VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Multi-Sector General Permit

Stormwater Best Management Practices for

Sector J: Mineral Mining

Mineral Mining and the Multi-Sector General Permit (MSGP)

The MSGP is a permit designed to prevent storm water pollution from entering into our surface waters. Because mineral and dimension stone mining is largely a land disturbance activity, several of the BMPs listed here are intended to prevent erosion. As a result of erosion, soil particles (sediment) are easily picked up by runoff and are carried to nearby streams and rivers. Thus, sediment is perhaps the pollutant of greatest concern in Vermont's Sector J industries. Other pollutants of concern are: nitrogen, phosphorus, salts, heavy metals, oil, and solvents. The type of pollutant likely to be found at a mining facility depends on the type of mineral or stone that is extracted, the surrounding rock, and how extraction is carried out.

BMPs reduce, eliminate or prevent stormwater pollution from reaching Vermont's rivers and streams

What is a Stormwater BMP?

Best Management Practices, commonly referred to as BMPs, are effective ways to reduce the amount of pollution in stormwater leaving your facility. There are two types of BMPs:

- *Structural BMPs* are things that can be built on site and include physical structures like berms, settling ponds, oil-water separators, and storm resistant shelters.
- *Behavioral BMPs* are changes that can be made in the way a person operates their business. Behavioral BMPs include conducting regular inspections, regular maintenance of vehicles and machinery, prohibition of certain activities, and employee training.

An effective Stormwater Pollution Prevention Plan (SWPPP) will include both types of BMPs.

Stormwater BMPs for Mineral Mining — Sector J

The following list of suggested BMPs is organized by activity and can be included in your facility's Stormwater Pollution Prevention Plan (SWPPP). The BMPs cover the following operations:

- Overburden, Waste Rock, Sand Fines, and Subore Stockpile Areas
- Haul and Access Roads
- Extraction Operations
- Vehicle Maintenance and Repair
- Drum Storage
- Gravel and Sand Pits
- Spill Prevention and Response
- Employee Training

Overburden, Waste Rock, Sand Fines, and Subore Stockpile Areas

- Locate stockpiles at least 50 ft from surface waters and drainage courses.
- Locate stockpiles in stabilized areas (i.e., where surface erosion is unlikely).
- Store topsoil in a stockpile separate from subsoil or bedrock materials.
- Use channels, drainage ditches, swales, berms and curbs to divert stormwater away from stockpiles.
- Use serrated or benched slopes to direct stormwater away stockpiles.
- Cover smaller stockpiles with weighted anchored tarps.
- Revegetate stockpiles. Seed stockpiles with a fast growing, dense grass. Permanent seeding is a very effective way to reduce stockpile erosion.
- Use swales, channels, or gutters to convey contaminated stormwater to sedimentation or settling ponds.
- Construct silt fences or vegetated berms around stockpiles.

Haul and Access Roads

- Establish roads in geologically stable areas. Locate roads as far as possible from wetlands, lakes, ponds, floodplains as the soil is naturally ill suited for heavy traffic.
- Use the minimal width and grade for all roads.
- Allow natural vegetation along road sides to remain.
- Use dikes, curbs, and berms to divert stormwater away from roads and into the site's stormwater treatment areas.
- Use open top box culverts, water bars, or rolling dips to convey surface runoff into road side ditches.

Extraction (Open Pit and Open Face Mining as well as Quarries)

- Disturb as little natural vegetation as possible. Seed exposed soil surface with a fast growing grass or other dense plants.
- Seed all areas that will not be brought to final grade for more than one month.
- Bring the site to final grade as soon as possible. Distribute topsoil and begin seeding as soon as possible.
- Mulch erosion prone areas. Mulching, like restoring vegetation, covers bare soil surfaces and can reduce the amount of sediment picked up by runoff.
- Use sod or rip rap to stabilize erosion prone areas.
- Incorporate serrated or benched slopes into the site's plan. Use a low grade for as many slopes as possible.
- Use dikes, berms, or curbing to direct stormwater away from high activity areas.
- Use grassy swales or channels to pretreat and direct stormwater into the site's stormwater holding system.

(Continued on page 3)

(Continued from page 2)

- Use silt fences or erosion control matting in areas susceptible to erosion.
- Construct or install a level spreader or similar method of runoff dispersion.
- Locate brush barriers at the toe of a slope.
- Place check dams along swales or drainage pathways.
- Use rip rap or dense vegetation to reduce erosion at the outlet of channels or other conduits.

Vehicle Maintenance and Repair

- Use drip pans under all vehicles and equipment waiting for maintenance.
- Regularly inspect for filling or full drip pans.
- Provide secondary containment for fuels and hydraulic fluids.
- Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets.
- Properly dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers. Promptly transfer used fluids to an appropriate storage container.
- Store used batteries in a non-leaking, non-corrosive container.
- Fuel vehicles on impervious surfaces. Use funnels and drip pans to reduce spillage.
- Wash vehicles at a commercial facility or follow the Wastewater Management guidance document for washing vehicles. Use only non-phosphorous soaps.
- Wash water must be directed away from any on site streams, stormwater drains, or drainage ditches. Direct wash water to a vegetated area.

Drum Storage

- Store waste in non-leaking, non-corrosive tightly sealed drums.
- Store drums on an impervious surface, in a roofed or three sided structure, or cover with weighted tarps or awnings.
- Provide secondary containment for drum storage areas. Use berms, dikes, or other physical barriers to contain 110% of the total volume of all drums.
- Incorporate swales, drainage ditches, curbing, or grading to direct stormwater away from drum storage area.

Gravel and Sand Pits

- Maintain a gentle grade. Gravel pits often end up with vertical work faces. Try to maintain a slope less than 33% (3:1).
- Keep pits clean and free of unnecessary debris.
- Use benches, serrated slopes, or terraces to reduce the velocity and flow of runoff.
- Disturb as little natural vegetation as possible.
- Site gravel and sand pits at least 200 ft away from any streams.

(Continued on page 4)

(Continued from page 3)

- Cover loads on trucks to prevent the dispersion of dust and spills.
- Use ditches, dikes, curbing, or berming to direct runoff away from active faces or pits.

Spill Prevention and Response

- Develop a spill prevention and response plan that clearly states procedures to stop the source of a spill and outlines the disposal of contaminated materials.
- Establish a regular schedule for non-hazardous and hazardous waste pick up.
- Frequently inspect storage tanks and material storage areas for leaks.
- Locate spill kits in high activity areas.
- Use dry clean up methods (granular absorbents, absorbent socks and pads).
- Avoid "washing down" areas where there has been a spill.

Employee Training

- Inform employees of stormwater pollution sources, prevention, and applicable BMPs.
- Ensure that all employees are familiar with the facility's spill prevention and response plan.
- Instruct employees to properly implement applicable BMPs.

MSGP

Questions or Assistance with your Stormwater SWPPP, contact:

VT Department of Environmental Conservation
Water Quality Division
103 South Main St. • Bldg. 10 North •Waterbury, VT 05671
802-241-4320
www.VTwaterquality.org