

# C.3.h Group Exercise

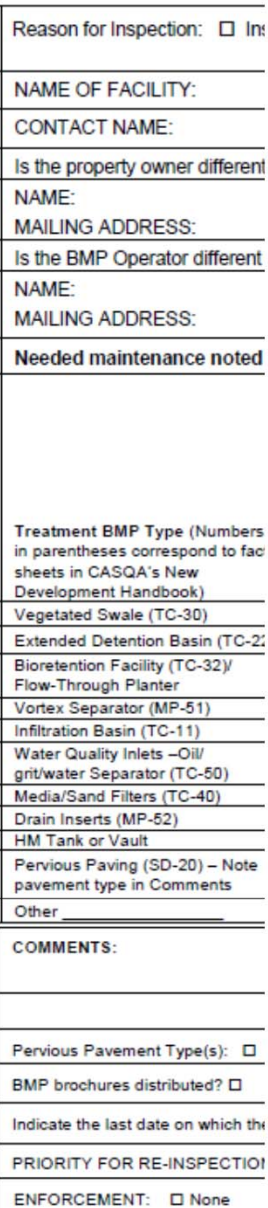
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# Inspection Form Review

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Needed Maintenance	Conditions When Maintenance Is Needed
Trash or Debris	<u>Treatment or HM BMP/Pervious Paving</u> : Trash, debris, or litter dumped or accumulated in BMP. Vortex separator floatables should be removed according to maintenance plan. Check for mulch washout.
Pollutants	<u>Treatment BMP/Pervious Paving</u> : Any evidence of oil, gasoline, improper pesticide or fertilizer use, spill, or other visible pollutants.
Rodent Holes	<u>Extended Detention or HM Basin</u> : If facility acts as dam/berm, any evidence of rodent holes or water piping through dam/berm via rodent holes.
Hazardous Trees/Brush	<u>Extended Detention or HM Basin</u> : Growth does not allow access or interferes with maintenance; dead, diseased or dying trees. Growth >4 ft. high on berms/emergency spillway or covering >10% of spillway. Pervious Paving: Root encroachment or pavement lift.
Erosion or Scouring	<u>Treatment or HM BMP</u> : Eroded or scoured bottom due to flow channelization or higher flows. <u>Extended Detention or HM Basin</u> : Side slopes eroded >2 inches deep where cause of damage is present or there is potential for continued erosion; Erosion on compacted berm embankment.
Excessive Sediment	<u>Vegetated Swale/Bioretenention</u> : Sediment accumulated >2 inches deep on vegetation. <u>Extended Detention or HM Basin</u> : Accumulated sediment >10% of designated basin depth or affects inletting/outletting condition of facility. Pervious Paving: Clogging.
Liner Condition (if visible)	<u>Extended Detention or HM Basin</u> : Liner is visible and has more than 3, ¼-inch holes in it.
Spillway/Berm Damaged, Settled	<u>Extended Detention or HM Basin</u> : Spillway and/or berm settlement is 4 inches lower than design elevation. Rock missing & soil exposed at top of spillway or outside slope.
Damaged Trash Rack or Screen	<u>Treatment or HM BMP</u> : Trash/debris plugging openings in barrier. <u>Vortex Separator</u> : Screen damaged. <u>Extended Detention or HM Basin</u> : Bars missing, loose, bent out of shape or deteriorating due to excessive corrosion.
Inlet/Outlet Condition	<u>Treatment or HM BMP/Pervious Paving</u> : Inlet/outlet areas clogged with sediment, vegetation and/or debris. Check any high-flow bypass for clogging. <u>Extended Detention or HM Basin</u> : Debris barrier missing or not attached to pipe.
Security (fence, gates, and/or covers)	<u>Treatment or HM BMP</u> : Any defect or damage to fence/gate that prevents easy entry to the BMP and/or cover for below surface BMPs.
Coating/Paint	<u>Treatment BMP</u> : Parts that are corroding or have scaling paint.
Standing Water	<u>Treatment or HM BMP/Pervious Paving</u> : When water stands in BMP for longer than 5 days between storms and does not drain freely, unless this is part of the BMP's design. Check for irrigation problems.
Mosquitoes/Other Insects	<u>Treatment or HM BMP/Pervious Paving</u> : If mosquitoes or mosquito larvae are present in a BMP, contact the San Mateo County Mosquito Abatement District at (650) 344-8592 or <a href="http://www.smcwcd.org/contact-us">www.smcwcd.org/contact-us</a> . Insects such as wasps and hornets interfere with maintenance activities.
Flow Spreader	<u>Vegetated Swale/Bioretenention</u> : Spreader uneven/clogged (flow not uniformly distributed over entire swale width).
Invasive Weeds or Vegetation	<u>Treatment or HM BMP</u> : Examples - Arundo, Castor Bean, Cattails, Pampas Grass, Tamarisk, Willows, Morning Glory, English Ivy, Blackberry, Scotch Broom, or Poison Oak. <u>Vegetated Swale/Bioretenention</u> : Planted vegetation becomes excessively tall; nuisance vegetation/weeds start to take over. Pervious Paving: Weeds in joints of permeable joint paving; turf block not mowed per maintenance plan.
Poor Vegetation Coverage < 90%	<u>Treatment or HM BMP</u> : Check for mulch failure. <u>Vegetated Swale/Turf block paving</u> : When planted vegetation is sparse, bare or eroded patches occur in >10% of turf block or swale bottom. <u>Bioretenention</u> : Ten percent of plants have died and not been replaced.
Pedestrian Path De-vegetation/Compaction	<u>Vegetated Swale/Bioretenention</u> : Pedestrian trails are forming or been established that are devegetating portion of BMP and compacting soil.
Odor	<u>Treatment or HM BMP/Pervious Paving</u> : Any odor associated with the accumulation and decomposition of pollutants or other material in the BMP that is causing a nuisance.
Pervious Pavement Defects	Any of the following: major cracks or trip hazards, concrete spalling and raveling, cracked or broken pavers, visible aggregate loss between pavers, substantial settlement of paved surface.

[illegible]

# Scenario #1 – Installation Inspection

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Problems with a Stormwater Control Measure



**Stormwater Treatment or Hydromodification Management (HM) BMP O&M Verification Inspection Report Form**

Reason for Inspection: <input checked="" type="checkbox"/> Installation Inspection <input type="checkbox"/> Routine Inspection <input type="checkbox"/> Response to Complaint <input type="checkbox"/> Follow-up				Follow-up Inspection Due: _____	
NAME OF FACILITY: <u>Townsville Homes</u>		SITE ADDRESS: <u>123 Main Street</u>		PHONE: _____	
CONTACT NAME: <u>John Smith</u> EMAIL: <u>jsmith@homes.com</u>		PROJECT TYPE/ACTIVITY: <u>Residential</u>		SIC: <u>123-4567</u>	
Is the property owner different than the facility owner? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, complete the following:		ID# OR APN: <u>12345</u>	
NAME: _____		TITLE: _____		Map Code: _____	
MAILING ADDRESS: _____		EMAIL: _____		PHONE: _____	
Is the BMP Operator different than the facility owner? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, complete the following:		Location: _____	
NAME: _____		TITLE: _____		PHONE: _____	
MAILING ADDRESS: _____		EMAIL: _____		PHONE: _____	

Needed maintenance noted for the Treatment and/or HM BMPs below shall be completed within 30 days and notification of correction faxed, emailed or mailed to the oversight agency.

Treatment BMP Type (Numbers in parentheses correspond to fact sheets in CASQA's New Development Handbook)	No visible problems	Needed Maintenance																								
		Trash or Debris	Pollutants	Rodent Holes	Hazardous Trees/Brush	Erosion or Scouring	Excessive Sediment	Liner Condition (if visible)	Spillway/Berm Damaged, Settled	Damaged Trash Rack or Screen	Inlet/Outlet Condition	Security (fence, gates)	Coating/Paint	Standing Water	Mosquitoes/ Other Insects	Flow Spreader/ Equalizer	Invasive Weeds or Vegetation	Poor Vegetation Cover < 90%	Pedestrian Path De-vegetation/ Compaction	Vegetation Overgrown	Odors	Mulch replenish	Pavement Cracked or Broken	Aggregate Loss in Paver Joints	Settlement of pavement surface	Other:
Vegetated Swale (TC-30)																										
Extended Detention Basin (TC-22)																										
Bioretention Facility (TC-32)/ Flow-Through Planter																										
Vortex Separator (MP-51)																										
Infiltration Basin (TC-11)																										
Water Quality Inlets –Oil/ grit/water Separator (TC-50)																										
Media/Sand Filters (TC-40)																										
Drain Inserts (MP-52)																										
HM Tank or Vault																										
Pervious Paving (SD-20) – Note pavement type in Comments																										
Other																										

COMMENTS: \_\_\_\_\_ Date Treatment/HM BMP Installed (for first inspection only): \_\_\_\_\_ Maintenance Documentation Reviewed? ☐ Yes ☐ No Maintenance required in storm drain system? ☐ Yes ☐ No

Pervious Pavement Type(s): ☐ pervious concrete ☐ porous asphalt ☐ interlocking concrete pavers ☐ grid pavers ☐ turf block

BMP brochures distributed? ☐ Describe: \_\_\_\_\_ Follow-up required? ☐ Yes ☐ No Comments: \_\_\_\_\_

Indicate the last date on which the Applicant submitted annual report for project O&M: \_\_\_\_\_ (attach report)

PRIORITY FOR RE-INSPECTION: ☐ First ☐ Second ☐ Third REQUIRED COMPLIANCE DATE: \_\_\_\_\_ DATE CORRECTED: \_\_\_\_\_

ENFORCEMENT: ☐ None ☐ Verbal Notice ☐ Warning Notice ☐ Administrative Action ☐ Administrative Action w/ Penalty &/or Cost Recovery ☐ Legal Action

Appendix: O&M Annual Report Form















No Sidewalk Access

# Scenario #1 – Installation Inspection

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Solutions?



**Stormwater Treatment or Hydromodification Management (HM) BMP O&M Verification Inspection Report Form**

Reason for Inspection: <input checked="" type="checkbox"/> Installation Inspection <input type="checkbox"/> Routine Inspection <input type="checkbox"/> Response to Complaint <input type="checkbox"/> Follow-up				Follow-up Inspection Due: _____	
NAME OF FACILITY: <u>Townsville Homes</u>		SITE ADDRESS: <u>123 Main Street</u>		PHONE: _____	
CONTACT NAME: <u>John Smith</u>		EMAIL: <u>jsmith@homes.com</u>		PROJECT TYPE/ACTIVITY: <u>Residential</u>	
Is the property owner different than the facility owner? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, complete the following:		SIC: <u>123-4567</u>	
NAME: _____		TITLE: _____		PHONE: _____	
				ID# OR APN: <u>12345</u>	
				Map Code: _____	
				Location: _____	

Treatment BMP Type (Numbers in parentheses correspond to fact sheets in CASQA's New Development Handbook)	Security (fence, gates)	Coating/Paint	Standing Water	Mosquitoes/ Other Insects	Flow Spreader/ Equalizer	Invasive Weeds or Vegetation	Poor Vegetation Cover < 90%	Pedestrian Path De-vegetation/ Compaction	Vegetation Overgrown	Odors	Mulch replenish	Pavement Cracked or Broken	Aggregate Loss in Paver Joints	Settlement of pavement surface	Other:
Vegetated Swale (TC-30)															
Extended Detention Basin (TC-22)															
Bioretention Facility (TC-32)/ Flow-Through Planter					1										
Vortex Separator (MP-51)															
Infiltration Basin (TC-11)															
Water Quality Inlets –Oil/ grit/water Separator (TC-50)															
Media/Sand Filters (TC-40)															
Drain Inserts (MP-52)															
HM Tank or Vault															
Pervious Paving (SD-20) – Note pavement type in Comments															
Other _____															

Indicate the last date on which the Applicant submitted annual report for project O&M: _____ (attach report)	
PRIORITY FOR RE-INSPECTION: <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third	REQUIRED COMPLIANCE DATE: _____ DATE CORRECTED: _____
ENFORCEMENT: <input type="checkbox"/> None <input type="checkbox"/> Verbal Notice <input type="checkbox"/> Warning Notice <input type="checkbox"/> Administrative Action <input type="checkbox"/> Administrative Action w/ Penalty &/or Cost Recovery <input type="checkbox"/> Legal Action	



**Stormwater Treatment or Hydromodification Management (HM) BMP O&M Verification Inspection Report Form**

Reason for Inspection: <input checked="" type="checkbox"/> Installation Inspection <input type="checkbox"/> Routine Inspection <input type="checkbox"/> Response to Complaint <input type="checkbox"/> Follow-up		Follow-up Inspection Due: _____	
NAME OF FACILITY: <u>Townsville Homes</u>		SITE ADDRESS: <u>123 Main Street</u>	
CONTACT NAME: <u>John Smith</u> EMAIL: <u>jsmith@homes.com</u>		PHONE: <u>123-4567</u>	
PROJECT TYPE/ACTIVITY: <u>Residential</u>		ID# OR APN: <u>12345</u>	
Is the property owner different than the facility owner? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Map Code: _____	
If yes, complete the following:		Location: _____	
NAME: _____		TITLE: _____	
MAILING ADDRESS: _____		PHONE: _____	
Is the BMP Operator different than the facility owner? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, complete the following:	
NAME: _____		TITLE: _____	
MAILING ADDRESS: _____		PHONE: _____	

Needed maintenance noted for the Treatment and/or HM BMPs below shall be completed within 30 days and notification of correction faxed, emailed or mailed to the oversight agency.

Treatment BMP Type (Numbers in parentheses correspond to fact sheets in CASQA's New Development Handbook)	No visible problems	Needed Maintenance																								
		Trash or Debris	Pollutants	Rodent Holes	Hazardous Trees/Brush	Erosion or Scouring	Excessive Sediment	Liner Condition (if visible)	Spillway/Berm Damaged, Settled	Damaged Trash Rack or Screen	Inlet/Outlet Condition	Security (fence, gates)	Coating/Paint	Standing Water	Mosquitoes/ Other Insects	Flow Spreader/ Equalizer	Invasive Weeds or Vegetation	Poor Vegetation Cover < 90%	Pedestrian Path De-vegetation/ Compaction	Vegetation Overgrown	Odors	Mulch replenish	Pavement Cracked or Broken	Aggregate Loss in Paver Joints	Settlement of pavement surface	Other:
Vegetated Swale (TC-30)																										
Extended Detention Basin (TC-22)																										
Bioretention Facility (TC-32)/ Flow-Through Planter			2								1					1										
Vortex Separator (MP-51)																										
Infiltration Basin (TC-11)																										
Water Quality Inlets –Oil/ grit/water Separator (TC-50)																										
Media/Sand Filters (TC-40)																										
Drain Inserts (MP-52)																										
HM Tank or Vault																										
Pervious Paving (SD-20) – Note pavement type in Comments																										

COMMENTS: \_\_\_\_\_ Date Treatment/HM BMP Installed (for first inspection only): 7/1/2014 Maintenance Documentation Reviewed? ☒ Yes ☐ No Maintenance required in storm drain system? ☐ Yes ☒ No

1) Downspout runoff bypasses BMP; Drive aisle runoff ponds in low point in front of BMP; Overflow outlet blocked by curb. BMP needs redesign so that runoff enters treatment area. (2) Oil sheen in BMP#2

Pervious Pavement Type(s): ☐ pervious concrete ☐ porous asphalt ☐ interlocking concrete pavers ☐ grid pavers ☐ turf block

BMP brochures distributed? ☐ Describe: \_\_\_\_\_ Follow-up required? ☒ Yes ☐ No Comments: \_\_\_\_\_

Indicate the last date on which the Applicant submitted annual report for project O&M: \_\_\_\_\_ (attach report)

PRIORITY FOR RE-INSPECTION: ☒ First ☐ Second ☐ Third REQUIRED COMPLIANCE DATE: 10/10/14 DATE CORRECTED: \_\_\_\_\_

ENFORCEMENT: ☐ None ☒ Verbal Notice ☐ Warning Notice ☐ Administrative Action ☐ Administrative Action w/ Penalty &/or Cost Recovery ☐ Legal Action

Appendix: O&M Annual Report Form

# Scenario #2 – O&M Inspection

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Downspout/Inlet Construction



**Stormwater Treatment or Hydromodification Management (HM) BMP O&M Verification Inspection Report Form**

Reason for Inspection: <input type="checkbox"/> Installation Inspection <input checked="" type="checkbox"/> Routine Inspection <input type="checkbox"/> Response to Complaint <input type="checkbox"/> Follow-up				Follow-up Inspection Due: _____	
NAME OF FACILITY: <u>Townsville Homes/ HOA</u>		SITE ADDRESS: <u>123 Main Street</u>		PHONE: _____	
CONTACT NAME: <u>Mary Brown</u>		EMAIL: <u>maryb@gmail.com</u>		PROJECT TYPE/ACTIVITY: <u>Residential</u>	
Is the property owner different than the facility owner? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, complete the following:		SIC: <u>123-4567</u>	
NAME: _____		TITLE: _____		PHONE: _____	
MAILING ADDRESS: _____		EMAIL: _____		Map Code: _____	
Is the BMP Operator different than the facility owner? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes, complete the following:		Location: _____	
NAME: <u>Jack Lee; ABC Landscaping</u>		TITLE: <u>President</u>		PHONE: _____	
MAILING ADDRESS: <u>321 Main Street</u>		EMAIL: <u>Jlee@gmail.com</u>		PHONE: <u>7654-321</u>	

Needed maintenance noted for the Treatment and/or HM BMPs below shall be completed within 30 days and notification of correction faxed, emailed or mailed to the oversight agency.

Treatment BMP Type (Numbers in parentheses correspond to fact sheets in CASQA's New Development Handbook)	No visible problems	Needed Maintenance																								
		Trash or Debris	Pollutants	Rodent Holes	Hazardous Trees/Brush	Erosion or Scouring	Excessive Sediment	Liner Condition (if visible)	Spillway/Berm Damaged, Settled	Damaged Trash Rack or Screen	Inlet/Outlet Condition	Security (fence, gates)	Coating/Paint	Standing Water	Mosquitoes/ Other Insects	Flow Spreader/ Equalizer	Invasive Weeds or Vegetation	Poor Vegetation Cover < 90%	Pedestrian Path De-vegetation/ Compaction	Vegetation Overgrown	Odors	Mulch replenish	Pavement Cracked or Broken	Aggregate Loss in Paver Joints	Settlement of pavement surface	Other:
Vegetated Swale (TC-30)																										
Extended Detention Basin (TC-22)																										
Bioretention Facility (TC-32)/ Flow-Through Planter																										
Vortex Separator (MP-51)																										
Infiltration Basin (TC-11)																										
Water Quality Inlets –Oil/ grit/water Separator (TC-50)																										
Media/Sand Filters (TC-40)																										
Drain Inserts (MP-52)																										
HM Tank or Vault																										
Pervious Paving (SD-20) – Note pavement type in Comments																										
Other																										

COMMENTS: \_\_\_\_\_ Date Treatment/HM BMP Installed (for first inspection only): \_\_\_\_\_ Maintenance Documentation Reviewed? ☐ Yes ☐ No Maintenance required in storm drain system? ☐ Yes ☐ No

Pervious Pavement Type(s): ☐ pervious concrete ☐ porous asphalt ☐ interlocking concrete pavers ☐ grid pavers ☐ turf block

BMP brochures distributed? ☐ Describe: \_\_\_\_\_ Follow-up required? ☐ Yes ☐ No Comments: \_\_\_\_\_

Indicate the last date on which the Applicant submitted annual report for project O&M: \_\_\_\_\_ (attach report)

PRIORITY FOR RE-INSPECTION: ☐ First ☐ Second ☐ Third REQUIRED COMPLIANCE DATE: \_\_\_\_\_ DATE CORRECTED: \_\_\_\_\_

ENFORCEMENT: ☐ None ☐ Verbal Notice ☐ Warning Notice ☐ Administrative Action ☐ Administrative Action w/ Penalty &/or Cost Recovery ☐ Legal Action









# Scenario #2

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Solutions?





















**Stormwater Treatment or Hydromodification Management (HM) BMP O&M Verification Inspection Report Form**

Reason for Inspection: <input type="checkbox"/> Installation Inspection <input checked="" type="checkbox"/> Routine Inspection <input type="checkbox"/> Response to Complaint <input type="checkbox"/> Follow-up		Follow-up Inspection Due: _____	
NAME OF FACILITY: <u>Townsville Homes</u>		SITE ADDRESS: <u>123 Main Street</u>	
CONTACT NAME: <u>Mary Brown</u> EMAIL: <u>maryb@gmail.com</u>		PHONE: <u>123-4567</u>	
PROJECT TYPE/ACTIVITY: <u>Residential</u> SIC: _____		ID# OR APN: <u>12345</u>	
Is the property owner different than the facility owner? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Map Code: _____	
If yes, complete the following:		Location: _____	
NAME: _____		TITLE: _____	
MAILING ADDRESS: _____		PHONE: _____	
Is the BMP Operator different than the facility owner? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes, complete the following:	
NAME: <u>Jack Lee; ABC Landscaping</u>		TITLE: <u>President</u>	
MAILING ADDRESS: <u>321 Main Street</u>		PHONE: <u>7654-321</u>	
EMAIL: <u>Jlee@gmail.com</u>		PHONE: <u>7654-321</u>	

Needed maintenance noted for the Treatment and/or HM BMPs below shall be completed within 30 days and notification of correction faxed, emailed or mailed to the oversight agency.

Treatment BMP Type (Numbers in parentheses correspond to fact sheets in CASQA's New Development Handbook)	No visible problems	Needed Maintenance																								
		Trash or Debris	Pollutants	Rodent Holes	Hazardous Trees/Brush	Erosion or Scouring	Excessive Sediment	Liner Condition (if visible)	Spillway/Berm Damaged, Settled	Damaged Trash Rack or Screen	Inlet/Outlet Condition	Security (fence, gates)	Coating/Paint	Standing Water	Mosquitoes/ Other Insects	Flow Spreader/ Equalizer	Invasive Weeds or Vegetation	Poor Vegetation Cover < 90%	Pedestrian Path De-vegetation/ Compaction	Vegetation Overgrown	Odors	Mulch replenish	Pavement Cracked or Broken	Aggregate Loss in Paver Joints	Settlement of pavement surface	Other:
Vegetated Swale (TC-30)																										
Extended Detention Basin (TC-22)																										
Bioretention Facility (TC-32)/ Flow-Through Planter					1,3					1,3						4										
Vortex Separator (MP-51)																										
Infiltration Basin (TC-11)																										
Water Quality Inlets –Oil/ grit/water Separator (TC-50)																										
Media/Sand Filters (TC-40)																										
Drain Inserts (MP-52)																										
HM Tank or Vault																										
Pervious Paving (SD-20) – Note pavement type in Comments																										
Other																										

COMMENTS: \_\_\_\_\_ Date Treatment/HM BMP Installed (for first inspection only): \_\_\_\_\_ Maintenance Documentation Reviewed? ☐ Yes ☐ No Maintenance required in storm drain system? ☐ Yes ☐ No

(1,3)Downspout outlet faces straight down into planter, concentrating flow and causing scour, which can undermine the structure of the box. Discharge should spreading into planter (4) Weeding needed

Pervious Pavement Type(s): ☐ pervious concrete ☐ porous asphalt ☐ interlocking concrete pavers ☐ grid pavers ☐ turf block

BMP brochures distributed? ☐ Describe: \_\_\_\_\_ Follow-up required? ☐ Yes ☐ No Comments: \_\_\_\_\_

Indicate the last date on which the Applicant submitted annual report for project O&M: 8/31/2016 (attach report)

PRIORITY FOR RE-INSPECTION: ☐ First ☒ Second ☐ Third REQUIRED COMPLIANCE DATE: 3/2/17 DATE CORRECTED: \_\_\_\_\_

ENFORCEMENT: ☐ None ☒ Verbal Notice ☐ Warning Notice ☐ Administrative Action ☐ Administrative Action w/ Penalty &/or Cost Recovery ☐ Legal Action

Appendix: O&M Annual Report Form