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.

**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.
- 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.
- 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 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.

**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.

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.

☐ 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.

☐ 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.
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.

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.

☐ 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.

☐ 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.