Industrial Activity Specific Controls

State of Michigan Industrial Storm Water Program

Michigan Department of Environmental Quality (DEQ)
Water Resources Division (WRD)
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This document covers several common nonstructural and structural industrial controls that may prevent storm water contamination. Controls to manage the following activities are detailed in this document:

Fueling Stations

Vehicle and Equipment Maintenance

Painting Operations

Vehicle, Boat, and Equipment Washing

Loading and Unloading Materials

Liquid Storage in Above Ground Tanks

Outside Waste Disposal Areas

Outside Storage of Raw Materials, By-Products, or Finished Products

Dewatering

Storm Water Catch Basins

Auto Salvage Operations

Remember activity specific controls are intended to keep the site clean, keep you in compliance with the storm water regulations and ultimately protect the water resources for future generations.

Controls for Fueling Stations

The following controls should be used at fueling stations:

- ✓ Install spill and overflow protection.
- ✓ Install covers over tanks and fuel islands.
- ✓ Train employees in proper fueling procedures such as:
  - Not topping off fuel tanks.
  - Not leaving pumps unattended while fueling.
  - Proper spill cleanup and notification procedures. Remember, always use dry cleanup methods and never wash spills into storm drains.
  - Employees should be aware of proper notification procedures.
- ✓ Spill clean-up kits should be available at all fueling locations.
- ✓ If oil/water separators or other petroleum capturing devices are used, regular maintenance is required. Checking fluid levels in the oil /water separator should be a part of the routine inspections. Other petroleum capturing devices such as absorbent booms, catch basin inserts, etc. will need to be replaced as they reach their capacity. Refer to the manufacturer's specifications for further maintenance activities.

Controls for Vehicle and Equipment Maintenance

Controls for vehicle and equipment maintenance should include the following:

- ✓ Whenever possible, perform maintenance activities indoors. If maintenance does occur outside, the area must be kept clean. Have absorbent pads or floor dry available to absorb any spillage. Clean up the absorbent materials as soon as possible. Tarps or absorbent pads can also be used to cover the ground surface to contain small leaks and drips.
- ✓ Checking for leaking oil and fluids should be part of the routine inspections.
- ✓ Use nontoxic materials (when appropriate).
- ✓ Drain oil filters before disposal or recycling. This activity should take place indoors or under cover.
- ✓ Do not put wastes in the drains.
- ✓ Recycle engine fluids and batteries. Batteries and fluids should be contained and covered or stored inside.
- ✓ Segregate and label wastes.

Controls for Painting Operations

If your facility conducts painting operations, consider the following controls:

- ✓ Contain sandblasting and mechanical sanding wastes.
- ✓ Provide proper storage for paint and solvents.
- ✓ Proper storage includes storing materials off of the floor or ground, in a neat and orderly manner. It is preferable to store painting materials out of the weather.
- ✓ Properly maintain equipment.
- ✓ Properly contain and dispose of paint cleaning wastes.
- ✓ Recycle paint, paint thinners, and solvents.

Controls for Vehicle, Boat, and Equipment Washing

The general storm water permits do not authorize the discharge of equipment, boat, and vehicle wash water. In order to prevent an unauthorized discharge establish designated cleaning areas and collect wash water for proper treatment and disposal.

A guidance document describing the options for the discharge of vehicle wash water is available by clicking on the following link: http://www.michigan.gov/documents/deq/deq-ead-tas-powrwash_320867_7.pdf

The options for discharging of equipment, boat, and vehicle wash water include:

- ✓ Obtain approval from the Waste Water Treatment Plant and discharge the wash water to the sanitary sewer system.
- ✓ Contain the wash water and arrange to have it pumped and hauled by a licensed industrial waste hauler to the Waste Water Treatment Plant or an approved disposal facility.
- ✓ Obtain a National Pollutant Discharge Elimination System permit from the MDEQ to discharge the wash water to surface waters or storm sewers.
- ✓ Obtain authorization from the MDEQ to discharge wash water to ground water. The type of ground water permit that will be required is based on the volume of the discharge, materials that are washed off the vehicles or equipment, and the type of cleaners used. Some types of wash water cannot be authorized for ground water discharge. Contact district ground water staff for additional information.

- ✓ Another option for handling wash water is to install a recirculating wash water system. The benefits of this type of system include infrequent disposal of the waste water and reduced water costs. In addition, no permits are required from the MDEQ if there is no discharge to surface waters, storm sewers or ground waters of the State.

Using a high pressure wash system may eliminate the need for detergents and can reduce the volume of water used. In addition, if detergents are not used, an oil/water separator may be used to remove insoluble oils and sediment. However, this water will still need to be handled using the options previously described.

Controls for Loading and Unloading Materials

Controls for loading and unloading materials are important to prevent significant materials from contaminating storm water runoff. The following controls should be implemented:

- ✓ If possible, load and unload materials inside.
- ✓ Look for and contain leaks during transfer.
- ✓ Check equipment regularly for leaks.
- ✓ Limit exposure of material to storm water.
- ✓ Prevent storm water “run-on”.
- ✓ Cover loading dock drains during loading and unloading or place absorbent material around the inlet.
- ✓ If the trench drain in the loading dock is equipped with a shut off valve, close the shut off valve prior to loading and unloading.
- ✓ Keep spill containment and clean-up kits easily accessible.
- ✓ Keep the loading dock area clean.
- ✓ Do not sweep loading dock debris into the storm water collection system.

Controls for Liquid Storage in Above Ground Tanks

The following controls should be considered if your facility has liquid storage in above ground tanks:

- ✓ Routinely inspect tanks and equipment.
- ✓ Install safeguards to prevent accidental releases.
- ✓ Locate tanks away from surface water, storm sewer inlets and other sensitive areas.
- ✓ Install secondary containment.
- ✓ Use compatible materials for secondary containment structures. Coat the containment if the materials are incompatible.
- ✓ The regular inspection of secondary containment structures is an important part of the facility's Storm Water Pollution Prevention Plan (SWPPP).
- ✓ Inspect containment for spillage.
- ✓ Look to see if there is any vegetative growth in the containment. Roots from the vegetation can crack joints and expand small cracks.

- ✓ Inspect the containment for structural integrity. Look for cracks in the walls and floors of the containment structure.
- ✓ Inspect piping and valves of the above ground storage tank. Ideally, valves and connections should be located within the containment structure.

- ✓ After storm events inspect the containment structure for captured storm water. If there is no accumulated storm water, a leak is present in the containment structure.

- ✓ If there is a drain in the containment structure make sure the drain is plugged or that the valve is closed. Consider installing a lock on the valve to prevent the unauthorized discharge of any captured storm water or spilled materials.

- ✓ If storm water must be discharged from the containment structure, follow the procedures listed in the SWPPP. Procedures for discharging captured storm water may include: visual observation, odor detection, online analyzers, pH testing, sampling and chemical specific analysis.

- ✓ Contaminated storm water cannot be discharged to the surface waters of the state.

There are several options for discharging accumulated storm water in required secondary containment. The options include the following:

- ✓ Discharge to surface water if authorized by the Permit. The permittee must verify the water is not contaminated according to the procedures in the SWPPP.

- ✓ Discharge to surface waters if authorized by an individual NPDES permit with effluent limits. The discharge must meet the effluent limits.

- ✓ Pump and haul to a Waste Water Treatment Plant (WWTP) or a liquid industrial waste facility by a licensed industrial waste hauler.

- ✓ Discharge to an onsite sanitary sewer with prior permission from the WWTP.

- ✓ If the water is not contaminated it may be discharged to the ground. Ensure that the water does not flow into a storm water conveyance.

Often secondary containment is provided for tanks when it is not required by state or federal regulations. The accumulated storm water in the secondary containment may be discharged in the same manner as previously described. In addition, if the SWPPP procedures for testing the storm water have been followed and the water is not contaminated, the accumulated storm water may be discharged directly to surface waters.

Controls for Outside Waste Disposal Areas

Waste products and scrap materials have a high potential to contaminate storm water runoff, therefore controls for outside waste disposal areas must be developed and implemented. Common waste receptacles include chip bins, compactors, dumpsters, roll off boxes, totes, drums and barrels. The following controls should be considered:

- ✓ Keep waste receptacles covered.
- ✓ Use temporary covers if permanent covering is not feasible.
- ✓ Clean up around waste disposal areas.
- ✓ Locate waste receptacles away from surface water and storm sewer inlets.
- ✓ If there is unavoidable leakage, enclose the area. Enclosing the area consist of storing the waste receptacles under a roof and curbing the area to trap the leakage. The fluid that has leaked from the dumpster is usually classified as a liquid industrial waste and the storm water general permit does not authorize this discharge.
- ✓ If the leaking waste receptacle cannot be stored under cover, construct pads to collect the leakage and contaminated storm water for treatment or disposal.

Controls for Outside Storage of Raw Materials, By-Products, or Finished Products

The following controls need to be considered for the outside storage of raw materials, by-products, and finished products:

- ✓ Put materials, by-products, and finished products not designated for outdoor use under a roof.
- ✓ Use temporary covers if permanent covering is not feasible.
- ✓ Enclose or berm the transfer or storage area.
- ✓ Ensure that containers are clean and properly closed.
- ✓ Store materials away from surface waters and catch basins.

Controls for Dewatering

Dewatering is the removal of ground or surface water from an excavated area. Dewatering typically occurs at construction sites, landfills, or areas where mining occurs. Proper dewatering techniques will reduce levels of sediment and other pollutants in the water being discharged.

Discharges must meet water quality standards in the receiving waters, including suspended solids. For construction activities at existing industrial facilities or other areas where the potential for contamination exists, the water should be analyzed before it is discharged. In order to meet water quality standards, structural controls must be used.

Mine dewatering water discharges and contaminated water discharges require authorization under a different NPDES permit.

Use the following dewatering techniques that are applicable to your operation:

- ✓ Suspend the pump intake above the bottom of the area to be dewatered. This will help reduce suspension of sediment particles by the pump.
- ✓ Surround the pump intake or outlet pipe with material that will filter sediment suspended in the water. Material such as pea stone will filter larger particles.
- ✓ Dewatering must be done so that the velocity of the discharged water does not cause scouring (erosion) of the receiving area or waterway.
- ✓ If the discharge is more turbid than the receiving waters, cease the discharge. The water will need to be filtered to remove the suspended solids.
- ✓ Stone filter berms can be used to filter out larger sized particles such as sand and debris. Use clean stone to construct filter berms.
- ✓ Sedimentation basins can be used as long as adequate detention time is provided to settle out the sediment particles. The rule of thumb is the smaller the size of the sediment particles the longer the detention time.
- ✓ Filter bags or geotubes can be used to filter out smaller sized sediment particles such as fine sands and silt.

For very small sized sediment particles, such as fine silts and clay, polyacrylamides (PAMs) must be used in conjunction with other sedimentation controls such as filter berms, filter bags, sedimentation basins, geotubes, and geojute. PAMs bind with the sediment particles forming a flock that settles out of the water column.

PAMs must be correctly matched to the type of sediment particles, applied at correct concentrations, and may require the water to be agitated to be effective. To determine the appropriate treatment, a bench test must be performed to match the PAM with the sediment in the water.

Any additive, including PAMs, placed into the dewatering water requires approval from MDEQ, Water Resources Division. For more information on the approval process, click on the following link: http://www.michigan.gov/deq/0,4561,7-135-3313_46123_54918---,00.html

Note that if the dewatering water is discharged to a county drain, permission may need to be obtained from the drain commissioner.

Controls for Storm Water Catch Basins

Catch basins are inlets to the storm sewer system which may contain a sump to capture solids. At many industrial facilities catch basin controls are used to remove contaminants from storm water runoff. Consider the following controls:

- ✓ It may be beneficial to label catch basin inlets to remind employees and visitors that the storm water is discharged to a local waterbody.
- ✓ Catch basins that contain sumps must be inspected regularly and cleaned.
- ✓ Dense growths of vegetation such as grass around catch basin inlets can remove larger sediment particles.
- ✓ Stone filter berms or a pad of stone around catch basin inlets can also be used for sediment removal. Make sure that clean stone is used.
- ✓ Catch basin inserts are used to capture contaminants that are transported by storm water runoff. Some are filter devices used to trap particulates, such as sediment, while others have specialized media to chemically remove dissolved contaminants in the storm water runoff.

- ✓ If the area will be plowed for snow removal, a catch basin insert that fits below the catch basin lid is beneficial.
- ✓ Catch basin inserts made from geotextile fabrics are effective in removing larger sediment particles such as sand and silt from storm water runoff. These inserts may not be effective in removing smaller sediments such as fine silts and clays.
- ✓ Catch basin inserts designed for removal of woody debris, plastic pellets and litter may have a geotextile fabric with larger openings in the mesh. Therefore, they may not be effective in removing sediment.
- ✓ There are also catch basin inserts made for the removal of insoluble oil and dissolved metals. Soluble oils are oils that are suspended in water. They are frequently used to lubricate equipment and for cutting oils. They are not removed by oil water separators and most catch basin inserts. Water soluble oils are generally only removed through chemical treatment which is not authorized by the general storm water permits. Therefore, precaution must be taken to keep soluble oils from mixing with and contaminating storm water runoff. Materials that have the potential to expose soluble oils to storm water runoff must be protected.

- ✓ Absorbent booms can also be used to remove insoluble oils from storm water as it enters a catch basin. Be sure to attach the boom so it cannot plug the outlet pipe.

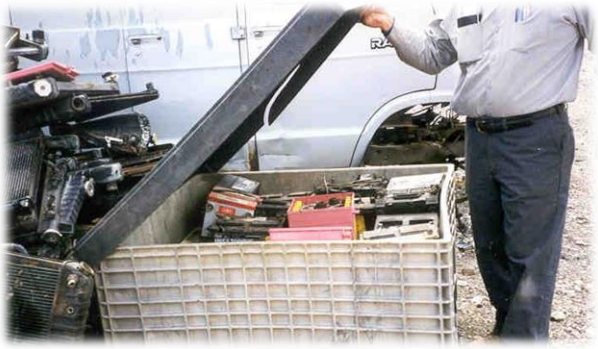
- ✓ For manufactured products, follow the manufacturer's specifications. The catch basin insert should only be used for removal of materials for which it is designed. They should be installed according to the manufacturer's specifications. Follow the recommended maintenance frequency.

- ✓ Remember that products don't always measure up to the manufacture's claims so it is advisable to check with others who have experience using catch basin inserts.

Controls for Auto Salvage Operations

Auto salvage operations are important recyclers of our valuable resources. However, if not properly managed, auto salvage operations can cause significant contamination of storm water runoff. The following activity specific controls are designed to prevent contamination of storm water runoff:

- ✓ When possible, dismantle vehicles in a building or under a roof on an impervious pad. If dismantling must be done outdoors, do it on an impervious pad.
- ✓ Store old batteries inside buildings or in a covered container if stored outside.
- ✓ Store vehicles upright after removing parts. Vehicles stored on their sides often leak fluids which can contaminate the storm water runoff.
- ✓ Store oily parts in a building, under cover or in a temporary structure such as a trailer or a bus. Inspect parts storage areas for leakage during the routine inspections.
- ✓ Inspect incoming vehicles for leaks as soon as practical.



- ✓ If possible drain fluids before storing vehicles in the yard. If fluids are not drained from vehicles and auto parts before they are stored in the yard, routinely inspect the vehicles and part storage areas for leakage.
- ✓ Fluids should be removed before vehicles are crushed. Contain residual vehicle fluids when crushing vehicles.
- ✓ Recycle the vehicle fluids.
- ✓ Properly label all fluid storage containers.
- ✓ Store fluids inside, under a cover, or in containment. Do not store automotive fluids outside without the proper controls.
- ✓ Inspect fluid storage areas for leakage. Leakage may occur through block joints, under walls, and from temporary storage areas.
- ✓ If fluids are spilled, soak up the fluids and clean up the contaminated soils.
- ✓ Use petroleum absorbent products to soak up spilled petroleum.

- ✓ Clean up the absorbent products and properly dispose of them after a spill.

- ✓ Absorbent pads, blankets and booms can be used in puddles, catch basins or ditches to remove small amounts of petroleum products from the surface of the water.

- ✓ Solid wastes such as absorbent products and petroleum contaminated soils can be put in a garbage bag and placed in a dumpster for disposal at a licensed landfill.

- ✓ Remove the mercury switches from the vehicle before crushing. This can help reduce the mercury contamination in the storm water at your facility. End of Life Vehicle Solutions (ELVS), a not for profit corporation formed by the automobile manufacturers, will provide educational materials, as well as the collection and recycling of automotive switches. For additional information on the ELVS Program, please contact ELVS at, 877-225-ELVS (3587), or visit ELVS' Web site at www.elvsolutions.org .