POLLUTION PREVENTION FIELD GUIDE FOR CONSTRUCTION ACTIVITIES

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LIST OF ACRONYMS

EPA	Environmental Protection Agency
ESC	Erosion and Sediment Control
P2	Pollution Prevention
SDS	Safety Data Sheets
SPCC	Spill Prevention Control and Countermeasures
SWM	Stormwater Management
SWPPP	Stormwater Pollution Prevention Plan
VDOT	Virginia Department of Transportation
VPDES	Virginia Pollution Discharge Elimination System

1.0 INTENDED USE AND LIMITATIONS

This field guide is a quick-reference tool for individuals to utilize while implementing the pollution prevention requirements of the VPDES General Permit for Discharges of Stormwater from Construction Activities (Construction General Permit) on applicable Virginia Department of Transportation (VDOT) land disturbing activities. This field guide provides a framework for a sound pollution prevention program, and contains recommended practices that should be implemented on typical VDOT construction activities. The Construction General Permit requires implementation of this program through a stand-alone pollution prevention (P2) plan, which along with the approved ESC and SWM plans comprise the SWPPP for the land disturbing activity. This guide is intended to assist the following individuals:

1. Designers/Engineers – with the development/review of the Pollution Prevention (P2) Plan component of the Stormwater Pollution Prevention Plan (SWPPP), required by the Construction General Permit;
2. Site Operators/Contractors – with the installation and maintenance of pollution prevention measures during construction; and
3. Site Inspectors (Contractor and VDOT) – with the inspection process ensuring the P2 Plan and associated efforts are compliant with the requirements of the Construction General Permit.

Use of this field guide alone does not guarantee compliance with the Construction General Permit and associated regulations. This document is provided as guidance and provides recommended procedures for use by those responsible for ensuring compliance with the Construction General Permit. This document is not intended to mandate or prohibit any particular action not otherwise required or prohibited by the Construction General Permit. If alternative practices are proposed and/or implemented, such practices will be reviewed and accepted or denied based on their technical adequacy and compliance with the requirements of the Construction General Permit.

Nothing in this field guide shall be construed as limiting the applicability of other laws and regulations. No work will be conducted within wetlands, live waterways or other aquatic resources. All work is to be conducted in the dry.

2.0 REQUIREMENTS OF THE POLLUTION PREVENTION PLAN

A pollution prevention plan (P2 Plan) is an important part of the Stormwater Pollution Prevention Plan, or SWPPP, required for VDOT land disturbing activities. P2 Plans address potential pollutant generating activities that may be reasonably expected to impact the quality of stormwater discharges from the construction site. Pollution prevention measures focus on preventing rainwater and stormwater runoff from coming into contact with potentially harmful chemicals, hazardous materials, sanitary and other waste, wash waters and any other potential pollutants found at a construction site.

The basic components of the Pollution Prevention Plan are:

1. Identification and management of potential pollutant generating activities
2. Locations where the potential pollutant generating activities will occur
3. Identification of any allowable non-stormwater discharges that may co-mingle with stormwater discharges (see Appendix B for allowable non-stormwater discharges)
4. Identification of the person(s) responsible for the implementation of the pollution prevention practices for each pollutant generating activity
5. Description of the practices and procedures that will be implemented to prevent leaks and spills, and a response plan if they do occur
6. Description of the procedures to promote pollution prevention awareness

This field guide focuses on the basic components of the Pollution Prevention Plan, and provides typical practices and procedures to address many of the common potential pollutants found on construction sites.

Pollution Prevention starts with *common sense!* Knowing where potential pollutants are located on the construction site, and keeping them from coming into contact with stormwater, goes a long way in preventing accidental discharges. Many environmental regulatory agencies refer to this basic concept of *good housekeeping* as the important first step in protecting downstream surface waters.

According to EPA guidance, *Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites*, the six key pollution prevention principles for Good Housekeeping are:

- ✓ Establish proper construction material staging areas.
- ✓ Establish proper equipment/vehicle fueling and maintenance practices
- ✓ Provide for waste management.
- ✓ Control equipment/vehicle washing and allowable non-stormwater discharges.
- ✓ Designate specific paint and concrete washout areas.
- ✓ Develop a spill prevention and response plan.

In following these few simple steps, one will be well on the way to protecting downstream waters from potential discharge of pollutants from the construction site. Remember:

- ✓ Keep a neat and well-organized site, where potential pollutant generating activities are separated from other activities and protected from exposure to stormwater.
- ✓ Be aware, and promote awareness to other onsite operators and personnel, of potential pollutant generating activities, and have a plan for preventing pollutants from entering storm drains, conveyance channels, or downstream surface waters.
- ✓ Ask yourself, "What if?" to anticipate potential accidents, and have an effective spill response plan if spills or leaks occur.

The following sections provide typical measures for addressing common pollutant generating activities on a construction site. A list of additional resources is listed in the References section of this field guide.

3.0 POLLUTION PREVENTION MEASURES

The pollution prevention measures recommended in this Guide are related to the on-site support facilities/activities that are to be identified in the project specific SWPPP, as required by the Part V of the SWPPP General Information Sheets, dated October 21, 2015 (see Appendix D). These facilities/activities include:

- Construction and waste material storage areas
- Equipment and vehicle washing
- Maintenance, storage and fueling area
- Storage areas for fertilizers, fuels or chemicals
- Concrete wash-out areas
- Sanitary waste facilities
- P2 Awareness Procedures

Each of the pollution prevention measures, with the exception of spill prevention & response and P2 awareness, includes the following elements:

- Recommended Practices
- Prohibitions
- Siting/Locating Activity on Site
- Inspection and Maintenance Elements
- Illustrations of Recommended Practices

3.1 Construction Material Storage Areas

Recommended Practices

Storage of construction materials on site that could potentially produce a pollutant discharge if exposed to rain water or stormwater runoff should be limited to materials actively being used, or will be used, for the current stage of construction. A dedicated storage/staging area should be established for materials, and perimeter controls, including erosion and sediment controls if required, should be installed to clearly delineate the materials storage area.

- ✓ Only store materials on site that are being actively used or will be actively used in the immediate future.
- ✓ Provide separate storage area for hazardous materials (see section 3.1 of this field guide).
- ✓ Store construction materials in separate location from trash, debris, or other construction waste.
- ✓ Store liquids and other packaged items above ground level for easy detection of leaks or spills.
- ✓ Store all items in a properly labeled and structurally sound container.
- ✓ Maintain proper access in order to observe a spill or leak and implement response measures.
- ✓ Protect individual stockpiles of unconsolidated materials with perimeter controls.
- ✓ Cover materials that could potentially produce a pollutant discharge if exposed to rain water or stormwater runoff when not in active use.
- ✓ Maintain an accurate inventory of all materials stored on site.

Prohibitions

- ⊘ Do not expose open containers to rainwater or stormwater runoff.
- ⊘ Do not co-mingle hazardous materials storage with other construction materials.

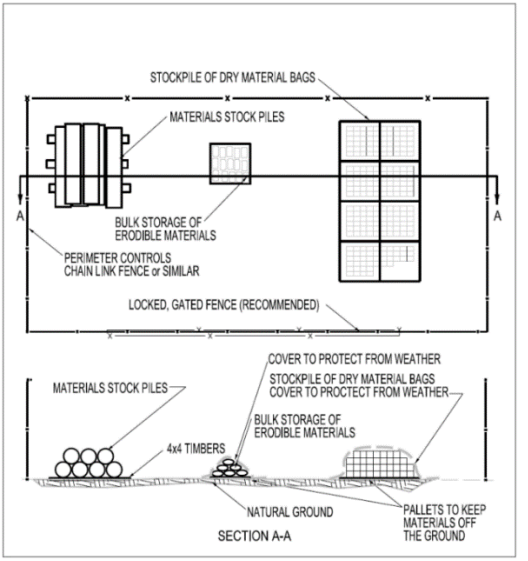
Locations

- ✓ Locate the construction materials storage area away from heavily trafficked areas.
- ✓ The location should be identified in the SWPPP, preferably on the record Set of Plans or on a site map

Inspections and Maintenance

Observe the storage area daily and officially inspect the area during the completion of the C-107 form. Maintain the storage area in a neat and orderly manner and maintain perimeter controls. Litter and other debris should be collected and disposed of properly.

Figure 3-1: Typical Detail for Construction Material Storage Area



3.2 Waste Material Storage Areas – Trash & Debris

Recommended Practices

Keeping a neat and orderly site goes a long way toward preventing pollutants from entering downstream surface waters. The first step in management of trash and construction site debris is to designate a trash and debris collection area on site. Provide signs identifying the collection area, and inform employees and contractors of its location and the expectation that it be used daily for the disposal of trash and construction debris. Whenever possible, separate and recycle materials to reduce waste. Never mix trash and construction debris with hazardous material waste. Secondary containment is recommended if trash receptacles are not leak proof and/or are not covered.

Locations

- ✓ Place trash collection area away from streets, gutters, storm drains, or surface waters.
- ✓ Place trash collection facilities in a readily accessible area conducive to contractor use.
- ✓ Secondary containment is recommended if trash receptacles are not leak proof and/or covered.
- ✓ Consider perimeter fencing or similar to better define the limits of the collection area.
- ✓ The location of the collection area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

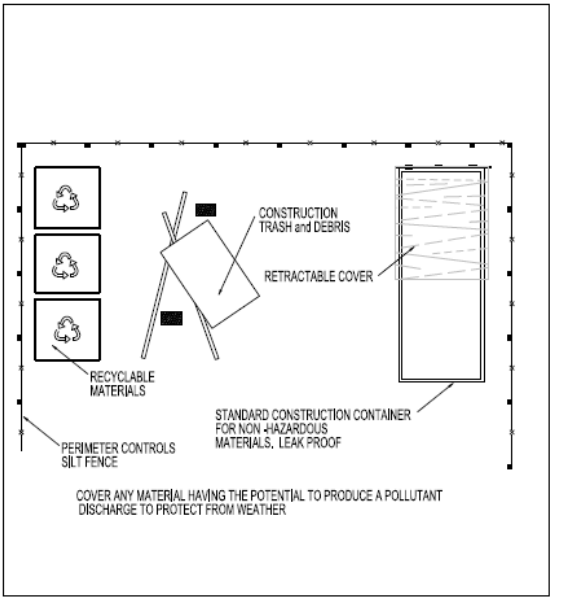
Prohibitions

- ⃠ Never place unconsolidated trash near streets, gutters, storm drains or surface waters.
- ⃠ Never mix hazardous material waste with other trash and debris.
- ⃠ Do not bury trash or debris on site.
- ⃠ Do not allow trash receptacles to leak or spill into streets, gutters, storm drain or surface waters.

Inspections and Maintenance

- ✓ Clear the construction site of debris and litter daily.
- ✓ Inspect waste collection area daily for leaks and spills or other breaches where debris may have migrated to other areas.
- ✓ Arrange for weekly trash pick-up (at a minimum).
- ✓ Cover trash containers to prevent exposure of contents to rainwater.

Figure 3-2: Typical Detail for Trash and Debris Area



3.3 Waste Material Storage Areas - Chemicals

Recommended Practices

Proper use and disposal of hazardous materials can help prevent costly accidental leaks and spills and also help protect construction site personnel from harmful exposure to hazardous materials. Separate hazardous materials waste products from other construction site waste, and provide secondary containment for all hazardous waste containers. Always store all items in a properly labeled and structurally sound container. Always follow the manufacturer's instructions for use and proper disposal of hazardous materials.

Locations

- ✓ The hazardous materials disposal area should be a well-defined, covered area away from streets, gutters, storm drains, and conveyance channels.
- ✓ Provide a separate area designated solely for hazardous material waste. Provide perimeter controls or other measures for security.
- ✓ Dispose all waste material in a properly labeled and structurally sound container in accordance with applicable waste regulations.
- ✓ Protect the area from heavy construction traffic.
- ✓ Use signs to identify the area for hazardous material waste.
- ✓ The location of the hazardous waste disposal area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

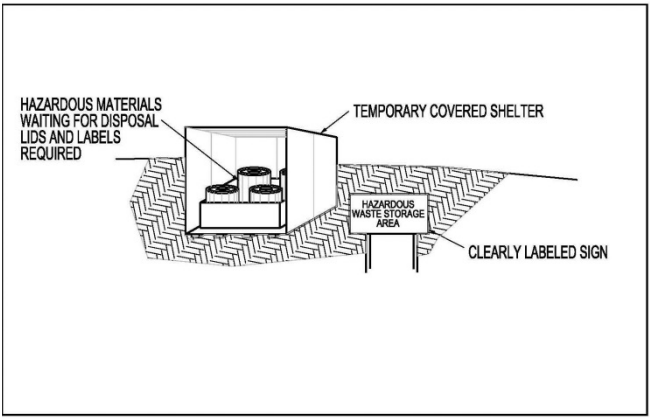
Prohibitions

- ⊘ Do not mix hazardous material wastes with other construction waste.
- ⊘ Do not remove original product label from the original container.
- ⊘ Do not allow hazardous material waste to come into contact with rainwater or stormwater runoff.

Inspections and Maintenance

- ✓ Maintain a secondary containment area sized to contain 110% of the volume of the largest container in the disposal area.
- ✓ Provide a spill kit for chemical storage areas.
- ✓ Inspect the hazardous material waste disposal area daily for leaks or spills.
- ✓ Arrange for regular hazardous material waste collection by a licensed hazardous waste disposal service.

Figure 3-3: Typical Detail for Chemical Waste Storage Areas



3.4 Large Equipment and Vehicle Washing

Recommended Practices

Vehicle and equipment washing should take place off-site, wherever possible, so that wash water can be properly recycled and/or discharged to a sanitary sewer system. If washing of vehicles or equipment is necessary onsite, it should occur only in a designated wash area located away from streets, gutters, storm drains, or surface waters. The wash facility area should be clearly marked, and employees and contractors should be made aware that washing of vehicles or equipment should take place only in designated wash areas. Soaps, detergents, or solvents must not be used unless the wash water is collected for discharge into the sanitary sewer system or for proper disposal offsite. Wash areas should be surrounded by berms and sloped so that wash water will drain to a sediment trap or filtration device to allow for evaporation or infiltration into the ground (where no soaps, detergents or solvents are present) or collection for proper disposal (where soaps, detergents or solvents are present)

Locations

- ✓ Locate the vehicle and equipment wash area away from streets, gutters, storm sewers, and conveyance channels to prevent discharge into downstream surface waters.
- ✓ Locate on firm ground and slope so that wash water drains to a sump.
- ✓ Locate in a convenient area to promote its use.
- ✓ The location of the wash area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

Prohibitions

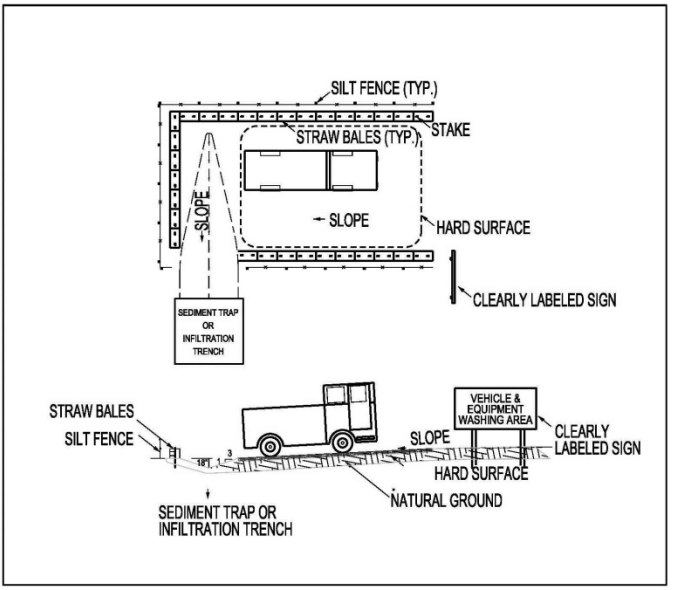
Wash water often contains sediments, heavy metals, oils, and grease and should not be discharged to storm sewers or conveyance channels.

- ⊘ Never discharge wash water into streets, gutters, storm drains, or conveyance channels.
- ⊘ Do not use soaps, detergents, or solvents unless the water is collected and treated or discharged into a sanitary sewer system.
- ⊘ Do not perform vehicle or equipment repair in wash area.

Inspections

Inspect the wash area weekly, after rain events and after each use to identify any accidental discharges or maintenance needs.

Figure 3-4: Typical Detail for Equipment and Vehicle Washing



3.5 Small Equipment Washing

Recommended Practices

If on-site washing of containers or equipment containing, or used in operations involving paint, stucco or other similar substances is necessary, a designated small equipment washout facility must be established to prevent polluted washout and cleaning liquids from being discharged from the site. Signs should designate the location of the washout area, and contractor personnel should be informed of its location.

Allowable washout facilities are:

- ✓ Prefabricated self-contained washout facilities,
- ✓ Above ground leak proof containers with cover and secondary containment
- ✓ 55-gallon barrel with lid and secondary containment (small projects)

Locations

- ✓ Equipment washout facilities should be sited a minimum of 50 yards away from any storm drains or waterways to prevent accidental discharges.
- ✓ Locate the washout facility away from heavy traffic areas to avoid accidental spills.
- ✓ Signs identifying the equipment washout facility should be posted at the site.
- ✓ The location of the small equipment washing area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

Prohibitions

Washout from containers or equipment used in operations involving paint, stucco or other similar substances contain pollutants and should be disposed of properly.

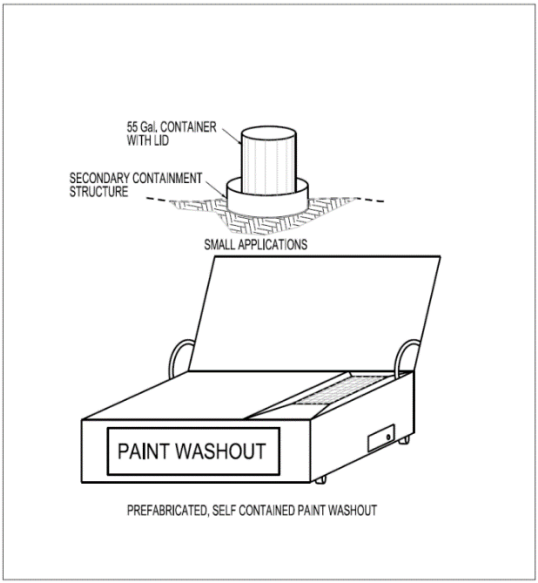
- ⊘ Never discharge to surface waters, storm sewers, gutters, or streets.
- ⊘ Do not allow wash water to infiltrate into the ground.
- ⊘ Do not discharge to sanitary sewer systems.
- ⊘ Do not allow exposure to rainwater

Inspection and Maintenance

Inspect the washout facility daily to detect leaks or structural deficiencies, and to remove any accumulated waste materials as necessary.

- ✓ Liquid should be collected and disposed of in a leak-proof container with other non-hazardous construction waste.
- ✓ If hazardous materials or other chemicals are contained in the liquid washout waste, they must be disposed of using a licensed hazardous materials disposal service.

Figure 3-5: Typical Small Equipment Wash-Out Area



3.6 Equipment and Vehicle Maintenance and Storage Areas

Recommended Practices

Maintaining and servicing of equipment and vehicles should take place offsite at an authorized facility whenever possible. For minor maintenance and servicing of vehicles and equipment on site, a dedicated service area should be established away from gutters, storm sewers, conveyance channels or downstream surface waters. Provide berms around the area to prevent stormwater runoff from entering the area and to help prevent the discharge from accidental leaks or spills.

- ✓ Keep and maintain a spill kit at the maintenance area.
- ✓ Use drip pans and absorbent pads when changing fluids in vehicles and equipment.
- ✓ Collect all used fluids in designated, labeled, leak-proof containers. Recycle or dispose of as hazardous liquid.
- ✓ Provide secondary containment for all fluid waste containers.
- ✓ Consider providing overhead cover for the area for large or long duration projects.

Prohibitions

- ⊘ Do not allow fluids to drip, leak, or spill onto the ground.
- ⊘ Do not dispose of oils, anti-freeze, or other fluids in construction site dumpsters or trash facilities.
- ⊘ Do not bury any waste products from the vehicle and equipment maintenance area.

Locations

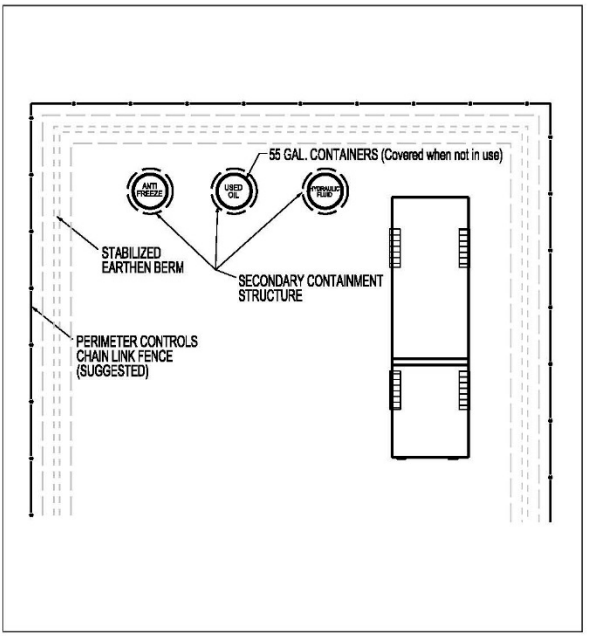
- ✓ Locate the maintenance and service area away from gutters, storm drains, conveyance channels or downstream surface waters.
- ✓ Locate the maintenance and service area on a level surface.
- ✓ Signs identifying the maintenance and service area should be posted at the site.
- ✓ The location of the maintenance and service area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

Inspections

Vehicles and equipment within the maintenance area should be inspected daily for leaks, spills, drips or any other discharges. The area should be inspected daily when in use, and weekly at a minimum when not in use.

- ✓ Inspect the spill kit regularly to ensure that all necessary materials are present and functional in the event of a spill.
- ✓ Inspect any containers of used fluids daily for leaks or spills.

Figure 3-6: Typical Detail for Equipment and Vehicle Maintenance and Storage Areas



3.7 Fueling Areas

Recommended Practices

Onsite storage of fuel should be avoided, whenever possible. If onsite storage and handling of fuel is necessary, a designated, secure fueling area should be established away from heavily trafficked areas. Always keep a functional spill kit available at the fueling area.

- ✓ Always leave original labels on fuel containers.
- ✓ Always provide secondary containment for all fuel storage containers.
- ✓ Always store fuel in accordance with manufacturers' recommendations and Safety Data Sheets (SDS).
- ✓ Post emergency phone numbers in the fueling area to aid in a quick response in the event of a spill.
- ✓ Provide berms around the fueling area to prevent stormwater runoff from entering.
- ✓ Do not leave the fueling area unattended when in use. The area should be secured at all times.
- ✓ Do not utilize a mobile fueling operation within 50 feet of any gutter, storm drain, conveyance channel, or surface waters.

Locations

- ✓ Locate the fueling area a minimum of 50 feet from gutters, storm drains, conveyance channels, or surface waters.
- ✓ Locate the fueling area on level ground.
- ✓ Secure the fueling area with fencing or similar perimeter controls to discourage vandalism.
- ✓ Place a sign at the location identifying it as the fuel storage and handling area.
- ✓ The location of the fuel handling and storage area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

Prohibitions

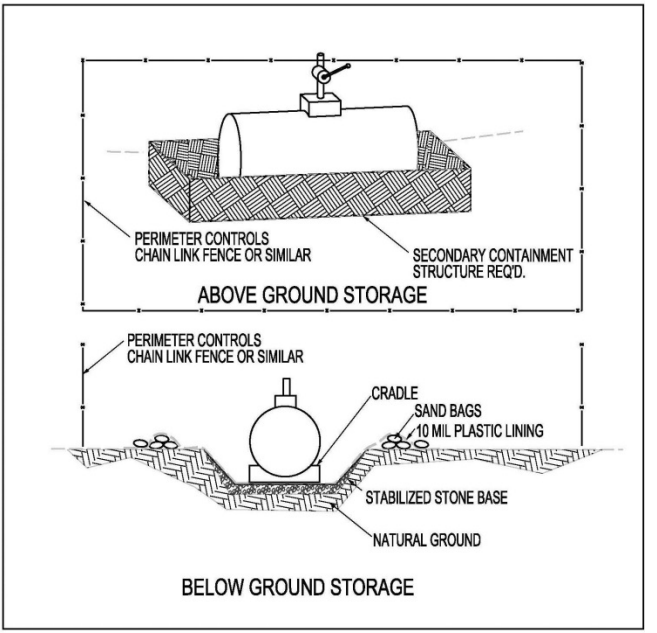
- ⊘ Do not "top off" fuel tanks when fueling equipment or vehicles.

Inspections and Maintenance

- ✓ Inspect the facility daily to detect leaks or spills.
- ✓ Use spill kit supplies to immediately clean up any leaks and spills and dispose of used materials properly.
- ✓ Inspect spill kit regularly to ensure that all supplies are readily available and functional in the event of a leak or spill.

A Spill Prevention Control and Countermeasure (SPCC) Plan conforming to 40 CFR 112 is required if the aggregated volume of Oil stored within the project limits at any one time is greater than 1320 gallons (see Road and Bridge Specification 107.16(e)3 for additional information).

Figure 3-7: Typical Detail for Fuel Storage Area



3.8 Storage Areas Hazardous Materials

Recommended Practices

The proper handling and storage of hazardous materials is critical to the protection of downstream surface waters as well as to the safety of the construction site personnel. Common hazardous materials include:

- Paints and Solvents
- Herbicides and Pesticides
- Petroleum products such as fuels, oils, and grease
- Acids for masonry cleaning concrete curing compounds
- Other Chemicals
- Fertilizers

These materials, as well as any other construction materials that have the potential to contaminate stormwater or groundwater, should be stored under cover and away from heavy traffic areas whenever possible. Secondary containment is recommended for all hazardous materials. If secondary containment is not feasible, the identification of alternative equivalent measures shall be included in the P2 plan. Hazardous materials should be stored separate from ordinary construction materials to avoid cross contamination.

Locations

- ✓ Designate an area on site away from gutters, storm drains, or surface waters. Cover hazardous materials and store in accordance with manufacturers' recommendations and Safety Data Sheets (SDS).
- ✓ Locate away from heavily trafficked areas to avoid accidental spilling or overturning of containers.
- ✓ Place containers on pallets so that leaks, corrosion, or any other potential container compromise can be detected as soon as possible.
- ✓ Place a sign at the location identifying it as the hazardous material storage area.
- ✓ The location of storage area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

Additional Recommendations

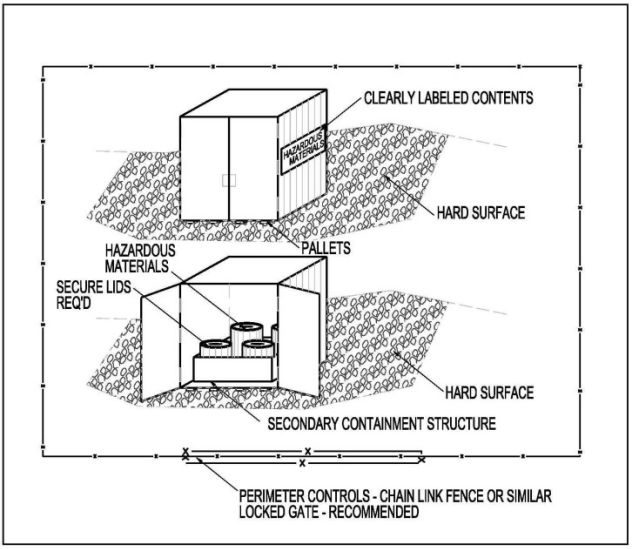
- ✓ Proper labeling on containers is required.
- ✓ Properly store herbicides or pesticides.
- ✓ Do not allow any hazardous material to be exposed to rainwater, stormwater runoff, or wind.

Inspections and Maintenance

- ✓ Ensure hazardous materials are properly stored at the end of each workday.
- ✓ Take corrective actions if structural deficiencies are observed, such as container cracks or severely corroded areas.
- ✓ SDSs should be maintained for all materials stored.
- ✓ Maintain proper access in order to observe a spill or leak and implement response measures.
- ✓ Provide a spill kit in the immediate vicinity of the hazardous materials storage area.

Typical Hazardous Materials Label

Figure 3-8: Typical detail for hazardous material storage areas



3.9 Concrete Wash-Out Areas

Recommended Practices

If on-site washing of concrete trucks and equipment is necessary, a designated concrete washout area must be established to prevent concrete wastewater from being discharged from the site. Signs should designate the location of the washout area, and contractor personnel should be informed of its location.

Typical washout facilities are:

- ✓ Prefabricated containers
- ✓ Above ground structures using straw bales, sandbags, wood or the like and lined with a total thickness of 10 mil plastic
- ✓ Excavated pits lined with total thickness of 10 mil plastic

Locations

- ✓ Concrete washout areas should be sited a minimum of 50 yards away from any storm drains or waterways to prevent accidental discharge.
- ✓ Concrete washout areas should be located conducive to use.
- ✓ The location of the concrete washout area should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

Prohibitions

Concrete washout contains pollutants and should be disposed of properly.

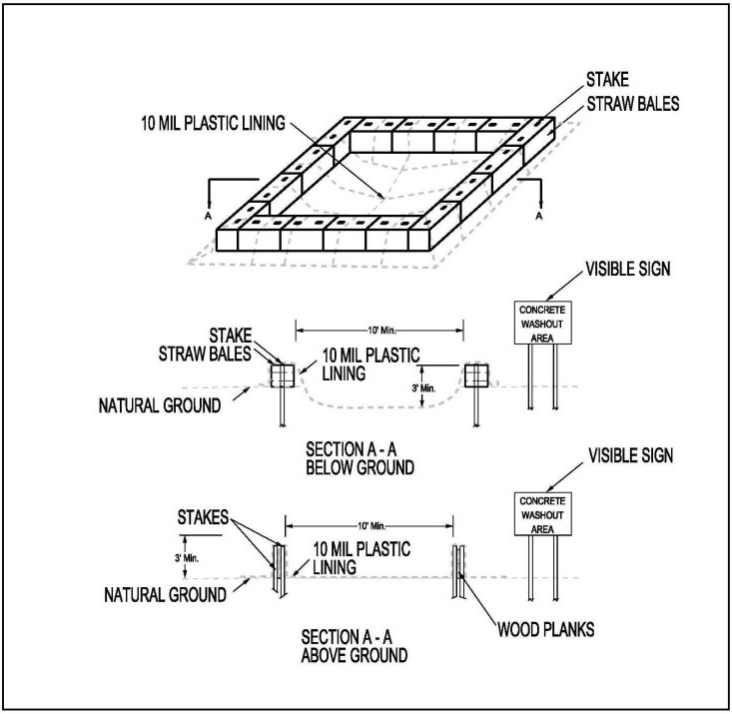
- ⊘ Never discharge to surface waters, storm sewers, gutters, or streets.
- ⊘ Do not allow wash water to infiltrate into the ground.
- ⊘ Do not discharge to sanitary sewer systems unless prior written approval has been granted by the sanitary sewer operator.

Inspection and Maintenance

Inspect the concrete washout facility daily to detect leaks or structural deficiencies, and to remove any accumulated waste materials, as necessary.

- ✓ Hardened concrete should be recycled or disposed of properly.
- ✓ Any remaining liquid should be collected and recycled at the concrete plant, or disposed of in a leak-proof container with other construction waste.

Figure 3-9: Typical Detail for Concrete Wash-Out Area



3.10 Sanitary Waste Facilities

Recommended Practices

Portable toilets should be conveniently located conducive to use. Anchor portable toilets to prevent tipping, and provide secondary containment in the form of berms or other containment to prevent pollutants from discharging into streets, gutters, storm drains, or surface waters due to accidental spills or discharges. Inspect portable toilets daily for cleanliness and proper operation, and arrange for regular service by a licensed service provider for proper maintenance and waste collection.

- ✓ Provide a convenient and safe location.
- ✓ Place on level ground or gravel pad.
- ✓ Anchor to prevent tipping.
- ✓ Inspect and maintain daily and service regularly.

Locations

- ✓ Conveniently locate portable toilets throughout the project site (for large projects).
- ✓ Place portable toilets on level ground to prevent accidental tipping or spills.
- ✓ Ensure that portable toilets are accessible for regular maintenance and service.
- ✓ The locations of the portable toilets should be identified in the SWPPP, preferably on the record Set of Plans or on a site map.

Prohibitions

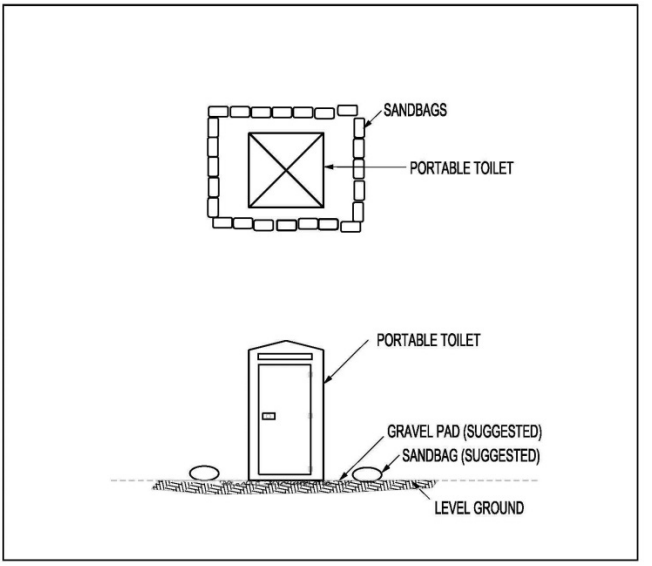
Sanitary discharge from portable toilets is harmful to the environment and should never be discharged to surface waters.

- ⊘ Never locate portable toilets over storm drains or gutters or near conveyance channels.
- ⊘ Never allow discharge from portable toilets to leak or spill into streets, gutters, storm drains, or surface waters.

Inspections and Maintenance

- ✓ Inspect portable toilets daily to detect leaks.
- ✓ Keep facilities safe and clean.
- ✓ Provide regular maintenance and waste collection by a licensed service provider to ensure proper disposal of waste into a sanitary sewer system for treatment.

Figure 3-10: Typical Detail for Sanitary Facilities



3.11 Spill and Leak Prevention and Response

Recommended Practices

A spill prevention and response plan is required in order to prevent the discharge of spilled or leaked materials to groundwater, downstream storm sewers, conveyance channels, and surface waters. The pollution prevention measures listed previously in this field guide all provide measures to prevent non-allowable, non-stormwater discharges from entering downstream waters. Implementation of these measures is the first step in minimizing the possibilities of leaks and spills of non-allowable discharges.

Prevention

- ✓ Always know what materials are stored onsite, and identify the locations in the SWPPP, preferably on the record Set of Plans or on a site map.
- ✓ Minimize the storage of hazardous materials and other construction materials onsite. Limit onsite materials to those that are needed for operations that are currently, or will soon be, active.
- ✓ Store all materials away from streets, gutters, storm drains or conveyance channels.
- ✓ Store materials in accordance with manufacturers' recommendations and in accordance with the pollution prevention measures listed in the site specific P2 plan.
- ✓ Perform regular inspections of onsite handling, storage, disposal, and washout facilities to detect leaks and spills.

Procedures

- ✓ Follow the specific SPCC plan required for above ground and underground storage tanks subject to 40 CFR Part 112.
- ✓ Designate an individual or individuals who are responsible for implementing the response plan if a leak or spill occurs.
- ✓ Ensure that safety procedures are in place to protect onsite personnel from exposure to hazardous materials in the event of a leak or spill.
- ✓ Post emergency phone numbers for all local emergency personnel including police, fire and rescue, public utilities, the Department of Environmental Quality, and the local sanitary sewer authority.
- ✓ Place functional spill kits in all locations where hazardous materials are being stored. Spill kits should also be placed at fuel handling facilities and vehicle service areas.
- ✓ Establish procedures for responding to spills based on the level of spill (minor, appreciable, or significant / hazardous).
- ✓ Practice onsite response to spills to ensure that all personnel are ready to respond accordingly in the event of a leak or spill.
- ✓ Always notify the VDOT Project Manager of ANY spill or leak, regardless of its severity.

In the Event of a Spill:

If the Contractor dumps, discharges, or spills any oil or chemical that reaches or has the potential to reach a waterway, he shall immediately notify all appropriate jurisdictional state and federal agencies in accordance with the requirements of Section 107.01 and 107.16(e) of the Specifications and the VPDES *General Permit For Discharge of Stormwater From Construction Activities* and shall take immediate actions to contain, remove, and properly dispose of the oil or chemical.

For project specific P2 requirements see Appendix D for SWPPP General Information Sheet notes.

Education

The contractor should:

- ✓ Provide training for all applicable onsite personnel on spill prevention and response.
- ✓ Educate all applicable onsite personnel on the importance of the proper handling, storage, and disposal of construction materials, especially hazardous materials.
- ✓ Hold regular meetings with all applicable onsite personnel to reinforce the proper procedures for responding to spills. Documenting the meeting, topics and attendees is recommended.

Spill Kit Supplies[1]

Each spill kit should be comprised of any supply recommended by the manufacturer for a specific material AND the following:

- ✓ Water Resistant Nylon Bag
- ✓ 3-Oil absorbent Socks 3" x 4'
- ✓ 2-Oil Absorbent Socks 3" x 10'
- ✓ 12-Oil absorbent Pads 17" x 19"
- ✓ 1-Pair Splash Resistant Goggles
- ✓ 3-Pair Nitrile Gloves
- ✓ 10 Disposable Bags with Ties

[1] *Washington State Department of Ecology Water Quality Program (August 2012) Stormwater Management Manual for Western Washington*

Recordkeeping

Keep a record of the date, time, exact location, material spilled, remediation actions taken, proper material disposal (including spill kit supplies) and people involved for each incident that occurs. A record of each leak or spill occurrence is to be kept with the SWPPP. This information must be kept at least 3 years from the date Construction General Permit coverage expires or is terminated.

3.12 P2 Awareness Procedures

An effective pollution prevention plan engages all on site personnel, both VDOT and contractor, including project managers, environmental compliance personnel, other VDOT employees or consultants, contractors, and all contractor personnel in a concerted effort to prevent potential pollutants from exposure to rainwater or stormwater which could result in discharges to downstream surface waters. Pollution prevention is a team effort and requires daily diligence to be effective in protecting Virginia's surface waters.

The specific pollution prevention plan developed for the site provides a basic plan of action for preventing potential pollutants from coming into contact with rainwater and stormwater which could result in discharges of pollution into downstream surface waters. Effective pollution prevention on construction sites requires daily diligence from all onsite personnel, many of whom may be unfamiliar with some of the basic concepts of pollution prevention. The pollution prevention plan works in conjunction with the erosion and sediment control plan to minimize the impacts of construction site activities, and protect downstream receiving waters.

The USEPA refers to the basic concept of *Good Housekeeping* as the first step in preventing pollution. A neat and orderly site, where potential pollutant-generating activities are performed in designated, secure areas away from stormwater conveyances, will help to prevent the accidental discharge of pollutants from the construction site. All personnel, including all subcontractors entering the site, should be made aware of the basic concept of daily and regular good housekeeping measures in order to maintain a neat and orderly site.

The Record Set of Plans or a SWPPP site map provides a valuable tool to promote awareness of potential pollutant generating activities on site. In addition to all of the locations of pollution prevention measures on site, the Record Set of Plans and/or the SWPPP site map provides the location of erosion and sediment control measures, water quality facilities, and also identifies the locations of outfalls and downstream receiving waters. The Record Set of Plans and/or the SWPPP site map should be kept in a prominent location to promote awareness and understanding of the role that pollution prevention plays in protecting Virginia's natural environment.

Informational posters and brochures targeting specific activities (concrete washout, spill prevention, etc.) can also be made available to applicable onsite personnel to promote awareness and understanding of the importance of each specific pollution prevention measure.

All onsite personnel should receive adequate training to promote an understanding of the requirements outlined in the SWPPP documents, and the potential consequences of noncompliance with the SWPPP requirements. Not only may noncompliance result in potential pollution, it may delay the project or result in serious penalties.

All onsite personnel directly responsible for implementation of the SWPPP should receive training in the basic concepts of stormwater management and pollution prevention. Those responsible for SWPPP implementation must also be trained to perform the necessary inspections, maintenance and recordkeeping in order to ensure compliance with the SWPPP requirements.

Spill response procedures should be reviewed and practiced on a regular basis so that onsite personnel will be prepared to respond quickly and effectively in the event of a spill. Provide safety training so that onsite personnel are aware of proper protective measures to take when handling harmful materials or responding to a leak or spill.

Weekly progress meetings can include brief training sessions to promote awareness and understanding of pollution prevention concepts. The EPA lists several important basic instructions that all site personnel should be made aware of[2]:

- ✓ Use only designated construction site entrances.
- ✓ Keep equipment away from silt fences, fiber rolls, and other sediment barriers.
- ✓ Know the locations of disposal areas, and know the proper practices for handling trash, concrete and paint washout, hazardous chemicals, etc.
- ✓ Keep soil, materials, and liquids away from paved areas and storm drain inlets. Never sweep or wash anything into a storm drain.
- ✓ Know the location and understand the proper use of spill kits.
- ✓ Know the locations of your site's designated protection areas. Keep equipment away from stream banks, valuable trees and shrubs, and steep slopes. Clearly mark these areas with signs.
- ✓ Keep equipment off mulched, seeded, or stabilized areas. Post signs on these areas, too.
- ✓ Know who to contact when problems are identified!

An effective pollution prevention plan requires awareness, commitment, and diligence on the part of all onsite personnel in order to keep pace with the changing dynamics of a busy construction site. All onsite personnel are a part of the pollution prevention team!

[2] *USEPA (May 2007) Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites.*

4.0 REFERENCES

Caltrans. (March 2003). *Construction Site Best Manual Practices Manual. http://www.dot.ca.gov/hq/construc/stormwater/BMP_Field_Master_FullSize_Final-Jan03.pdf*

Caltrans. (June 2011). *Stormwater Quality Handbooks- Stormwater Pollution Prevention Plan and Water Pollution Control Program Manual.* <www.dot.ca.gov/hq/construc/stormwater/CSBMPM_303.final.pdf

Construction Industry Compliance Assistance. (No date). *Spill Prevention Control and Countermeasure Plan.* <http://cicacenter.org>

Michigan Department of Transportation and TetraTech. (September 2006). *MDOT's Stormwater Management Program – Pollution Prevention and Good Housekeeping on Construction Sites.* <Michigan.gov/documents/stormwater management.>

Minnesota Pollution Control Agency. (2004). *Stormwater Construction Inspector's Guide.* <www.pca.mn.us/publications/wq-strm-2-10.pdf>

North Central Texas Council of Governments' Regional Stormwater Management Program. (No date). *Preventing Stormwater Pollution from Construction Sites.* <Nctcog/envir/stormwater/pubs/constructionguide_final.pdf>

Salt Lake County. (February, 2007). *Best Management Practices for Construction Activities.* <www.pweng.org/strm/html/guide/html>

Sonoma County Permit and Resource Management Department. (December 2009). *Best Management Practices for Construction Sites NPD-007.*

USEPA. (May 2007). *Developing Your Stormwater Pollution Prevention Plan – A Guide for Construction Sites.* <epa.gov/polwaste/npdes/stormwater/Stormwater-Discharges-From-Construction-Activities>

Virginia Department of Environmental Quality. (July 2014). *General VPDES Permit for Discharges of Stormwater from Construction Activities, GP# VAR10.*

Virginia Department of Transportation Location and Design Division. *(August, 2013). Stormwater Pollution Prevention Plan Instructional and Informational Memorandum #LD246.3.*

Washington State Department of Ecology Water Quality Program. *(August 2012). Stormwater Management Manual of Western Washington Volume II: Construction Stormwater Pollution Prevention. <https://fortress.wa.gov/ecy/publications/publications/1210030part3.pdf*

5.0 APPENDICES

Appendix A: Pollution Prevention Plan Requirements
Appendix B: Allowable Non-Stormwater Discharges
Appendix C: Reporting Requirements for Unauthorized Discharges
Appendix D: SWPPP General Information Sheet and P2 Notes

APPENDIX A – POLLUTION PREVENTION PLAN

Excerpt from the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10) pertaining to Pollution Prevention Plan (Part II a 4)

4. Pollution prevention plan. A pollution prevention plan that addresses potential pollutant-generating activities that may reasonably be expected to affect the quality of stormwater discharges from the construction activity, including any support activity. The pollution prevention plan shall:

a. Identify the potential pollutant-generating activities and the pollutant that is expected to be exposed to stormwater;

b. Describe the location where the potential pollutant-generating activities will occur, or if identified on the site plan, reference the site plan;

c. Identify all non-stormwater discharges, as authorized in Part I E of this general permit, that are or will be commingled with stormwater discharges from the construction activity, including any applicable support activity;

d. Identify the person responsible for implementing the pollution prevention practice or practices for each pollutant-generating activity (if other than the person listed as the qualified personnel);

e. Describe the pollution prevention practices and procedures that will be implemented to:

(1) Prevent and respond to leaks, spills, and other releases including (i) procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases; and (ii) procedures for reporting leaks, spills, and other releases in accordance with Part III G;

(2) Prevent the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities (e.g., providing secondary containment such as spill berms, decks, spill containment pallets, providing cover where appropriate, and having spill kits readily available); General Permit No.: VAR10 Page 8 of 21

(3) Prevent the discharge of soaps, solvents, detergents, and wash water from construction materials, including the clean-up of stucco, paint, form release oils, and curing compounds (e.g., providing (i) cover (e.g., plastic sheeting or temporary roofs) to prevent contact with stormwater; (ii) collection and proper disposal in a manner to prevent contact with stormwater; and (iii) a similarly effective means designed to prevent discharge of these pollutants);

(4) Minimize the discharge of pollutants from vehicle and equipment washing, wheel wash water, and other types of washing (e.g., locating activities away from surface waters and stormwater inlets or conveyance and directing wash waters to sediment basins or traps, using filtration devices such as filter bags or sand filters, or using similarly effective controls);

(5) Direct concrete wash water into a leak-proof container or leak-proof settling basin. The container or basin shall be designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes. Liquid concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wash waters and shall not be discharged to surface waters;

(6) Minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials, and wastes including (i) building products such as asphalt sealants, copper flashing, roofing materials, adhesives, and concrete admixtures; (ii) pesticides, herbicides, insecticides, fertilizers, and landscape materials; and (iii) construction and domestic wastes such as packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, Styrofoam, concrete, and other trash or construction materials;

(7) Prevent the discharge of fuels, oils, and other petroleum products, hazardous or toxic wastes, and sanitary wastes; and

(8) Address any other discharge from the potential pollutant-generating activities not addressed above; and

f. Describe procedures for providing pollution prevention awareness of all applicable wastes, including any wash water, disposal practices, and applicable disposal locations of such wastes, to personnel in order to comply with the conditions of this general permit. The operator shall implement the procedures described in the SWPPP.

APPENDIX B- ALLOWABLE NON-STORMWATER DISCHARGES

Excerpt from the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10) pertaining to Allowable Non-Stormwater Discharges (Part I E)

E. Authorized nonstormwater discharges. The following nonstormwater discharges from construction activities are authorized by this general permit when discharged in compliance with this general permit:

1. Discharges from firefighting activities;
2. Fire hydrant flushings;
3. Waters used to wash vehicles or equipment where soaps, solvents, or detergents have not been used and the wash water has been filtered, settled, or similarly treated prior to discharge;
4. Water used to control dust that has been filtered, settled, or similarly treated prior to discharge;
5. Potable water sources, including uncontaminated waterline flushings;
6. Routine external building wash down where soaps, solvents or detergents have not been used and the wash water has been filtered, settled, or similarly treated prior to discharge;
7. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (or where all spilled or leaked material has been removed prior to washing); where soaps, solvents, or detergents have not been used; and where the wash water has been filtered, settled, or similarly treated prior to discharge;
8. Uncontaminated air conditioning or compressor condensate;
9. Uncontaminated ground water or spring water;
10. Foundation or footing drains where flows are not contaminated with process materials such as solvents;
11. Uncontaminated excavation dewatering, including dewatering of trenches and excavations that have been filtered, settled, or similarly treated prior to discharge; and
12. Landscape irrigation.

APPENDIX C - REPORTING OF UNAUTHORIZED DISCHARGES

Excerpt from the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10) pertaining to Reporting Requirements of Unauthorized or Unusual Discharges (Part III G&H)

G. Reports of unauthorized discharges. Any operator who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance or a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, 40 CFR Part 302, or § 62.1-44.34:19 of the Code of Virginia that occurs during a 24-hour period into or upon surface waters or who discharges or causes or allows a discharge that may reasonably be expected to enter surface waters, shall notify the Department of Environmental Quality of the discharge immediately upon discovery of the discharge, but in no case later than within 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the department and the VSMP authority within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;
2. The cause of the discharge;
3. The date on which the discharge occurred;
4. The length of time that the discharge continued;
5. The volume of the discharge;
6. If the discharge is continuing, how long it is expected to continue;
7. If the discharge is continuing, what the expected total volume of the discharge will be; and
8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this general permit.

Discharges reportable to the department and the VSMP authority under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge including a "bypass" or "upset," as defined herein, should occur from a facility and the discharge enters or could be expected to enter surface waters, the operator shall promptly notify, in no case later than within 24 hours, the department and the VSMP authority by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse effects on aquatic life and the known number of fish killed. The operator shall reduce the report to writing and shall submit it to the department and the VSMP authority within five days of discovery of the discharge in accordance with Part III I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;
2. Breakdown of processing or accessory equipment;
3. Failure or taking out of service of some or all of the facilities; and
4. Flooding or other acts of nature.

APPENDIX D – SWPPP GENERAL INFORMATION NOTES

SECTION V – POLLUTION PREVENTION PLAN

1. The following non-stormwater discharges from this land disturbing (construction) activity and any on-site support facilities are prohibited:
    a. Wastewater from concrete washouts.
    b. Wastewater from the washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials.
    c. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance.
    d. Oils, toxic substances or hazardous substances from spills or other releases.
    e. Soaps, solvents or detergents used in equipment and vehicle washing.
    f. There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. The following non-stormwater discharges from this land disturbing (construction) activity and any on-site support facilities are allowed when discharged in compliance with the VPDES Construction Permit:
    a. Discharges from fire fighting activities.
    b. Fire hydrant flushings.
    c. Waters used to wash vehicles or equipment where soaps, solvents or detergents have not been used and the wash water has been filtered, settled or similarly treated prior to discharge.
    d. Water used to control dust that has been filtered, settled or similarly treated prior to discharge.
    e. Potable water sources including uncontaminated waterline flushings.
    f. Routine external building wash down where soaps, solvents or detergents have not been used and the wash water has been filtered, settled or similarly treated prior to discharge.
    g. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (or where all spilled or leaked material has been removed prior to washing), where soaps, solvents or detergents have not been used and where the wash water has been filtered, settled or similarly treated prior to discharge.
    h. Uncontaminated air conditioning or compressor condensate.
    i. Uncontaminated ground water or spring water.
    j. Foundation or footing drains where flows are not contaminated with process materials such as solvents.

k. Uncontaminated excavation dewatering, including dewatering trenches and excavations that have been filtered, settled or similarly treated prior to discharge.
l. Landscape irrigation.

** 3. The contractor shall develop a Pollution Prevention Plan to address any of his on-site operations that have a potential to generate a pollutant that may reasonably be expected to affect the quality of stormwater discharges from this land disturbance (construction) activity. The Pollution Prevention Plan shall be developed in accordance with, but not limited to, Sections 106.08, 107.02 and 107.16 of the VDOT Road and Bridge Specifications and shall include a narrative with appropriate plan detail and shall be provided on standard 8.5 x 11 inch paper or larger and shall:

a. Identify the potential pollutant-generating activities and the pollutant that is expected to be exposed to stormwater.
b. Describe the location where the potential pollutant-generating activities will occur, or if identified on the record set of plans, reference the record set of plans.
c. Identify all non-stormwater discharges, as described in note two of this section, that are or will be commingled with stormwater discharges from the construction activity, including any on-site support activities.
d. Identify the person(s) or contractor(s) responsible for implementing and maintaining the pollution prevention practice or practices for each pollutant-generating activity.
e. Describe the pollution prevention practices and procedures that will be implemented to:
    1) Prevent and respond to leaks, spills, and other releases, including procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases, and procedures for reporting leaks, spills, and other releases in accordance with Section 107.16 of the VDOT Road and Bridge Specifications and the requirements within the VPDES Construction Permit.
    2) Prevent the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities.
    3) Prevent the discharge of soaps, solvents, detergents, and wash water from construction materials, including procedures for the clean-up of stucco, paint, form release oils, and curing compounds.
    4) Minimize the discharge of pollutants from vehicle and equipment washing, wheel wash water, and other types of washing.
    5) Direct concrete wash water into a leak-proof container or leak-proof settling basin. The container or basin shall be designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes. Liquid concrete wastes shall be removed and disposed of in a manner consistent with

the handling of other construction wash waters and shall not be discharged to surface waters.

6) Minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials, and wastes including building products (such as asphalt sealants, copper flashing, roofing materials, adhesives, and concrete admixtures), pesticides, herbicides, insecticides, fertilizers, landscape materials, construction and domestic wastes (such as packaging materials), scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, and other trash or building materials.
7) Prevent the discharge of fuels, oils, and other petroleum products, hazardous or toxic wastes, and sanitary wastes.
8) Address any other discharge from any potential pollutant-generating activity not listed herein.
9) Describe and implement procedures for providing pollution prevention awareness (including but not limited to prevention practices, disposal practices and appropriate disposal locations) for all applicable wastes (including any wash water), to appropriate personnel.