



Maryland

Department of
the Environment

Larry Hogan
Governor

Boyd Rutherford
Lieutenant Governor

Ben Grumbles
Secretary

September 18, 2018

Mr. Christopher J. Phipps, P.E., Director
Anne Arundel County Department of Public Works
2662 Riva Road
Annapolis, MD 21401

Dear Mr. Phipps:

The Maryland Department of the Environment (MDE) has completed a review of Anne Arundel County's Property Management and Maintenance Program as required under its National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) permit (Permit No. 11-DP-3316, MD0068306). Enclosed is a summary of MDE's observations and recommendations. As part of this review, MDE and Anne Arundel County staff discussed the County program and visited three County-owned facilities on January 22, 2018.

MDE reviewed all aspects of the Property Management and Maintenance Program. The assessment focused on snow and ice control, including application of deicing material, training, equipment technology, and general winter maintenance policies. The County demonstrated a proactive, long-term approach to winter weather management. New technology is being phased in and anti-icing programs are being piloted. Staff and contractors are being trained regularly and the County has created educational material for citizens, as well. MDE additionally observed that the County was using stormwater pollution prevention plans (SWPPPs) as a tool for making corrective actions and implementing high quality good housekeeping practices.

MDE commends Anne Arundel County for the substantial effort undertaken to implement a high quality Property Management and Maintenance Program in accordance with the MS4 permit. If you have any questions, please contact me at 410-537-3547 or michelle.crawford1@maryland.gov, or Stewart Comstock at 410-537-3550, stewart.comstock@maryland.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Michelle Crawford".

Michelle Crawford
Natural Resources Planner
Sediment, Stormwater, and Dam Safety Program

cc: Erik Michelsen, Administrator, Watershed Protection and Restoration Program

Attachment

**Maryland Department of the Environment
 Review of Anne Arundel County MS4 Property Management and Maintenance Program
 January 22, 2018**

Topic	MDE Assessment and Recommendations
Attendees	<p><i>MDE attendees:</i> Michelle Crawford, Stewart Comstock</p> <p><i>Anne Arundel County attendees:</i> Erik Michelsen, Ginger Ellis, Janis Markusic, Alex Baquie</p>
General Comments	<ul style="list-style-type: none"> • The County has been proactive in making significant long-term investments and updates to the winter weather program. These efforts were in anticipation of the chloride total maximum daily load (TMDL) that may be part of the next generation MS4 permit. Primary strategies to reduce the use of deicing material are introducing a pilot anti-icing pretreatment program, phasing in improved technology, and continued employee training. <ul style="list-style-type: none"> ○ Since 2010, the County has been using WeatherSentry to get treatment recommendations and weather forecasts. Federal Highway Administration weather management plans are available in the system. A meteorologist is also available to consult through the program. ○ Automatic vehicle location (AVL) portable GPS units trace the location, speed, and application rate of trucks in an online system, and if it idles for more than 30 minutes. Onboard AVL has been installed in the entire fleet (74 trucks). An estimated 225 County vehicles have a portable AVL and units are available for contractor vehicles. The County can search by area and time, and can create reports, e.g., in case a citizen claims a snow removal vehicle damaged their property. ○ Annual staff snow removal training takes place in October including one day of vehicle inspection and maintenance and a second day in which new operators are paired with a more experienced driver. Contractors have a 1-3-hour annual County training session. They are notified by email to take refresher training. • Stormwater pollution prevention plans (SWPPPs) located on site were up-to-date and site-specific. Notes and observed site modifications, such as berms and other added controls, showed evidence that SWPPPs were being used as a tool and that staff were actively working to correct issues. Facility inspections are performed twice monthly using the SWPPP. • All stormwater BMPs appeared to be adequately maintained. • County maintenance work is divided into three districts (Central, Northern, Southern). • Information for homeowners on yard waste, deicing material application, and reducing salt runoff to streams is provided on

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	<p>the County website.</p> <ul style="list-style-type: none"> • Stormwater pollution prevention training <ul style="list-style-type: none"> ○ Training is provided annually, divided into four quarterly modules throughout the year. The County submitted with their annual report a staff training schedule with dates, locations, number of employees trained, and topics. ○ 352 employees were trained during July 2016 – May 2017. ○ Training records were located at each facility. • The Marley Fire Company 18 is not required to be covered under the separate industrial stormwater general permit. Because of this, the property management activities currently being performed were evaluated to inform future State permitting requirements. <ul style="list-style-type: none"> ○ High quality good housekeeping procedures and overall site cleanliness were observed at this facility. ○ Staff are regularly trained in spill prevention and hazardous materials handling under separate fire safety requirements.
Recommendations	<ul style="list-style-type: none"> • St. Margaret’s Road Operations Yard <ul style="list-style-type: none"> ○ County planned to replace leaking dumpster. At time of visit a water collection pan had been placed under it. ○ A concrete berm and coir log were placed at an at-grade stormwater inlet to prevent stormwater contamination. MDE recommends that the County continue to monitor this location to prevent stormwater contamination from industrial activities, as well as consider placing more long-term controls that are lower maintenance, e.g., permanently directing runoff away from these drains. • MDE encourages the County to continue working with contractors, including: <ul style="list-style-type: none"> ○ Regular training sessions. ○ Encouraging good housekeeping measures such as avoiding stormwater contamination during washing of vehicles and equipment. ○ Continuing to monitor rates and quantities of deicing material application by contractors. • MDE is attaching to this report a table showing street sweeping pollution reduction efficiencies from a Chesapeake Bay Program Expert Panel Report, as compared with the efficiencies found in MDE’s 2014 document Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated. The County may calculate efficiencies using the frequencies listed in the table or the MDE guidance document.

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Facility Name/Address/Type:		St. Margaret's Road Operations Yard 409 Broadneck Road, Annapolis, Maryland			
Date of Field Inspection:	01-22-2018	Inspectors:	Michelle Crawford, Stew Comstock		
Onsite activities: Deicer/anti-icer storage, fueling, vehicle washing, road material storage, filtering of inlet cleaning waste material					
Was a copy of the following found on site:					
Notice of Intent (NOI)	Y	NPDES Industrial General Permit	12-SW AD.a	Stormwater Pollution Prevention Plan (SWPPP) with training records	Y
Stormwater BMPs Present					
<ul style="list-style-type: none"> • Coir log around stormwater inlet • Oil-grit separator at outdoor vehicle washpad • Infiltration trench next to one salt barn • Facility inspected monthly 					
Does the SWPPP include:					Yes/No/N.A.
name of person primarily responsible for property management and maintenance program?					Alex Baquie
map of site with locations of BMPs and direction of runoff flow across site?					Y
documentation of corrective actions, if applicable?					Y
description of structural and non-structural controls to prevent stormwater pollution?					Y
Activities					
Vehicle washing & maintenance					
If vehicles are washed on site, where is that located and where does water drain to?			Outdoor wash pad with asphalt berm, drain connected to oil-grit separator and then to the sanitary sewer system. Alkaline wash stored in indoor tank.		

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Facility Name/Address/Type:		St. Margaret's Road Operations Yard 409 Broadneck Road, Annapolis, Maryland						
Vehicle storage								
Are vehicles stored on site covered or uncovered?					Parked outside on paved lot			
Other storage								
Outdoor storage of waste in dumpster, 2 road materials piles with asphalt berm, 3 road materials piles covered with concrete on 3 sides								
Fueling								
Are fueling areas covered? With roof drains?		N	Leak sensors?		N	Is there a spill kit nearby?		Yes
Deicing								
What deicing materials are used and where are they stored?				2 salt barns, 3 5,000-gallon tanks of pretreatment (salt brine, calcium chloride) mixed on site and hooked to truck to fill. Barns repaired in 2015.				
Are materials labeled clearly?		Y	Are salt piles covered?		Y	Is any material stored outside?		Secondary containment wall around salt brine tanks. Inside salt barns: wood berm, straw bales, and coir logs at entrances, covered salt piles on one side (other side not used for access)
Pesticides and fertilizer								
What materials are used and where are they stored?				All pesticides stored at Crownsville site. Contractor applies pesticides at facility.				
Are materials labeled clearly?		Y	Is there an IPM or a similar plan?		Y	Is any material stored outside?		N
Waste Disposal								
General site cleaning schedules			Sweeping is performed by a contractor monthly and after snow events. Observed broom sweeping next to one salt barn during visit.					

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Facility Name/Address/Type:	St. Margaret's Road Operations Yard 409 Broadneck Road, Annapolis, Maryland	
How is waste stored on site?	Inlet cleaning waste material is filtered on site via concrete pad: drains for approximately 24 hours in forebay. Filter structure is cleaned every couple months and its forebay is cleaned weekly. A dewatering roll off dumpster is used to weigh material.	
Are any leaks or open containers observed?	Y: trash dumpster with container underneath to catch leaks	
Were the following observed during the field inspection:		Yes/No
Evidence that SWPPP is up-to-date and all described BMPs are fully implemented and maintained		Y
General site cleanliness and good housekeeping (e.g., no standing oil observed, organized materials/equipment)		Y
Labeled storage and adequate containment practices, including any required secondary containment		Y
No unauthorized discharges or leaks (active or recent) observed on site		Y
Evidence that staff has been adequately trained and understands the requirements of the SWPPP		Y
Overall evidence that SWPPP provides adequate prevention of stormwater contamination through BMP implementation		Y

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Photos:



Berm and straw at salt barn entrance



Concrete berm and coir log at at-grade stormwater inlet



Filtering inlet cleaning waste material



Outdoor wash pad with asphalt berm

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Facility Name/Address/Type:		Mountain Road Operations Yard (DPW Northern District) 318 Mountain Road, Pasadena, Maryland			
Date of Field Inspection:	01-22-2018	Inspectors:	Michelle Crawford, Stew Comstock		
Onsite activities: Deicer/anti-icer storage, inlet cleaning waste material filtering and storage, vehicle washing, equipment and vehicle storage					
Was a copy of the following found on site:					
Notice of Intent (NOI)	Y	State Industrial General Permit	12-SW AD.a	Stormwater Pollution Prevention Plan (SWPPP) with training records	Y
BMPs Present					
<ul style="list-style-type: none"> Stormwater management pond 					
Does the SWPPP include:					Yes/No/N.A.
name of person primarily responsible for property management and maintenance program?					Alex Baquie
map of site with locations of BMPs and direction of runoff flow across site?					Y
documentation of unauthorized discharges and corrective actions, if applicable?					Y
description of structural and non-structural controls to prevent stormwater pollution?					Y
records of quarterly and annual comprehensive site compliance evaluations?			Yes: Staff noted an onsite leak in most recent onsite inspection 11/19/2018, was corrected and noted in SWPPP		

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Activities	
Vehicle washing & maintenance	
If vehicles are washed on site, where is that located and where does water drain to?	County salt trucks are washed here in a wash bay to extend life of vehicles by preventing corrosion. Contractors are responsible for their own vehicle washing; a private car wash is located next door and the onsite County staff assume they wash vehicles there.
Is there a spill kit nearby?	Y
Cleaning schedules for onsite controls?	Washed off waste material is swept to a wheelbarrow and carted to reuse or taken to landfill
Vehicle storage	
Are vehicles stored on site covered or uncovered?	Covered
Are other agency vehicles accepted to be stored on site during the year?	No
Other storage	
Winter weather equipment stored (covered and not covered). Also storing outdoors: road material (cold mix asphalt), tree trimmings / mulch, and trash	

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Facility Name/Address/Type:		Mountain Road Operations Yard (DPW Northern District) 318 Mountain Road, Pasadena, Maryland			
Fueling					
Are fueling areas present?		Y: 1 AST on raised platform with bollards			
Deicing					
What deicing materials are used and where are they stored?			2 salt barns with reinforced sides, newly replaced roof, and indoor lights. Staff described that salt barns usually have tarp covering and straw bales at entrance. Double-walled pretreatment tanks with valves on hoses to reduce leaks, mixed at St. Margaret's facility.		
Are materials labeled clearly?	Y	Are salt piles covered?	Y	Is any material stored outside?	N
Pesticides and fertilizer					
What materials are used and where are they stored?			N.A.		
Are materials labeled clearly?	N.A.	Is there an IPM or a similar plan?	N.A.	Is any material stored outside?	N.A.
Waste Disposal					
How is waste stored on site?			Onsite filtering of inlet cleaning waste. Street sweeping waste is placed in dumpster.		
Are any leaks or open containers observed?			N		
Is there long-term waste storage, e.g., old vehicle parts or pipes?			N		
How often is onsite waste inspected to ensure that no leaks occur?			Monthly, quarterly, and annual inspections		
How is waste disposed of, e.g., filters, fluids, batteries, street sweeping and inlet cleaning waste, leaves?			All street sweeping and inlet cleaning waste is weighed at landfill.		

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Facility Name/Address/Type:	<u>Mountain Road Operations Yard (DPW Northern District) 318 Mountain Road, Pasadena, Maryland</u>	
Were the following observed during the field inspection:		Yes/No
Evidence that SWPPP is up-to-date and all described BMPs are fully implemented and maintained		Y
General site cleanliness and good housekeeping (e.g., no standing oil observed, organized materials/equipment)		Y
Labeled storage and adequate containment practices, including any required secondary containment		Y
No unauthorized discharges or leaks (active or recent) observed on site		Y
Evidence that staff has been adequately trained and understands the requirements of the SWPPP		Y
Overall evidence that SWPPP provides adequate prevention of stormwater contamination through BMP implementation		Y

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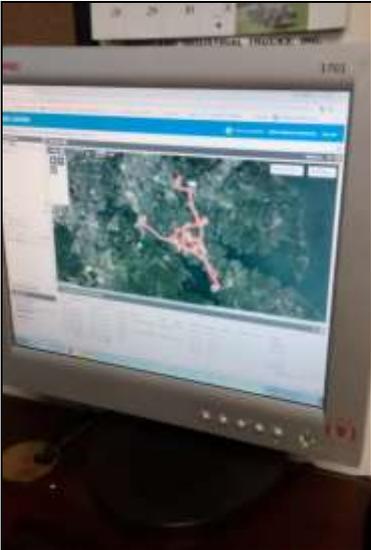
Photos:



Washing County vehicle in wash bay



Portable AVL device



Fleet Center program showing vehicle path history

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Facility Name/Address/Type:		Marley Fire Company 18 7730 Baltimore-Annapolis Boulevard, Glen Burnie, Maryland			
Date of Field Inspection:	01-22-2018	Inspectors:	Michelle Crawford, Stew Comstock		
Onsite activities: Vehicle washing; indoor storage of equipment and vehicles					
Was a copy of the following found on site:					
Notice of Intent (NOI)	N.A.	State Industrial General Permit	N.A.	Stormwater Pollution Prevention Plan (SWPPP) with training records	N.A.
BMPs Present					
<ul style="list-style-type: none"> Permeable pavers in parking spaces 					
Name of person primarily responsible for property management and maintenance program?					Y: Captain Mike Barnes
Are site inspections performed?					Weekly
Most recent staff training date/topics?		Annual hazardous materials training for division			
Activities					
Vehicle washing & maintenance					
If vehicles are washed on site, where is that located and where does water drain to?			Indoor wash bay or outside. Vehicle maintenance performed at the County shop		
Is there a spill kit nearby?	Yes				

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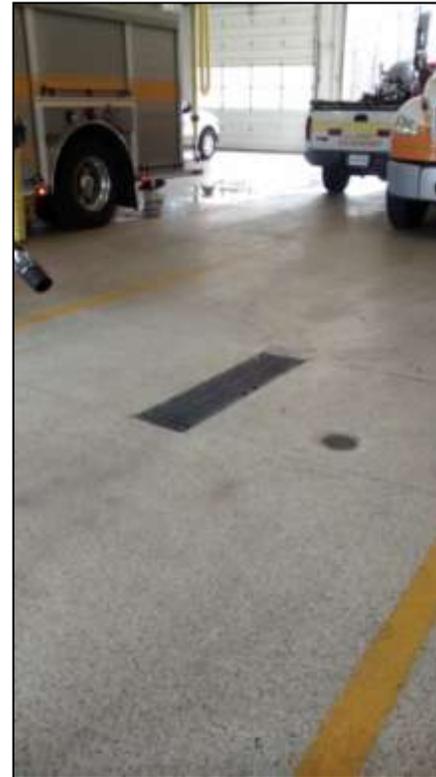
Facility Name/Address/Type:		Marley Fire Company 18 7730 Baltimore-Annapolis Boulevard, Glen Burnie, Maryland			
Vehicle storage					
Are vehicles stored on site covered or uncovered?			Outside parking lot		
Are other agency vehicles accepted to be stored on site during the year?			No		
Waste Disposal					
General site cleaning schedules		As needed			
How is waste stored on site?			Covered dumpster		
Are any leaks or open containers observed?			N		
Is there long-term waste storage, e.g., old vehicle parts or pipes?			N		
How often is onsite waste inspected to ensure that no leaks occur?			Weekly visual		
Is waste accepted from other sites or vice versa?		N	Is there a spill kit nearby?		Y
			Is any waste stored outside?		Y in covered dumpster
Were the following observed during the field inspection:					Yes/No
Evidence that SWPPP is up-to-date and all described BMPs are fully implemented and maintained					N.A.
General site cleanliness and good housekeeping (e.g., no standing oil observed, organized materials/equipment)					Y
Labeled storage and adequate containment practices, including any required secondary containment					Y
No unauthorized discharges or leaks (active or recent) observed on site					Y
Overall evidence of adequate prevention of stormwater contamination					Y

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Photos:



Permeable pavers in parking spaces



Indoor wash bay clean and well maintained

**Comparison of impervious acre credit calculated
Chesapeake Bay Program Expert Panel 2016 versus MDE Accounting Guidance 2014**

Technology	Approx Passes/Yr ¹	Frequency	Impervious acre credit (acres)		
			Based on Expert Panel load reductions, CBWM 5.3.2 ²	Based on Expert Panel load reductions, CBWM 5.3.0 ³	Based on MDE Accounting Guidance (CBWM 5.3.0)
Vacuum	~100	Twice weekly	.13	.13	
	~50	Once weekly	.10	.10	
	~25	Once every 2 weeks	.06	.07	0.13 ⁴
	~20	Once every 4 weeks, once every 1-2 weeks in spring and fall	.06	.06	
	~15	Once every 4 weeks, once every 1-2 weeks in spring	.04	.04	
	~10	Once every 4 weeks	.04	.04	
	~6	Once every 8 weeks	.02	.02	
	~4	Once every 12 weeks	.01	.01	
Mechanical	~100	Twice weekly	.003	.004	
	~50	Once weekly	.002	.002	
	24	Twice monthly	N.A.	N.A.	0.07
	~10	Once every 4 weeks	.0003	.0004	

1 Depending on seasonal variation, number of passes/yr may be lower than listed

2 Chesapeake Bay Watershed Model load reduction estimates from Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices Final Report (Schueler et al. 2016)

3 Ibid.

4 Calculated using 24 passes per year, twice monthly

Key advantages:

Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices Final Report, Schueler et al., 2016

- Partial credit may be calculated for lower frequency sweeping
- Greater credit is given for higher frequency sweeping

Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, MDE 2014

- Greater credit is given for sweeping using mechanical technology