Procedures:

- Check area for woody vegetation.
- Check effluent screen for buildup.
- Check for dead and invasive plants.
- Check for odors around system.
- Check for rodent damage and erosion.
- Check inlets of submerged wetland for clogs and blockage.
- Check mechanical components and controls for malfunctions.
- Check submerged wetlands' screens and beds for clogging.
- Check that baffles, ladders, brackets, etc. are secured and not damaged.
- Check that covers on risers, manholes, and inspection pipes are closed, locked, and not damaged.
- Check that distribution system is in good working order.
- Check water levels in tanks; abnormal levels indicate leaks or clogs.
- Monitor alarms.
- Monitor sludge and scum levels in tanks and chambers.
- Test pH level.

### Maintenance Procedures:

- Drain and clean pipes in distribution system at least annually.
- If pH is out of range, chemicals used within house could be affecting tank function.
- Maintain mechanical components and controls.
- Plug outlet in tank, remove and clean effluent screen making sure dirty material falls into tank.
- Pump tanks and chambers every 3-5 years.
- Remove and replace dead and invasive plants.
- Remove clogged stones from bed and clear screens in submerged wetland.
- Remove rodents. Fill damaged and eroded spots.
- Remove woody vegetation that could damage system.
- Repair interior tank features and seal cracks when tank is empty.
- Repair or replace ladders, bracket, and other components.
- Repair, close, and lock risers, manholes, and inspection pipe covers.

# BMP Inspection/Maintenance Procedures

## Secondary Treatment with Conventional In Situ

### Included Practices:

Secondary Treatment with Conventional In Situ

### BMP Definition:

Single pass packed media bed filters, constructed wetlands, or certified NSF40 Class I systems that provide additional treatment to effluent before being passed to drain field.

### BMP Key Elements:

**Baffles-** Structures made of plastic or metal placed around inlets/outlets in tanks to direct, dissipate, or draw in flow.

**Control Box-** Houses operating controls and sensors for system.

**Distribution System-** System of perforated pipes that dose out effluent to filter bed or infiltration system.

**Effluent Screen -** Screen on outlet pipe.

**Filter Bed-** Lined structure packed with a media such as sand or gravel that provides extra filtration for effluent. (Features underdrain)

**Flow Splitter-** Device such as ball float valve in recirculation tank that open and close valves to deliver and receive wastewater from other parts of the system.

**Infiltration System-** Drain field where effluent can be filtered through soil.

**Inspection Pipes-** Pipe used to monitor wastewater levels and other tank components. Not to be used for maintenance.

**Pump-** Mechanical device that moves wastewater through system includes recirculation pump.

**Risers-** Watertight structure made of concrete or PVC located over inlets/outlets to provide access to manholes for inspection and maintenance.

**Septic Tank-** Watertight tank used to partially treat and separate wastewater.

**Vents-** Vents from septic tanks that prevent the buildup of gases.

# BMP Inspection/Maintenance Procedures

## Secondary Treatment with Conventional In Situ

### Inspection Procedures:

- Check area for woody vegetation.
- Check effluent screen for buildup.
- Check filter for surface ponding.
- Check for odors around system.
- Check for vegetation on filter surface.
- Check mechanical components and controls for malfunctions.
- Check that baffles, ladders, brackets, etc. are secured and not damaged.
- Check that covers on risers, inspection pipes, and manholes are closed, locked, and not damaged.
- Check that distribution system is in good working order.
- Check water levels in tanks; abnormal levels indicate leaks or clogs.
- Monitor alarms.
- Monitor flow rate through media filters.
- Monitor sludge and scum levels in tanks.
- Test pH level.

### Maintenance Procedures:

- Adjust flow rates
- If pH is out of range, chemicals used within house could be affecting tank function.
- Maintain mechanical components and controls.
- Plug outlet in tank, remove and clean effluent screen making sure dirty material falls into tank.
- Pump tanks every 3-5 years.
- Remove woody vegetation that could damage system.
- Repair interior tank features and seal cracks when tank is empty.
- Repair or replace ladders, bracket, and other components.
- Repair, close, and lock riser, inspection pipe, and manhole covers.
- Recalibrate dosing pump at least annually.
- Rake filter surface and remove vegetation.
- If ponding persists, top layer or entire filter surface will need to be replaced.
- Drain and clean pipes in distribution system at least annually.
- Adjust dose timers.
- Direct wastewater to standby cells if operating cells need rest or ponding in drain field last more than a month.

# BMP Inspection/Maintenance Procedures

## Secondary Treatment with Enhanced In Situ

### Included Practices:

Secondary Treatment with Enhanced In Situ

### BMP Definition:

Effluent flows through single pass filter beds, constructed wetlands, or certified NSF40 Class I or equivalent system to provide additional treatment before being passed to a shallow-placed pressure dispersal system or an elevated sand mound.

### BMP Key Elements:

**Baffles-** Structures made of plastic or metal placed around inlets/outlets in tanks used to direct, dissipate, or draw in flow.

**Control Box-** Houses operating controls and sensors for system.

**Distribution System-** System of perforated pipes that dose out effluent to filter bed.

**Effluent Screen -** Screen on outlet pipe.

**Filter Bed-** Lined structure packed with a media such as sand or gravel that provides extra filtration for effluent. (Features underdrain)

**Flow Splitter-** Device such as ball float valve in recirculation tank that open and close valves to deliver and receive wastewater from other parts of the system.

**Inlet-** Slotted pipeline for effluent to distribute trough submerged wetland.

**Inspection Pipes-** Pipe used to monitor wastewater levels and other tank components. Not to be used for maintenance.

**Pump-** Mechanical device that moves wastewater through system.

**Recirculation Tank-** Holds effluent until it is reticulated through filter bed.

**Risers-** Watertight structure made of concrete or PVC located over inlets/outlets to provide access to manholes for inspection and maintenance.

**Septic Tank-** Watertight tank used to partially treat and separate wastewater.

**Vegetation-** Vegetation adapted to site that provides extra filtration for effluent.

**Vents-** Vents from septic tanks that prevent the buildup of gases.

# BMP Inspection/Maintenance Procedures

## Secondary Treatment with Enhanced In Situ

### Inspection Procedures:

- Check area for woody vegetation.
- Check effluent screen for buildup.
- Check filter surface for ponding.
- Check for dead and invasive plants.
- Check for odors around system.
- Check for rodent damage and erosion.
- Check for vegetation on filter surface.
- Check inlets of submerged wetland for clogs and blockage.
- Check mechanical components and controls for malfunctions.
- Check submerged wetlands' screens and beds for clogging.
- Check that baffles, ladders, brackets, etc. are secured and not damaged.
- Check that covers on risers, inspection pipes, and manholes are closed, locked, and not damaged.
- Check that distribution system is in good working order.
- Check water levels in tanks; abnormal levels indicate leaks or clogs.
- Monitor alarms.
- Monitor flow rate through media filters.
- Monitor sludge and scum levels in tanks.
- Test pH level.

### Maintenance Procedures:

- Adjust dose timers.
- Adjust flow rates
- Drain and clean pipes in distribution system at least annually.
- If pH is out of range, chemicals used within house could be affecting tank function.
- If ponding persists, top layer or entire filter surface will need to be replaced.
- Maintain mechanical components and controls.
- Plug outlet in tank, remove and clean effluent screen making sure dirty material falls into tank.
- Pump tanks every 3-5 years.
- Rake filter surface and remove vegetation.
- Recalibrate dosing pump at least annually.
- Remove and replace dead and invasive plants.
- Remove clogged stones from bed and clear screens in submerged wetland.
- Remove rodents. Fill damaged and eroded spots.
- Remove woody vegetation that could damage system.
- Repair interior tank features and seal cracks when tank is empty.
- Repair or replace ladders, bracket, and other components.
- Repair, close, and lock riser, inspection pipes, and manhole covers.

# BMP Inspection/Maintenance Procedures

## Septic Effluent

### Included Practices:

Septic Effluent with Enhanced In Situ

### BMP Definition:

Septic effluent that is passed through shallow-placed pressure dispersal system or an elevated sand mound.

### BMP Key Elements:

**Baffles-** Structures made of plastic or metal placed around inlets/outlets to direct, dissipate, or draw in flow.

**Chlorinator-** Small tank where wastewater flows around feed tubs holding chlorine tablets.

**Control Box-** Houses operating controls and sensors for system.

**Effluent Screen -** Screen on outlet pipe.

**Inlet-** Slotted pipeline for effluent to distribute through submerged wetland.

**Inspection Pipes-** Pipe used to monitor wastewater levels and other tank components. Not to be used for maintenance.

**Pumps-** Mechanical devices used to move wastewater through the system.

**Risers-** Watertight structure made of concrete or PVC located over inlets/outlets to provide access to manholes for inspection and maintenance.

**Septic Tank-** Watertight tank used to partially treat and separate wastewater.

**UV Lamp-** Long cylindrical UV lamp in quartz sleeve fitted in pipe that allows proper exposure time of effluent to UV rays.

**Vegetation-** Vegetation adapted for site that provides extra filtration for effluent.

**Vents-** Vents from septic tanks that prevent the buildup of gases.

# BMP Inspection/Maintenance Procedures

## Septic Effluent

### Inspection Procedures:

- Check area for woody vegetation.
- Check effluent screen for buildup.
- Check flow rates of chlorinator.
- Check for dead and invasive plants.
- Check for odors around system.
- Check for rodent damage and erosion.
- Check inlets of submerged wetland for clogs and blockage.
- Check mechanical components and controls for malfunctions.
- Check submerged wetlands' screens and beds for clogging.
- Check chlorine tablet levels and for caking in feed tubes.
- Check that baffles, ladders, brackets, etc. are secured and not damaged.
- Check that covers on risers, manholes, and inspection pipes are closed, locked, and not damaged.
- Check that UV lamps and sleeves are working and clean.
- Check water levels in tanks; abnormal levels indicate leaks or clogs.
- Monitor alarms.
- Monitor sludge and scum levels in tanks.
- Monitor UV intensity.
- Test pH level.

### Maintenance Procedures:

- Add chlorine tablets to feed tubes and clear buildup.
- Adjust flow rates and UV intensity.
- Clean and/or replace UV lamps and sleeves.
- Clear inlets/outlets.
- If pH is out of range, chemicals used within house could be affecting tank function.
- Maintain mechanical components and controls.
- Plug outlet in tank, remove and clean effluent screen making sure dirty material falls into tank.
- Pump tanks every 3-5 years.
- Remove and replace dead and invasive plants.
- Remove clogged stones from bed and clear screens in submerged wetland.
- Remove rodents. Fill damaged and eroded spots.
- Remove woody vegetation that could damage system.
- Repair interior tank features and seal cracks when tank is empty.
- Repair or replace ladders, bracket, and other components.
- Repair, close, and lock riser, manholes, and inspection pipe covers.