

Operations/Maintenance BMPs

Detention Ponds

Maintenance Component	Defect	Conditions	Actions
General	Trash & Debris	Trash & Debris present? <input type="checkbox"/> < 5 ft ³ /1,000 ft ² <input type="checkbox"/> ' 5 ft ³ /1,000 ft ²	Clear Trash and Debris ♦ Perform maintenance now ♦ Perform at next scheduled maintenance
	Poisonous Vegetation and noxious weeds	Poisonous or nuisance vegetation present? <input type="checkbox"/> YES <input type="checkbox"/> NO Noxious weeds present? <input type="checkbox"/> YES <input type="checkbox"/> NO	Eradicate or begin control effort ♦ Initiate IPM policies
	Contaminants and Pollution	Evidence of oil, gasoline or other pollutants? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove ♦ Perform removal/cleanup
	Rodent Holes	Does the facility act as a dam or berm? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of rodent holes? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of water piping through dam or berm via rodent holes? <input type="checkbox"/> YES <input type="checkbox"/> NO	Eliminate rodents and repair dam or berm (coordinate with Ecology Dam Safety Office if pond exceeds 10 acre-feet). ♦ Initiate IPM policies ♦ Engineers review and recommended actions

Operations/Maintenance BMPs

Detention Ponds

Maintenance Component	Defect	Conditions	Actions
General (cont.)	Beaver Dams	Dam results in change or function of the facility? <input type="checkbox"/> YES <input type="checkbox"/> NO	Return facility to design function. ♦ Coordinate trapping of beavers and dam removal with permitting authorities.
	Insects	Insects such as wasps and hornets interfere with maintenance? <input type="checkbox"/> YES <input type="checkbox"/> NO Mosquito's present? <input type="checkbox"/> YES <input type="checkbox"/> NO	Vector control ♦ Initiate IPM policies ♦ Coordinate mosquito surveillance w/TPCHD
	Tree Growth and Hazard Trees	Trees interfere with maintenance access or activities? <input type="checkbox"/> YES <input type="checkbox"/> NO Dead, diseased, or dying trees identified? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove hazardous or nuisance trees. ♦ Contact certified Arborist to assess health of target trees ♦ Remove as needed
Side Slopes of Pond	Erosion	Erosion < 2 inches deep? <input type="checkbox"/> YES <input type="checkbox"/> NO Cause or potential still present? <input type="checkbox"/> YES <input type="checkbox"/> NO	Stabilize Slopes ♦ Use appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.

Operations/Maintenance BMPs

Detention Ponds

Maintenance Component	Defect	Conditions	Actions
Side Slopes of Pond (cont.)	Erosion (cont.)	Erosion observed on a compacted berm embankment? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ If erosion is on a compacted berm, an engineer's review and recommended actions are required.
Storage Area	Sediment	Sediment > 10% of designed pond depth? <input type="checkbox"/> YES <input type="checkbox"/> NO Sediment affecting the inletting or outletting function? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove Sediment <ul style="list-style-type: none"> ◆ Sediment cleaned out to designed pond shape and depth ◆ Pond reseeded if necessary to control erosion.
	Liner (If Applicable)	Liner is visible? <input type="checkbox"/> YES <input type="checkbox"/> NO More than three 1/4-inch holes in it? <input type="checkbox"/> YES <input type="checkbox"/> NO	Rehabilitate the Liner <ul style="list-style-type: none"> ◆ Liner repaired or replaced. ◆ Liner is fully covered.

Operations/Maintenance BMPs

Detention Ponds

Maintenance Component	Defect	Conditions	Actions
Pond Berms (Dikes)	Settlements	Settlement is apparent? <input type="checkbox"/> YES <input type="checkbox"/> NO Settlement > 4 inches lower than the design elevation? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Measure berm to determine amount of settlement. ◆ An engineer should be consulted to determine the source of the settlement. ◆ Dike is built back to the design elevation.
	Piping	Discernable water flow through pond berm? <input type="checkbox"/> YES <input type="checkbox"/> NO Ongoing erosion with the potential for erosion to continue? <input type="checkbox"/> YES <input type="checkbox"/> NO	Stabilize Berm <ul style="list-style-type: none"> ◆ Recommend a Geotechnical engineer be called in to inspect and evaluate condition and recommend repair of condition. ◆ Use appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.
Emergency Overflow/Spillway and Berms over 4 feet in height.	Tree Growth	Tree growth on emergency spillway? <input type="checkbox"/> YES <input type="checkbox"/> NO Tree growth on berms over 4 feet in height? (may lead to piping) <input type="checkbox"/> YES <input type="checkbox"/> NO	Trees should be removed. <ul style="list-style-type: none"> ◆ If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. ◆ An engineer should be consulted for proper berm/spillway restoration.

Operations/Maintenance BMPs

Detention Ponds

Maintenance Component	Defect	Conditions	Actions
Emergency Overflow/Spillway and Berms over 4 feet in height. (cont.)	Piping	Discernable water flow through pond berm? <input type="checkbox"/> YES <input type="checkbox"/> NO Ongoing erosion with the potential for erosion to continue? <input type="checkbox"/> YES <input type="checkbox"/> NO	Stabilize Berm ♦ Recommend a Geotechnical engineer be called in to inspect and evaluate condition and recommend repair of condition. ♦ Use appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.
Emergency Overflow/Spillway	Emergency Overflow/Spillway	Only one layer of rock exists above native soil in area five square feet or larger? <input type="checkbox"/> YES <input type="checkbox"/> NO Native soil exposed at the top of out flow path of spillway? <input type="checkbox"/> YES <input type="checkbox"/> NO	Restore Emergency Overflow/Spillway ♦ Rocks and pad depth are restored to design standards.
	Missing Rocks	Rocks Missing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Replace rocks as necessary.
	Erosion	Erosion < 2 inches deep? <input type="checkbox"/> YES <input type="checkbox"/> NO Cause or potential still present? <input type="checkbox"/> YES <input type="checkbox"/> NO	Stabilize Slopes ♦ Use appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.

Operations/Maintenance BMPs

Infiltration Ponds

Maintenance Component	Defect	Conditions	Actions
General	Trash & Debris	Trash & Debris present? <input type="checkbox"/> < 5 ft ³ /1,000 ft ² <input type="checkbox"/> ' 5 ft ³ /1,000 ft ²	Clear Trash and Debris ♦ Perform maintenance now ♦ Perform at next scheduled maintenance
	Poisonous/Noxious Vegetation	Poisonous or nuisance vegetation present? <input type="checkbox"/> YES <input type="checkbox"/> NO Noxious weeds present? <input type="checkbox"/> YES <input type="checkbox"/> NO	Eradicate or begin control effort ♦ Initiate IPM policies
	Contaminants and Pollution	Evidence of oil, gasoline or other pollutants? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove ♦ Perform removal/cleanup
	Rodent Holes	Does the facility act as a dam or berm? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of rodent holes? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of water piping through dam or berm via rodent holes? <input type="checkbox"/> YES <input type="checkbox"/> NO	Eliminate rodents and repair dam or berm (coordinate with Ecology Dam Safety Office if pond exceeds 10 acre-feet). ♦ Initiate IPM policies Engineers review and recommended actions

Operations/Maintenance BMPs

Infiltration Ponds

Maintenance Component	Defect	Conditions	Actions
Storage Area	Sediment	Water ponding in infiltration pond after rainfall ceases? <input type="checkbox"/> YES <input type="checkbox"/> NO Two inches or more sediment? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove Sediment ♦ Remove and/or clean so that infiltration system works according to design.
Filter Bags (if applicable)	Filled with Sediment and Debris	Bag(s) > 1/2 full? <input type="checkbox"/> YES <input type="checkbox"/> NO	Maintain filter bag ♦ Replace filter bag or ♦ Redesign System
Rock Filters	Sediment and Debris	Little or no water flows through filter? <input type="checkbox"/> YES <input type="checkbox"/> NO	Replace ♦ Gravel in rock filter is replaced.
Side Slopes of Pond	Erosion	Erosion < 2 inches deep? <input type="checkbox"/> YES <input type="checkbox"/> NO Cause or potential still present? <input type="checkbox"/> YES <input type="checkbox"/> NO	Stabilize Slopes ♦ Use appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.
Emergency Overflow Spillway and Berms over 4 feet in height.	Tree Growth	Tree growth on emergency spillway? <input type="checkbox"/> YES <input type="checkbox"/> NO	Trees should be removed. ♦ If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored.

Operations/Maintenance BMPs

Infiltration Ponds

Maintenance Component	Defect	Conditions	Actions
Emergency Overflow Spillway and Berms over 4 feet in height. (cont.)	Tree Growth (cont.)	Tree growth on berms over 4 feet in height? (may lead to piping) <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ An engineer should be consulted for proper berm/spillway restoration.
	Piping	Discernable water flow through pond berm? <input type="checkbox"/> YES <input type="checkbox"/> NO Ongoing erosion with the potential for erosion to continue? <input type="checkbox"/> YES <input type="checkbox"/> NO	Stabilize Berm <ul style="list-style-type: none"> ◆ Recommend a Geotechnical engineer be called in to inspect and evaluate condition and recommend repair of condition. ◆ Use appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.
Emergency Overflow Spillway	Rock Missing	Rocks Missing? <input type="checkbox"/> YES <input type="checkbox"/> NO	Replace rocks as necessary.
	Erosion	Erosion < 2 inches deep? <input type="checkbox"/> YES <input type="checkbox"/> NO Cause or potential still present? <input type="checkbox"/> YES <input type="checkbox"/> NO	Stabilize Slopes <ul style="list-style-type: none"> ◆ Use appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.

Operations/Maintenance BMPs

Infiltration Ponds

Maintenance Component	Defect	Conditions	Actions
Pre-settling Ponds	Facility filled with Sediment and/or debris	Sediment \geq 6 inches? <input type="checkbox"/> YES <input type="checkbox"/> NO	Sediment is removed. ♦ Restore to designed bottom elevation.
Vaults	Sump filled with Sediment and/or debris	Exceeds designed depth of sediment trap? <input type="checkbox"/> YES <input type="checkbox"/> NO	Sediment is removed. ♦ Vactor sediment and/or debris.

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
Storage Area	Plugged Air Vents	Vent blockage $\geq \frac{1}{2}$ of the diameter? <input type="checkbox"/> YES <input type="checkbox"/> NO Vent damaged? <input type="checkbox"/> YES <input type="checkbox"/> NO	Restore the vent to proper function. ♦ Clear blockage ♦ Repair damage.
	Debris and Sediment	Sediment depth > 10% of the diameter of the storage area for 1/2 length of storage vault? <input type="checkbox"/> YES <input type="checkbox"/> NO Any point depth > 15% of diameter? <input type="checkbox"/> YES <input type="checkbox"/> NO	All sediment and debris removed from storage area. ♦ Perform maintenance now ♦ Perform at next scheduled maintenance
	Joints Between Tank/Pipe Section	Openings or voids allowing material to be transported into facility? <input type="checkbox"/> YES <input type="checkbox"/> NO	Eliminate openings and voids. ♦ All joint between tank/pipe sections are sealed. ♦ Consult an engineer to determine structural stability. (required)
	Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape > 10% of its design shape? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Tank/pipe repaired or replaced to design. ♦ Review required by engineer to determine structural stability

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
Storage Area (cont.)	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch (including inlet/outlet pipes)? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of soil particles entering the structure through the cracks? <input type="checkbox"/> YES <input type="checkbox"/> NO Vault is not structurally sound? <input type="checkbox"/> YES <input type="checkbox"/> NO	Vault replaced or repaired to design specifications and is structurally sound. ♦ Cracks > 1/4-inch wide at the joint of the inlet/outlet pipe must be repaired or filled. ♦ Repair / fill cracks. ♦ Consult engineer for structural integrity.
Manhole	Cover Not in Place	Cover is missing or only partially in place? <input type="checkbox"/> YES <input type="checkbox"/> NO	Manhole is closed. ♦ Repair or replace manhole cover.
	Locking Mechanism Not Working	Mechanism can be opened by one maintenance person with proper tools? <input type="checkbox"/> YES <input type="checkbox"/> NO Bolts into frame < 1/2 inch of thread? <input type="checkbox"/> YES <input type="checkbox"/> NO	Mechanism opens with proper tools. ♦ Repair/replace mechanism. ♦ Replace with longer bolts.
	Cover Difficult to Remove	One maintenance person can remove lid after applying normal lifting pressure? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair lid to prevent sealing off access for maintenance.

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
<p>Manhole (cont.)</p>	<p>Ladder Rungs Unsafe</p>	<p>Ladder is unsafe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Missing rungs?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Rungs misaligned or not securely attached to structure wall?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Rungs rusted or cracked?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>Ladder meets design standards. Allows maintenance person safe access.</p> <p>◆ Repair or replace ladder or rungs.</p>
<p>Catch Basins General</p>	<p>Trash & Debris</p>	<p>Trash or debris which is located immediately in front of the catch basin opening?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Trash or debris blocking inletting capacity of the basin by more than 10%.</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Clear trash and debris.</p> <p>◆ Vector if necessary.</p>

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
Catch Basins General (cont.)	Trash & Debris (cont.)	Material > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe. <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		Trash or debris in any inlet or outlet pipe blocking > 1/3 of its height. <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		Dead animals or vegetation causing odors or dangerous gases? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove dead animals or vegetation.
	Sediment	Sediment > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
	Structure Damage to Frame and/or Top Slab	Top slab has holes > 2 in ² ? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair or fill holes.

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
Catch Basins General (cont.)	Structure Damage to Frame and/or Top Slab (cont.)	Cracks > 1/4 inch? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair or fill cracks.
		Frame sitting flush on top slab? <input type="checkbox"/> YES <input type="checkbox"/> NO Frame securely attached? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Reattach and secure frame.
	Fractures or Cracks in Basin Walls/Bottom	Structure is unsound? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace or repair to design standards.
		Grout separated? <input type="checkbox"/> YES <input type="checkbox"/> NO Grout cracked > 1/2 inch and longer than 1 ft. at the joint of any inlet/outlet pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of soil particles entering catch basin through cracks? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Regrout and secure pipe at basin wall.

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
Catch Basins General (cont.)	Settlement/ Misalignment	Basin has failed creating a safety, function, or design problem? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace or repair basin to design standards.
	Vegetation	Vegetation blocking > 10% of the basin opening? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove vegetation.
		Vegetation growing in inlet/outlet pipe joints > 6 in. tall and < 6 in. apart? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove vegetation. ♦ Cut roots.
	Contamination and Pollution	Evidence of oil, gasoline or other pollutants? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove ♦ Perform removal/cleanup
Catch Basin Cover	Cover Not in Place	Cover is missing? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace cover.
		Cover is partially in place? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Reposition cover correctly.
	Locking Mechanism Not Working	Mechanism can be opened by one maintenance person with proper tools? <input type="checkbox"/> YES <input type="checkbox"/> NO	Mechanism opens with proper tools. ♦ Repair/replace mechanism.

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
Catch Basin Cover (cont.)	Locking Mechanism Not Working (cont.)	Bolts into frame < 1/2 inch of thread? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace with longer bolts.
	Cover Difficult to Remove	One maintenance person can remove lid after applying normal lifting pressure? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair lid to prevent sealing off access for maintenance.
Ladder	Ladder Rungs Unsafe	Ladder is unsafe? <input type="checkbox"/> YES <input type="checkbox"/> NO Missing rungs? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs misaligned or not securely attached to structure wall? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs rusted or cracked? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Ladder must meet design standards and allow maintenance person safe access. ◆ Repair or replace ladder or rungs.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate > 7/8 inch? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Grate opening meets design standards.

Operations/Maintenance BMPs

Closed Detention Systems

Maintenance Component	Defect	Conditions	Actions
Metal Grates (If Applicable) (cont.)	Trash and Debris	Trash and debris blocking > 20% of grate surface inletting capacity? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Clear grate of trash and debris.
	Grate damaged or Missing.	Grate missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Broken member(s) of the grate? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace grate. ♦ Repair grate to meet design standards.

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
Storage Area	Plugged Air Vents	Vent blockage $\geq \frac{1}{2}$ of the diameter? <input type="checkbox"/> YES <input type="checkbox"/> NO Vent damaged? <input type="checkbox"/> YES <input type="checkbox"/> NO	Restore the vent to proper function. ♦ Clear blockage ♦ Repair damage.
	Debris and Sediment	Sediment depth > 10% of the diameter of the storage area for 1/2 length of storage vault? <input type="checkbox"/> YES <input type="checkbox"/> NO Any point depth > 15% of diameter? <input type="checkbox"/> YES <input type="checkbox"/> NO	All sediment and debris removed from storage area. ♦ Perform maintenance now ♦ Perform at next scheduled maintenance
	Joints Between Tank/Pipe Section	Openings or voids allowing material to be transported into facility? <input type="checkbox"/> YES <input type="checkbox"/> NO	Eliminate openings and voids. ♦ All joint between tank/pipe sections are sealed. ♦ Consult an engineer to determine structural stability. (required)
	Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape > 10% of its design shape? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Tank/pipe repaired or replaced to design. ♦ Review required by engineer to determine structural stability

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
Storage Area (cont.)	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch (including inlet/outlet pipes)? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of soil particles entering the structure through the cracks? <input type="checkbox"/> YES <input type="checkbox"/> NO Vault is not structurally sound? <input type="checkbox"/> YES <input type="checkbox"/> NO	Vault replaced or repaired to design specifications and is structurally sound. ♦ Cracks > 1/4-inch wide at the joint of the inlet/outlet pipe must be repaired or filled. ♦ Repair / fill cracks. ♦ Consult engineer for structural integrity.
Manhole	Cover Not in Place	Cover is missing or only partially in place? <input type="checkbox"/> YES <input type="checkbox"/> NO	Manhole is closed. ♦ Repair or replace manhole cover.
	Locking Mechanism Not Working	Mechanism can be opened by one maintenance person with proper tools? <input type="checkbox"/> YES <input type="checkbox"/> NO Bolts into frame < 1/2 inch of thread? <input type="checkbox"/> YES <input type="checkbox"/> NO	Mechanism opens with proper tools. ♦ Repair/replace mechanism. ♦ Replace with longer bolts.
	Cover Difficult to Remove	One maintenance person can remove lid after applying normal lifting pressure? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair lid to prevent sealing off access for maintenance.

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
<p>Manhole (cont.)</p>	<p>Ladder Rungs Unsafe</p>	<p>Ladder is unsafe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Missing rungs?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Rungs misaligned or not securely attached to structure wall?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Rungs rusted or cracked?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Ladder must meet design standards. ◆ Ladders must allow maintenance person safe access. ◆ Repair or replace ladder or rungs.
<p>Catch Basins General</p>	<p>Trash & Debris</p>	<p>Trash or debris which is located immediately in front of the catch basin opening?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Trash or debris blocking inletting capacity of the basin by more than 10%.</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vector if necessary.

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
Catch Basins General (cont.)	Trash & Debris (cont.)	Material > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		Trash or debris in any inlet or outlet pipe blocking > 1/3 of its height. <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		Dead animals or vegetation causing odors or dangerous gases? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove dead animals or vegetation.
	Sediment	Sediment > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
Structure Damage to Frame and/or Top Slab	Top slab has holes > 2 in ² ? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair or fill holes. 	

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
<p>Catch Basins General (cont.)</p>	<p>Structure Damage to Frame and/or Top Slab (cont.)</p>	<p>Cracks > 1/4 in?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair or fill cracks.</p>
		<p>Frame sitting flush on top slab?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Frame securely attached?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Reattach and secure frame.</p>
	<p>Fractures or Cracks in Basin Walls/Bottom</p>	<p>Structure is unsound?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Grout separated?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Grout cracked > 1/2 inch and longer than 1 ft. at the joint of any inlet/outlet pipe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Evidence of soil particles entering catch basin through cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Replace or repair to design standards.</p> <p>◆ Regrout and secure pipe at basin wall.</p>

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
Catch Basins General (cont.)	Settlement/ Misalignment	Basin has failed creating a safety, function, or design problem? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace or repair basin to design standards.
	Vegetation	Vegetation blocking > 10% of the basin opening? <input type="checkbox"/> YES <input type="checkbox"/> NO Vegetation growing in inlet/outlet pipe joints > 6 in. tall and < 6 in. apart? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove vegetation. ♦ Remove vegetation. ♦ Cut roots.
	Contamination and Pollution	Evidence of oil, gasoline or other pollutants? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove ♦ Perform removal/cleanup
Catch Basin Cover	Cover Not in Place	Cover is missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Cover is partially in place? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace cover. ♦ Reposition cover correctly.
	Locking Mechanism Not Working	Mechanism can be opened by one maintenance person with proper tools? <input type="checkbox"/> YES <input type="checkbox"/> NO	Mechanism opens with proper tools. ♦ Repair/replace mechanism.

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
Catch Basin Cover (cont.)	Locking Mechanism Not Working (cont.)	Bolts into frame < 1/2 inch of thread? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace with longer bolts.
	Cover Difficult to Remove	One maintenance person can remove lid after applying normal lifting pressure? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair lid to prevent sealing off access for maintenance.
Ladder	Ladder Rungs Unsafe	Ladder is unsafe? <input type="checkbox"/> YES <input type="checkbox"/> NO Missing rungs? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs misaligned or not securely attached to structure wall? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs rusted or cracked? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Ladder must meet design standards and allow maintenance person safe access. ◆ Repair or replace ladder or rungs.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate > 7/8 inch? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Grate opening meets design standards.

Operations/Maintenance BMPs

Closed Tanks and Vaults

Maintenance Component	Defect	Conditions	Actions
Metal Grates (If Applicable) (cont.)	Trash and Debris	Trash and debris blocking > 20% of grate surface inletting capacity? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Clear grate of trash and debris.
	Grate damaged or Missing.	Grate missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Broken member(s) of the grate? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace grate. ♦ Repair grate to meet design standards.

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
General	Trash and Debris (Includes Sediment)	Material > 25% of sump depth? <input type="checkbox"/> YES <input type="checkbox"/> NO Material < 1 ft below orifice plate? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove blockages from control structure orifice. ◆ Remove or vacator trash and debris.
	Structural Damage	Structure securely attached to manhole wall? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Secure structure to wall and outlet pipe.
		Structure is in upright position? (< 10% from plumb). <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Align structure in correct position.
		Connections to outlet pipe are watertight? <input type="checkbox"/> YES <input type="checkbox"/> NO Signs of rust? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Seal connections to outlet pipe. ◆ Repair or replace structure to function as designed.
		Any holes--other than designed holes--in the structure? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair or plug hole(s), other than designed holes.
Cleanout Gate	Damaged or Missing	Cleanout gate watertight? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair gate to design function (watertight seal can be achieved).

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
<p>Cleanout Gate (cont.)</p>	<p>Damaged or Missing (cont.)</p>	<p>Cleanout gate missing.</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Replace gate.</p>
		<p>Gate moves up and down by one maintenance person?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Perform maintenance now</p> <p>◆ Perform at next scheduled maintenance</p>
		<p>Chain/rod leading to gate is missing?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Chain/rod leading to gate is damaged?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Gate is repaired or replaced to meet design standards.</p>
		<p>Gate is rusted over 50% of its surface area?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Gate is repaired or replaced to meet design standards.</p>
<p>Orifice Plate</p>	<p>Damaged or Missing</p>	<p>Missing orifice plate?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Out of place orifice plate?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Bent orifice plate?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Orifice plate is repaired or replaced to meet design standards.</p> <p>◆ Orifice plate is repaired or replaced to meet design standards.</p>

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
Orifice Plate (cont.)	Obstructions	Trash, debris, sediment, or vegetation blocking the plate? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Perform maintenance now ◆ Perform at next scheduled maintenance
Overflow Pipe	Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Perform maintenance now ◆ Perform at next scheduled maintenance
Manhole	Cover Not in Place	Cover is missing or only partially in place? <input type="checkbox"/> YES <input type="checkbox"/> NO	<p>Manhole is closed.</p> <ul style="list-style-type: none"> ◆ Repair or replace manhole cover.
	Locking Mechanism Not Working	<p>Mechanism can be opened by one maintenance person with proper tools?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Bolts into frame < 1/2 inch of thread?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>	<p>Mechanism opens with proper tools.</p> <ul style="list-style-type: none"> ◆ Repair/replace mechanism. ◆ Replace with longer bolts.
	Cover Difficult to Remove	One maintenance person can remove lid after applying normal lifting pressure? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair lid to prevent sealing off access for maintenance.

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
	Ladder Rungs Unsafe	Ladder is unsafe? <input type="checkbox"/> YES <input type="checkbox"/> NO Missing rungs? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs misaligned or not securely attached to structure wall? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs rusted or cracked? <input type="checkbox"/> YES <input type="checkbox"/> NO	Ladder meets design standards. Allows maintenance person safe access. ♦ Repair or replace ladder or rungs.
Catch Basin (General)	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening? <input type="checkbox"/> YES <input type="checkbox"/> NO Trash or debris blocking inletting capacity of the basin by more than 10%. <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Clear trash and debris. ♦ Vactor if necessary.

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
		<p>Material > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe.</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		<p>Trash or debris in any inlet or outlet pipe blocking > 1/3 of its height.</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		<p>Dead animals or vegetation causing odors or dangerous gases?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Remove dead animals or vegetation.
	Sediment	<p>Sediment > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
	Structure Damage to Frame and/or Top Slab	Top slab has holes > 2 in ² ? <input type="checkbox"/> YES <input type="checkbox"/> NO Cracks > 1/4 inch? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair or fill holes. ◆ Repair or fill cracks.
		Frame sitting flush on top slab? <input type="checkbox"/> YES <input type="checkbox"/> NO Frame securely attached? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Reattach and secure frame.

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
	Fractures or Cracks in Basin walls/Bottom	Structure is unsound? <input type="checkbox"/> YES <input type="checkbox"/> NO Grout separated? <input type="checkbox"/> YES <input type="checkbox"/> NO Grout cracked > 1/2 inch and longer than 1 ft. at the joint of any inlet/outlet pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of soil particles entering catch basin through cracks? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace or repair to design standards. ◆ Regrout and secure pipe at basin wall.
	Settlement/Misalignment	Basin has failed creating a safety, function, or design problem? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace or repair basin to design standards.
	Vegetation	Vegetation blocking > 10% of the basin opening? <input type="checkbox"/> YES <input type="checkbox"/> NO Vegetation growing in inlet/outlet pipe joints > 6 in. tall and < 6 in. apart? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove vegetation. ◆ Cut roots.

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
	Contamination and Pollution	Evidence of oil, gasoline or other pollutants? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove ♦ Perform removal/cleanup
Catch Basin Cover	Cover Not in Place	Cover is missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Cover is partially in place? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace cover. ♦ Reposition cover correctly.
	Locking Mechanism Not Working	Mechanism can be opened by one maintenance person with proper tools? <input type="checkbox"/> YES <input type="checkbox"/> NO Bolts into frame < 1/2 inch of thread? <input type="checkbox"/> YES <input type="checkbox"/> NO	Mechanism opens with proper tools. ♦ Repair/replace mechanism. ♦ Replace with longer bolts.
	Cover Difficult to Remove	One maintenance person can remove lid after applying normal lifting pressure? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair lid to prevent sealing off access for maintenance.

Operations/Maintenance BMPs

Control Structure /Flow Restrictor

Maintenance Component	Defect	Condition	Actions
Ladder	Ladder Rungs Unsafe	Ladder is unsafe? <input type="checkbox"/> YES <input type="checkbox"/> NO Missing rungs? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs misaligned or not securely attached to structure wall? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs rusted or cracked? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Ladder must meet design standards and allow maintenance person safe access. ◆ Repair or replace ladder or rungs.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate > 7/8 inch? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Grate opening meets design standards.
	Trash and Debris	Trash and debris blocking > 20% of grate surface inletting capacity? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear grate of trash and debris.
	Damaged or Missing.	Grate missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Broken member(s) of the grate? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace grate. ◆ Repair grate to meet design standards.

Operations/Maintenance BMPs

Catch Basins

Maintenance Component	Defect	Conditions	Actions
General	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening? <input type="checkbox"/> YES <input type="checkbox"/> NO Trash or debris blocking inletting capacity of the basin by more than 10%? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		Material > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		Trash or debris in any inlet or outlet pipe blocking > 1/3 of its height. <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
		Dead animals or vegetation causing odors or dangerous gases? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove dead animals or vegetation.

Operations/Maintenance BMPs

Catch Basins

Maintenance Component	Defect	Conditions	Actions
	Sediment	Sediment > 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear trash and debris. ◆ Vactor if necessary.
	Structure Damage to Frame and/or Top Slab	Top slab has holes > 2 in ² ? <input type="checkbox"/> YES <input type="checkbox"/> NO Cracks > 1/4 inch? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair or fill holes. ◆ Repair or fill cracks.
		Frame sitting flush on top slab? <input type="checkbox"/> YES <input type="checkbox"/> NO Frame securely attached? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Reattach and secure frame.
	Fractures or Cracks in Basin Walls/Bottom	Structure is unsound? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace or repair to design standards.

Operations/Maintenance BMPs

Catch Basins

Maintenance Component	Defect	Conditions	Actions
	Fractures or Cracks in Basin Walls/Bottom	Grout separated? <input type="checkbox"/> YES <input type="checkbox"/> NO Grout cracked > 1/2 inch and longer than 1 ft. at the joint of any inlet/outlet pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO Evidence of soil particles entering catch basin through cracks? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Regrout and secure pipe at basin wall.
	Settlement/Misalignment	Basin has failed creating a safety, function, or design problem? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace or repair basin to design standards.
	Vegetation	Vegetation blocking > 10% of the basin opening? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove vegetation.
		Vegetation growing in inlet/outlet pipe joints > 6 in. tall and < 6 in. apart? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove vegetation. ◆ Cut roots.

Operations/Maintenance BMPs

Catch Basins

Maintenance Component	Defect	Conditions	Actions
	Contamination and Pollution	Evidence of oil, gasoline or other pollutants? <input type="checkbox"/> YES <input type="checkbox"/> NO	Remove ♦ Perform removal/cleanup
Catch Basin Cover	Cover Not in Place	Cover is missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Cover is partially in place? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace cover. ♦ Reposition cover correctly.
	Locking Mechanism Not Working	Mechanism can be opened by one maintenance person with proper tools? <input type="checkbox"/> YES <input type="checkbox"/> NO Bolts into frame < 1/2 inch of thread? <input type="checkbox"/> YES <input type="checkbox"/> NO	Mechanism opens with proper tools. ♦ Repair/replace mechanism. ♦ Replace with longer bolts.
	Cover Difficult to Remove	One maintenance person can remove lid after applying normal lifting pressure? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair lid to prevent sealing off access for maintenance.

Operations/Maintenance BMPs

Catch Basins

Maintenance Component	Defect	Conditions	Actions
Ladder	Ladder Rungs Unsafe	Ladder is unsafe? <input type="checkbox"/> YES <input type="checkbox"/> NO Missing rungs? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs misaligned or not securely attached to structure wall? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs rusted or cracked? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Ladder must meet design standards and allow maintenance person safe access. ◆ Repair or replace ladder or rungs.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate > 7/8 inch? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Grate opening meets design standards.
	Trash and Debris	Trash and debris blocking > 20% of grate surface inletting capacity? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Clear grate of trash and debris.
	Damaged or Missing.	Grate missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Broken member(s) of the grate? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace grate. ◆ Repair grate to meet design standards.

Operations/Maintenance BMPs

Debris Barriers

Maintenance Component	Defect	Conditions	Actions
General	Trash and Debris	Trash or debris plugging > 20% of the openings in the barrier? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Clear debris.
Metal	Damaged/Missing Bars.	Bars bent > 3 inches? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Bend bar(s) to < 3/4 in. ♦ Replace bar(s)
		Bars are damaged? <input type="checkbox"/> YES <input type="checkbox"/> NO Entire barrier missing? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair or replace bars.
		Bars are loose? <input type="checkbox"/> YES <input type="checkbox"/> NO Rust is causing 50% deterioration to any part of barrier? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair or replace bars.
	Inlet/Outlet Pipe	Debris barrier missing? <input type="checkbox"/> YES <input type="checkbox"/> NO Debris barrier attached to pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace barrier. ♦ Secure barrier to pipe.

Operations/Maintenance BMPs

Energy Dissipaters

Maintenance Component	Defect	Conditions	Actions
External:			
Rock Pad	Missing or Moved Rock	Only one layer of rock exists above native soil in area five square feet or larger? <input type="checkbox"/> YES <input type="checkbox"/> NO Native soil exposed at the top of out flow path of spillway? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace rock pad to design standards.
	Erosion	Soil erosion in or adjacent to rock pad? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace rock pad to design standards.
Dispersion Trench	Pipe Plugged with Sediment	Sediment > 20% of the design depth? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Clean/flush pipe so that it matches design.
	Not Discharging Water Properly	Visual evidence of water discharging at concentrated points along trench (normal condition is a "sheet flow" of water along trench)? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Redesign or rebuild trench to standards.
	Perforations Plugged.	Perforations > ½ plugged in pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Clean or replace pipe.

Operations/Maintenance BMPs

Energy Dissipaters

Maintenance Component	Defect	Conditions	Actions
Dispersion Trench (cont.)	Water Flows Out Top of "Distributor" Catch Basin.	Water flowing out during any storm less than the design storm? <input type="checkbox"/> YES <input type="checkbox"/> NO Causing or likely to cause damage? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Facility rebuilt or redesigned to standards.
	Receiving Area Over-Saturated	Causing or has potential of causing landslide problems? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Consult engineer for review.
Internal:			
Manhole/Chamber	Worn or Damaged Post, Baffles, Side of Chamber	Structure deteriorated to ½ of original size? <input type="checkbox"/> YES <input type="checkbox"/> NO Concentrated worn spot > 1 ft ² ? <input type="checkbox"/> YES <input type="checkbox"/> NO Structure appears sound? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace structure to designed standards.

Operations/Maintenance BMPs

Typical Biofiltration Swale

Maintenance Component	Defect	Conditions	Actions
General	Sediment Accumulation on Grass	Sediment depth > 2 in? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment deposits on grass treatment area of the bio-swale. ◆ When finished, swale should be level from side to side and drain freely toward outlet. There should be no areas of standing water once inflow has ceased.
	Standing Water	Water in the swale between storms? <input type="checkbox"/> YES <input type="checkbox"/> NO Water drains freely? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment or trash blockages. ◆ Improve grade from head to foot of swale. ◆ Remove clogged check dams ◆ Add under drains or convert to a wet biofiltration swale.
	Flow spreader	Flow spreader uneven? <input type="checkbox"/> YES <input type="checkbox"/> NO Flow spreader clogged? <input type="checkbox"/> YES <input type="checkbox"/> NO Flows are uniformly distributed through entire swale width? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Level the spreader. ◆ Clean so that flows are spread evenly over entire swale width.
	Constant Baseflow	Eroded and/or muddy channel has formed in the swale bottom? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Add a low-flow pea-gravel drain the length of the swale ◆ By-pass the baseflow around the swale.

Operations/Maintenance BMPs

Typical Biofiltration Swale

Maintenance Component	Defect	Conditions	Actions
General (cont.)	Poor Vegetation Coverage	Grass is sparse? <input type="checkbox"/> YES <input type="checkbox"/> NO Bare or eroded patches occur in > 10% of the swale bottom? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Determine why grass growth is poor and correct that condition. ◆ Re-plant with plugs of grass from the upper slope: plant in the swale bottom at 8-inch intervals. ◆ Re-seed into loosened, fertile soil.
	Vegetation	Grass > 10-inches? <input type="checkbox"/> YES <input type="checkbox"/> NO Weeds and/or other vegetation are taking over? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Mow vegetation. ◆ Remove nuisance vegetation so that flow not impeded. ◆ Grass should be mowed to a height of 3 to 4 inches. ◆ Remove grass clippings.
	Excessive Shading	Grass growth is poor because sunlight does not reach swale? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Trim back over-hanging limbs. ◆ Remove brushy vegetation on adjacent slopes.
	Inlet/Outlet	Inlet/outlet areas clogged with sediment and/or debris? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove material.
	Trash and Debris Accumulation	Trash and debris accumulated in the bio-swale? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove trash and debris from bioswale.

Operations/Maintenance BMPs

Typical Biofiltration Swale

Maintenance Component	Defect	Conditions	Actions
<p>General (cont.)</p>	<p>Erosion/Scouring</p>	<p>Eroded or scoured swale bottom due to flow channelization, or higher flows?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>For ruts or bare areas < 12 in. wide:</p> <ul style="list-style-type: none"> ◆ Repair the damaged area by filling with crushed gravel. <p>For rut or bare spots > 12 in. wide:</p> <ul style="list-style-type: none"> ◆ The swale should be re-graded and re-seeded. <p>For smaller bare areas:</p> <ul style="list-style-type: none"> ◆ Overseed when bare spots are evident, or take plugs of grass from the upper slope and plant in the swale bottom at 8-inch intervals.

Operations/Maintenance BMPs

Wet Biofiltration Swale

Maintenance Component	Defect	Condition	Actions
General	Sediment Accumulation	Sediment depth > 2 inches in 10% of the swale treatment area. <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment deposits in treatment area.
	Water Depth	Water not retained to a depth of about 4 inches during the wet season? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Build up or repair outlet berm so that water is retained in the wet swale.
	Wetland Vegetation	Vegetation is sparse and does not provide adequate filtration? <input type="checkbox"/> YES <input type="checkbox"/> NO Vegetation is crowded out by very dense clumps of cattail, which do not allow water to flow through the clumps? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Determine cause of lack of vigor of vegetation and correct. ◆ Replant as needed. For excessive cattail growth: <ul style="list-style-type: none"> ◆ Cut cattail shoots back and compost off-site. (Normally wetland vegetation does not need to be harvested unless die-back is causing oxygen depletion in downstream waters).
	Inlet/Outlet	Inlet/outlet area clogged with sediment and/or debris? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove clogging or blockage in the inlet and outlet areas.
	Trash and Debris Accumulation	Trash & Debris present? <input type="checkbox"/> < 5 ft ³ /1,000 ft ² <input type="checkbox"/> ' 5 ft ³ /1,000 ft ²	Clear Trash and Debris <ul style="list-style-type: none"> ◆ Perform maintenance now ◆ Perform at next scheduled maintenance

Operations/Maintenance BMPs

Wet Biofiltration Swale

Maintenance Component	Defect	Condition	Actions
General (cont.)	Erosion/Scouring	Swale has eroded or scoured due to flow channelization, or higher flows? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Check design flows to assure swale is large enough to handle flows. ◆ By-pass excess flows. ◆ Enlarge swale. ◆ Replant eroded areas with fibrous-rooted plants.

Operations/Maintenance BMPs

Filter Strips

Maintenance Component	Defect	Condition	Actions
General	Sediment Accumulation on Grass	Sediment depth > 2 in? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment deposits ◆ Re-level so slope is even and flows pass evenly through strip.
	Vegetation	Grass > 10 in? <input type="checkbox"/> YES <input type="checkbox"/> NO Weeds and/or other vegetation are taking over? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Mow grass. ◆ Control nuisance vegetation. ◆ Grass should be mowed to a height between 3-4 inches.
	Trash and Debris Accumulation	Trash and debris accumulated on the filter strip? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove trash and Debris from filter.
	Erosion/Scouring	Eroded or scoured areas due to flow channelization, or higher flows? <input type="checkbox"/> YES <input type="checkbox"/> NO	For ruts or bare areas < 12 in. wide: <ul style="list-style-type: none"> ◆ Repair the damaged area by filling with crushed gravel. For rut or bare spots > 12 in. wide: <ul style="list-style-type: none"> ◆ The swale should be re-graded and re-seeded. For smaller bare areas: Overseed when bare spots are evident, or take plugs of grass from the upper slope and plant in the swale bottom at 8-inch intervals.
	Flow spreader	Flow spreader uneven or clogged? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Level the spreader. ◆ Clean so that flows are spread evenly over entire filter width.

Maintenance Component	Defect	Condition	Actions
General	Water level	First cell is empty / doesn't hold water? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Line the first cell to maintain at least 4 feet of water.
	Trash and Debris	Accumulation > 1 ft ³ per 1000 ft ² of pond area? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove trash and debris from pond.
	Inlet/Outlet Pipe	Inlet/Outlet pipe clogged with sediment and/or debris material? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Clear and remove clogging or blockage in the inlet and outlet piping.
	Sediment Accumulation in Pond Bottom	Is > depth of sediment zone plus 6-inches? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment from pond bottom.
	Oil Sheen on Water	Prevalent and visible oil sheen? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove using oil-absorbent pads or vacuor truck. ♦ Locate and correct source of contaminant.
	Erosion	Erosion of the pond's side slopes and/or scouring of the pond bottom, exceeds 6-inches? <input type="checkbox"/> YES <input type="checkbox"/> NO Continued erosion is prevalent? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Stabilize slopes using proper erosion control measures and repair methods.

Operations/Maintenance BMPs

Wet Ponds

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Settlement of Pond Dike/Berm</p>	<p>Settling \leq 4 in. or lower than the design elevation?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Dike/berm is unsound?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>♦ Repair dike/berm to specifications.</p>
	<p>Internal Berm</p>	<p>Berm dividing cells level?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>♦ Berm surface is leveled so that water flows evenly over entire length of berm.</p>
	<p>Overflow Spillway</p>	<p>Rock is missing?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Soil is exposed at top of spillway or outside slope.</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>♦ Rocks replaced to specifications.</p>

Operations/Maintenance BMPs

Wet Vaults

Maintenance Component	Defect	Condition	Actions
General	Trash/Debris Accumulation	Trash and debris accumulated in vault, pipe or inlet/outlet? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove trash and debris from vault.
	Sediment Accumulation in Vault	Sediment > depth of the sediment zone plus 6-inches? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment from vault.
	Damaged Pipes	Inlet/outlet piping damaged? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair and/or replace pipe.
	Access Cover Damaged/Not Working	Cover cannot be opened or removed by one person? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair or replace pipe to proper working specifications.
	Ventilation	Ventilation area blocked or plugged? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove or clear blocking material from ventilation area. ♦ Refer to design specifications).
	Vault Structure Damage -Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	Vault is structurally sound? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace or repair vault to meet design specifications. ♦ Consult engineer to determine the structural integrity.
Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe? <input type="checkbox"/> YES <input type="checkbox"/> NO		♦ Repair vault so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.	

Operations/Maintenance BMPs

Wet Vaults

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Vault Structure Damage -Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab (cont.)</p>	<p>Evidence of soil particles entering through the cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair vault so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.</p>
	<p>Baffles</p>	<p>Baffles corroding, cracking, warping and/or showing signs of failure?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair or replace baffles to specifications.</p>
	<p>Access Ladder Damage</p>	<p>Ladder is corroded or deteriorated?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder not functioning properly?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder not attached to structure wall?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Missing rungs, has cracks and/or misaligned?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Confined space warning sign visible?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Replace or repair ladder to specifications, and is safe to use as determined by inspection personnel.</p> <p>◆ Replace sign warning of confined space entry requirements.</p> <p>◆ Ladder and entry notification must comply with OSHA standards.</p>

Operations/Maintenance BMPs

Sand Filters - Open

Maintenance Component	Defect	Condition	Actions
Above Ground (open sand filter)	Sediment Accumulation on top layer	Sediment depth > ½ in? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment deposit on grass layer of sand filter that would impede permeability of the filter section.
	Trash and Debris Accumulations	Trash and debris accumulated on sand filter bed? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove trash and debris from sand filter bed.
	Sediment/Debris in Clean-Outs	Clean-outs full or partially plugged with sediment and/or debris? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment from clean-outs.
	Sand Filter Media	Drawdown of water through the sand filter media takes longer than 24-hours? <input type="checkbox"/> YES <input type="checkbox"/> NO Flow through the overflow pipes occurs frequently. <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Top several inches of sand are scraped. ♦ May require replacement of entire sand filter depth depending on extent of plugging. ♦ Consult an engineer for review.
	Prolonged Flows	Sand is saturated and does not dry out between storms due? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Limit low and continuous flows to a small portion of the facility by using a low wooden divider or slightly depressed sand surface.

Operations/Maintenance BMPs

Sand Filters - Open

Maintenance Component	Defect	Condition	Actions
Above Ground (open sand filter) (cont.)	Short Circuiting	Flows have become concentrated over one section of the sand filter rather than dispersed? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Disperse flow across the entire filter area.
	Erosion Damage to Slopes	Erosion > 2 in. deep? <input type="checkbox"/> YES <input type="checkbox"/> NO Potential for continued erosion is evident? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Stabilize slope using proper erosion control measures.
	Rock Pad Missing or Out of Place	Soil beneath the rock is visible? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Replace or rebuild rock pad to design specifications.
	Flow Spreader	Flow spreader uneven or clogged? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Level and clean spreader so that flows are spread evenly over sand filter.
	Damaged Pipes	Piping is crushed or deformed > 20%? <input type="checkbox"/> YES <input type="checkbox"/> NO Other failure to the piping. <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair or replace pipe.

Operations/Maintenance BMPs

Sand Filters - Closed

Maintenance Component	Defect	Condition	Actions
Below Ground Vault.	Sediment Accumulation on Sand Media Section	Sediment depth > ½ in.? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment deposits on sand filter section that which would impede permeability of the filter section.
	Sediment Accumulation in Pre-Settling Portion of Vault	Sediment in vault bottom > depth of the sediment zone + 6 in? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment deposits in first chamber of vault.
	Trash/Debris Accumulation	Trash and debris in vault? <input type="checkbox"/> YES <input type="checkbox"/> NO Trash and debris in pipe inlet/outlet? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove trash and debris from vault. ◆ Remove trash and debris from inlet/outlet piping.
	Sediment in Drain Pipes/Cleanouts	Drain pipes full with sediment and/or debris? <input type="checkbox"/> YES <input type="checkbox"/> NO Cleanouts full with sediment and/or debris? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment and debris.
	Short Circuiting	Seepage/flow occurring along the vault walls and corners? <input type="checkbox"/> YES <input type="checkbox"/> NO Sand eroding near inflow area? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Re-lay sand filter media section and compact along perimeter of vault to form a semi-seal. ◆ Add erosion protection to dissipate force of incoming flow and curtail erosion.

Operations/Maintenance BMPs

Sand Filters - Closed

Maintenance Component	Defect	Condition	Actions
<p>Below Ground Vault. (cont.)</p>	<p>Damaged Pipes</p>	<p>Inlet pipe damaged or broken?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Outlet pipe damaged or broken?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair and/or replace pipe.</p>
	<p>Access Cover Damaged/Not Working</p>	<p>Cover cannot be opened?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Corrosion/deformation of cover?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Cannot remove cover using normal lifting pressure?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair cover to proper working specifications or replaced.</p>
	<p>Ventilation</p>	<p>Ventilation area blocked or plugged?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Remove or clear blocking material from ventilation area.</p>
	<p>Vault Structure Damaged; Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab.</p>	<p>Cracks > ½ in?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Evidence of soil particles entering the structure through the cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair or replace vault to designed specifications.</p>

Operations/Maintenance BMPs

Sand Filters - Closed

Maintenance Component	Defect	Condition	Actions
<p>Below Ground Vault. (cont.)</p>	<p>Vault Structure Damaged; Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab. (cont.)</p>	<p>Vault is structurally sound?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Consult engineer to determine if the vault is structurally sound.</p>
		<p>Cracks > ½ in. at the joint of any inlet/outlet pipe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Evidence of soil particles entering through the cracks at the joint of the inlet/outlet pipe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair vault so that no cracks exist > ¼ in. at the joint of the inlet/outlet pipe.</p>
	<p>Baffles/Internal walls</p>	<p>Baffles or walls corroding?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles or walls cracking?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles or walls warping?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles or walls showing signs of failure?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair and/or replace baffle to designed specifications.</p>
	<p>Access Ladder Damaged</p>	<p>Ladder is corroded or deteriorated?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair and/or replace ladder to specifications.</p>

Operations/Maintenance BMPs

Sand Filters - Closed

Maintenance Component	Defect	Condition	Actions
<p>Below Ground Vault. (cont.)</p>	<p>Access Ladder Damaged (cont.)</p>	<p>Ladder functioning properly?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder securely attached to structure wall?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Missing rungs?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Cracks and/or misaligned?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>♦ Repair and/or replace ladder to specifications.</p>

Operations/Maintenance BMPs

Stormfilter – Leaf Compost

Maintenance Component	Defect	Conditions	Action
Below Ground Vault	Sediment Accumulation on Media.	Sediment > ¼ in? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment deposits which could impede permeability of the compost media.
	Sediment Accumulation in Vault	Sediment > 6 inches in first chamber? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment deposits in vault bottom of first chamber.
	Trash/Debris Accumulation	Trash and debris accumulated on compost filter bed? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove trash and debris from the compost filter bed.
	Sediment in Drain Pipes/Clean-Outs	Drain pipes full with sediment and/or debris? <input type="checkbox"/> YES <input type="checkbox"/> NO Clean-outs full with sediment and/or debris? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment and debris.
	Damaged Pipes	Pipes crushed or damaged due to corrosion and/or settlement? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair or replace pipe.

Operations/Maintenance BMPs

Stormfilter – Leaf Compost

Maintenance Component	Defect	Conditions	Action
<p>Below Ground Vault (cont.)</p>	<p>Access Cover Damaged/Not Working</p>	<p>Cover cannot be opened?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Corrosion/deformation of cover?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Repair cover to proper working specifications. ◆ Replace cover.
	<p>Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab</p>	<p>Cracks > ½ in?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Evidence of soil particles entering the structure through the cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Vault is structurally sound?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Replace vault. ◆ Repair vault to designed specifications. ◆ Consult engineer for determination of structural integrity.
		<p>Cracks > ½ in. at the joint of any inlet/outlet pipe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Evidence of soil particles entering through the cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Repair vault so that no cracks exist > ¼ in. at the joint of the inlet/outlet pipe.

Maintenance Component	Defect	Conditions	Action
<p>Below Ground Vault (cont.)</p>	<p>Baffles</p>	<p>Baffles corroding?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles cracking?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles warping?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles showing signs of failure?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>♦ Repair or replace baffles to specifications.</p>
	<p>Access Ladder Damaged</p>	<p>Ladder is corroded or deteriorated?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder functioning properly?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder securely attached to structure wall?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Missing rungs?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>♦ Replace ladder.</p> <p>♦ Ladder replaced to designed specifications.</p>

Operations/Maintenance BMPs

Stormfilter – Leaf Compost

Maintenance Component	Defect	Conditions	Action
Below Ground Vault (cont.)	Access Ladder Damaged (cont.)	Rungs cracked or misaligned? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace ladder. ◆ Ladder replaced to designed specifications.
Below Ground Cartridge Type	Compost Media	Drawdown of water through the media > 1 hour? <input type="checkbox"/> YES <input type="checkbox"/> NO Overflow occurs frequently? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace media cartridges.
	Short Circuiting	Flows properly enter filter cartridges? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace filter cartridges.

Operations/Maintenance BMPs

Baffle Oil Water Separator -API

Maintenance Component	Defect	Condition	Actions
General	Monitoring	Discharge show signs of poor water quality? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Perform maintenance.
	Sediment Accumulation	Sediment bottom of vault > 6 inches in depth? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment on vault bottom that could impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris in vault? <input type="checkbox"/> YES <input type="checkbox"/> NO Trash and debris in pipe inlet/outlet? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove trash and debris from vault. ◆ Remove trash and debris from and inlet/outlet piping.
	Oil Accumulation	Oil accumulations > 1 in. at the surface of the water? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Extract oil from vault by vactoring. ◆ Dispose in accordance with state and local rules and regulations.
	Damaged Pipes	Inlet piping damaged or broken? <input type="checkbox"/> YES <input type="checkbox"/> NO Outlet piping damaged or broken? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Repair or replace pipe.

Operations/Maintenance BMPs

Baffle Oil Water Separator -API

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Access Cover Damaged/Not Working</p>	<p>Cover cannot be opened?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Corrosion/deformation of cover?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Repair cover to proper working specifications. ◆ Replace cover.
	<p>Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab</p>	<p>Top slab has holes > 2 in²?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Cracks > 1/4 inch?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Frame sitting flush on top slab?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Frame securely attached?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Structure is unsound?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Replace or repair vault to designed specifications and is structurally sound.

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab (cont.)</p>	<p>Grout separated?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Grout cracked > 1/2 inch and longer than 1 ft. at the joint of any inlet/outlet pipe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Evidence of soil particles entering catch basin through cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair vault so that no cracks exist wider than ¼ in. at the joint of the inlet/outlet pipe.</p>
	<p>Baffles</p>	<p>Baffles corroding?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles cracking or warping?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles showing signs of failure?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair or replace baffles to specifications.</p>
	<p>Access Ladder Damaged</p>	<p>Ladder is corroded or deteriorated?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder functioning properly?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Replace or repair ladder to meet specifications, and is safe to use.</p>

Operations/Maintenance BMPs

Baffle Oil Water Separator -API

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Access Ladder Damaged (cont.)</p>	<p>Ladder securely attached to structure wall?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Missing rungs?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Rungs cracked, or misaligned?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Replace or repair ladder to meet specifications, and is safe to use.</p>

Operations/Maintenance BMPs

Oil Water Separator - CP

Maintenance Component	Defect	Condition	Actions
General	Monitoring	Discharge water shows signs of poor water quality? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Perform maintenance.
	Sediment Accumulation	Sediment depth in bottom of vault > 6 inches in depth and/or visible signs of sediment on plates? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove sediment deposits on vault bottom and plate media, which would impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris in vault? <input type="checkbox"/> YES <input type="checkbox"/> NO Trash and debris in pipe inlet/outlet? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Remove trash and debris from vault. ◆ Remove trash and debris from inlet/outlet pipe.
	Oil Accumulation	Oil accumulation > 1 in. at the water surface? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Oil is extracted from vault using vactoring methods. ◆ Coalescing plates are cleaned by thoroughly rinsing and flushing. ◆ Should be no visible oil depth on water.
	Damaged Coalescing Plates	Plate media broken? <input type="checkbox"/> YES <input type="checkbox"/> NO Plate media deformed? <input type="checkbox"/> YES <input type="checkbox"/> NO	<ul style="list-style-type: none"> ◆ Replace a portion of the media pack. ◆ Replace the entire plate pack depending on severity of failure.

Operations/Maintenance BMPs

Oil Water Separator - CP

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Damaged Coalescing Plates (cont.)</p>	<p>Plate media cracked?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Plate media showing signs of failure?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Replace a portion of the media pack. ◆ Replace the entire plate pack depending on severity of failure.
	<p>Damaged Pipes</p>	<p>Inlet or outlet piping damaged or broken?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Repair or replace pipe.
	<p>Baffles</p>	<p>Baffles corroding?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles cracking or warping?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Baffles showing signs of failure?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Repair or replace baffles to meet specifications.
	<p>Vault Structure Damage -Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab</p>	<p>Cracks > ½ in?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<ul style="list-style-type: none"> ◆ Replace or repair vault to designed specifications and is structurally sound.

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Vault Structure Damage -Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab (cont.)</p>	<p>Evidence of soil particles entering the structure through the cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Vault is structurally sound?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Replace or repair vault to designed specifications and is structurally sound.</p>
		<p>Cracks > ½ in. at the joint of any inlet/outlet pipe?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Evidence of soil particles entering through the cracks?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair vault so that no cracks exist wider than ¼ in. at the joint of the inlet/outlet pipe.</p>
	<p>Access Ladder Damaged</p>	<p>Ladder is corroded or deteriorated?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder functioning properly?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>Ladder securely attached to structure wall?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Repair or replace ladder to meet specifications and is safe to use.</p>

Operations/Maintenance BMPs

Oil Water Separator - CP

Maintenance Component	Defect	Condition	Actions
General (cont.)	Access Ladder Damaged (cont.)	Missing rungs? <input type="checkbox"/> YES <input type="checkbox"/> NO Rungs cracked, or misaligned? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Repair or replace ladder to meet specifications and is safe to use.

Operations/Maintenance BMPs

Catch Basin Inserts

Maintenance Component	Defect	Condition	Actions
General	Sediment Accumulation	Sediment forming a cap over the insert media of the insert and/or unit? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove sediment cap on the insert media and its unit.
	Trash and Debris Accumulation	Trash and debris on insert unit creating a blockage/restriction? <input type="checkbox"/> YES <input type="checkbox"/> NO Runoff flows easily into catch basin?	♦ Remove trash and debris from insert unit.
	Media Insert Not Removing Oil	Effluent water from media insert has a visible sheen? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Perform maintenance.
	Media Insert Water Saturated	Catch basin insert is saturated with water? <input type="checkbox"/> YES <input type="checkbox"/> NO Catch basin insert no longer has the capacity to absorb? <input type="checkbox"/> YES <input type="checkbox"/> NO	♦ Remove and replace media insert

Operations/Maintenance BMPs

Catch Basin Inserts

Maintenance Component	Defect	Condition	Actions
<p>General (cont.)</p>	<p>Media Insert-Oil Saturated</p>	<p>Media oil saturated due to petroleum spill that drains into catch basin?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Remove and replace media insert.</p>
	<p>Media Insert Use Beyond Normal Product Life</p>	<p>Media has been used beyond the typical average life of media insert product?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p>◆ Remove and replace media at regular intervals, depending on insert product.</p>