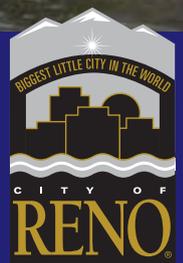


The Truckee Meadows Industrial and Commercial Storm Water Best Management Practices Handbook



Photo courtesy of Kennedy/Jenks Consultants

Kennedy/Jenks Consultants
February 2007



Reporting Spills

The illegal dumping of unknown substances and discharges of non-storm water substances to the storm drain system in the Truckee Meadows (other than those noted in Section 2.4) should immediately be reported to the following appropriate jurisdictional authority:

- Nevada Division of Environmental Protection: (888) 331-6337
- City of Reno, Environmental Control Department: (775) 334-2168
- City of Sparks, Environmental Control Department: (775) 861-4152
- Washoe County District Health Department, Environmental Health Services Division:
(775) 328-2436

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Section 1: Acknowledgements

The Truckee Meadows Industrial & Commercial BMP Handbook was prepared under a contract with the City of Reno and Kennedy/Jenks Consultants (Project No. 007012.03). The handbook was developed per the review and recommendations of the Industrial Subcommittee to the Truckee Meadows Storm Water Permit Coordinating Committee (SWPCC) with funding provided by the City of Reno, the City of Sparks, Washoe County and the Nevada Department of Transportation. The SWPCC members active in the development of the Truckee Meadows Industrial & Commercial BMP Handbook were:

Terri Svetich, P.E., City of Reno, Public Works Department, Committee Chair

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Kennedy/Jenks staff involved in preparing this manual included Chris Conway, CPSWQ, Project Manager; Lucynda Doherty, Ed Childers, P.E., Pat Hamilton, Andrew Knust, Karin Peternel, and Dan Schultz.

List of Acronyms

BMP	Best Management Practice
CASQA	California Stormwater Quality Association
CFR	Code of Federal Regulations
DOE	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
IC	Industry Category
IPM	Integrated Pest Management Plan
LID	Low Impact Development
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
N and P	Nitrogen and Phosphorous (e.g. nutrients)
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NPDES	National Pollutant Discharge Elimination System
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
POTW	Publicly Owned Treatment Works
SC	Source Control
SPCCP	Spill Prevention Control and Countermeasure Plan
SWPPP	Storm Water Pollution Prevention Plan
TMWA	Truckee Meadows Water Authority
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UDFCD	Urban Drainage and Flood Control District
UNCE	University of Nevada Cooperative Extension

Section 1

Introduction

Section 1: Introduction

1.1 Purpose and Organization of the Manual

The purpose of the Truckee Meadows Industrial and Commercial Storm Water Best Management Practices Handbook (the Industrial & Commercial BMP Handbook) is to provide general information about typical storm water pollutant sources and controls for local industrial and commercial land uses. The owners, operators and managers of local industrial and commercial properties should reference and implement the procedures and practices noted in the Industrial & Commercial BMP Handbook at areas exposed to runoff from storm events, washing and irrigation activities. Implementation of BMPs that effectively reduce and prevent pollutants in storm water from industrial and commercial sites from entering the municipal separate storm sewer system (MS4) is required under City, County, and State codes, ordinances and permits and the federal National Pollutant Discharge Elimination System (NPDES) storm water permit program. The state agency responsible for issuing NPDES permits is the Nevada Division of Environmental Protection (NDEP). Appendix A presents a copy of the current Nevada General Permit for Stormwater Associated with Industrial Activity (Stormwater General Permit NVR05000).

Best Management Practices (BMPs) that effectively reduce and prevent pollutants in storm water include source controls, structural treatment controls and low impact development (LID) practices. Source controls typically consist of policies, procedures and operational practices that effectively reduce or eliminate potential pollutant sources. Structural treatment controls and LID practices are engineered devices and site design features that remove pollutants from urban runoff before they enter the storm drain system (e.g. the MS4). Structural treatment controls must be designed and sized by a Nevada registered professional engineer based on site conditions and the design criteria presented in the current version of the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com). Structural treatment controls can be constructed in place or pre-manufactured units can be specified.

The Industrial & Commercial BMP Handbook was developed for the Cities of Reno and Sparks and Washoe County under the guidance of the Truckee Meadows Storm Water Permit Coordinating Committee. The Cities, the County, and the Nevada Department of Transportation (NDOT) provided funding for development of the Industrial & Commercial BMP Handbook.

The Industrial & Commercial BMP Handbook is organized as follows:

Section 1 provides the purpose and organization of the Industrial & Commercial BMP Handbook, the program area, the relationship to other local handbooks and manuals, the process to update, revise and provide comments on the handbook, and a disclaimer.

Section 2 discusses the environmental impacts of untreated storm water runoff, NPDES storm water permit regulations, permissible non-storm water discharges, an overview of storm water BMPs for industrial and commercial sites, and the concept of storm water quality hydrology.

Section 3 provides an overview of the City, County and State's legal authority to conduct inspections, require BMPs, and conduct enforcement actions (if necessary) at local industrial and commercial sites. This section also presents local policies and procedures for permitting,

document review, access, maintenance, and public reporting. It also provides introduction to Storm Water Pollution Prevention Plans (SWPPPs), a procedural document required by the NDEP and U.S. EPA. Additional information is also provided on available local public resources that can be accessed for assistance with developing SWPPPs and designing and implementing BMPs for industrial and commercial sites.

Section 4 presents a number of General Industry Category BMP Guide Sheets for the primary industrial and commercial business types in the Truckee Meadows. Each IC-BMP guide sheet provides a description of the general industry, typical pollutants, and the general approach needed to reduce pollutant discharges to the storm drain system (e.g. appropriate BMPs).

Section 5 presents fact sheets on source control BMPs for erosion and sediment control, recordkeeping, outdoor loading and unloading areas, vehicle parking/storage area maintenance, building, grounds and landscaping maintenance, and building repair and construction.

Section 6 provides a compilation of the references used to assist with the development the Industrial & Commercial BMP Handbook and additional sources of relevant information.

Appendix A presents a copy of the State of Nevada General Permit for Stormwater Associated with Industrial Activity.

1.2 Program Area

The Industrial & Commercial BMP Handbook applies to industrial and commercial land uses within the area known as the Truckee Meadows, which consists of the Cities of Reno and Sparks and the adjacent urbanized areas in the southern portion of Washoe County. Per the Truckee Meadows MS4 permit (NVS000001) issued jointly to the Cities and the County, the receiving waters subject to municipal storm water discharges include the Truckee River, Silver Lake playa, Swan Lake playa, Whites Lake playa and the tributaries that drain to these water bodies. These water bodies are considered Waters of the U.S. Section 4.1.7 of the Truckee Meadows MS4 permit states that the scope and coverage of the regional storm water program shall extend at least to the limits of the urbanized area in Truckee Meadows Service Area as established by the Truckee Meadows Regional Planning Agency and Washoe Valley (Washoe County Department of Community Development, Advanced Planning Program Map, dated August 2002). Section I.A.3 of the General Permit for Stormwater Associated with Industrial Activity (NVR05000) indicates that discharges to storm drain systems that in turn discharge to Waters of the U.S. are considered to be discharges to Waters of the U.S.

1.3 Related Handbooks and Manuals

The Industrial & Commercial BMP Handbook provides general information about source and treatment controls for industrial and commercial land uses. The design and construction of structural treatment controls, LID practices, conventional storm drainage, and flood control systems should be based on the design guidance and policies stated in other local BMP handbooks and manuals and the appropriate jurisdiction's drainage design manual.

The handbooks and manuals that should be referenced include:

- Truckee Meadows Low Impact Development (LID) Handbook (2005 Draft or the most current edition posted at www.TMstormwater.com).
- Truckee Meadows Structural Controls Design Manual (2004 or the most current edition posted at www.TMstormwater.com).
- Truckee Meadows Construction Site Best Management Practices Handbook (2003 or the most current edition posted at www.TMstormwater.com).
- City of Reno, Public Works Design Manual (2000 or the most current edition).
- City of Sparks, Hydrologic Criteria and Drainage Design Manual (2001 or the most current edition).
- Washoe County, Hydrologic Criteria and Drainage Design Manual (1996 or the most current edition).

The Industrial & Commercial BMP Handbook is the fourth in a series of storm water management guidance documents that have been developed as part of the Regional Storm Water Quality Management Program. The first document, the Construction Site Best Management Practices Handbook (2003), was developed to assist the owners and operators of construction sites and agency staff with the implementation of erosion, sediment and waste controls during construction of sites that disturb one or more acres of land surface area. The second document, the Structural Controls Design Manual (2004), was developed to assist designers, engineers and agency staff with the performance, siting, design, operation, inspection and maintenance of post construction structural treatment controls and LID practices for improving the quality of storm water discharges in urban areas. The third guidance document, the Low Impact Development (LID) Handbook, was developed to provide regional planning policies, procedures and general guidance on site design techniques for improving the quality and reducing the quantity of storm water runoff from new development and significant redevelopment. With the exception of the Industrial & Commercial BMP Handbook, the Regional Water Planning Commission, whose goals and objectives are the protection of local water resources, provided the majority of the funding for the development of the first three regional storm water management program documents noted above.

1.4 Updates and Revisions

NDEP and U.S. EPA require the Cities of Reno and Sparks and Washoe County to implement BMPs and reduce pollutants in storm water discharges to the Maximum Extent Practicable (MEP). The science and technology of storm water management is evolving and new and innovative structural treatment controls and LID practices continue to be developed. Therefore, the Cities and County will periodically review and approve new or innovative treatment controls and best management practices (BMPs) in an effort to meet the MEP standard. Structural treatment controls include public domain treatment controls, LID practices, and manufactured (proprietary) treatment controls. Reno, Sparks and Washoe County will review and update the Industrial & Commercial BMP Handbook every five years, to coincide with NDEP's storm water permit cycle. New approved controls and practices may also be periodically added to the regional storm water website www.TMstormwater.com.

1.5 Comments and Distribution

Comments and questions on the Industrial & Commercial BMP Handbook or the Regional Storm Water Quality Management Program may be directed to:

The City of Sparks Environmental Control
Current Contact: Mr. Lee Carson
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Website: www.TMstormwater.com

1.6 Disclaimer

The Industrial & Commercial BMP Handbook should be used as a general guidance document for source and treatment control of storm water pollution. The owners, operators, and managers of industrial and commercial facilities in the Truckee Meadows should reference the fact sheets in the BMP handbook (Sections 4 and 5) for information that will assist them with efforts to reduce and eliminate the discharge of pollutants in storm water from their sites. The source and treatment controls described herein are intended to serve as best management practices (BMPs) implemented to meet the MEP standard required by the NDEP and the U.S. EPA. They should be designed based on the water quality design criteria presented in the current version of the Truckee Meadows Structural Controls Design Manual and follow the policies and procedures of the appropriate jurisdiction. Structural treatment controls are to be designed by a Nevada registered professional engineer. Since it is not possible to provide design guidance for every type of application, the design engineer is encouraged to reference additional sources of information (such as those listed in Section 6). As is the case with all storm drainage infrastructure, regular inspection and maintenance of structural treatment controls and LID practices is required in order for them to operate as designed.

Section 2

Storm Water Quality Management

Section 2: Storm Water Quality Management

2.1 Environmental Impacts of Untreated Urban Storm Water Runoff

Urbanization and industrial activities have significantly altered the natural landscape of our Nation's watersheds. These activities have resulted in a decrease in the amount of stable pervious land surfaces and an increase in the amount of runoff, erosion, sediment and pollutant transport to local streams, wetlands, lakes and rivers. Increased development results in an increase of impervious surfaces such as roofs, parking lots and roadways which yield an increase in the rate, volume, and pollutant loading of runoff. Conventional storm drain systems designed to efficiently drain urbanized areas and rapidly transport storm water also help to increase peak flow rates and prevent the natural processing of pollutants by soils and vegetation. The reduction of natural land surfaces that previously infiltrated a portion of the annual rainfall into pervious soils and either recharged groundwater aquifers or slowly discharged to streams and rivers also results in decreased base flows and changes to stream channel morphology.

Urbanization also introduces an influx of residential, commercial and industrial products and byproducts into urban and suburban areas. These materials are deposited on developed impervious surfaces by a variety of mechanisms and incorporated into storm water runoff as pollutants. Increased runoff and the transport of pollutants in storm water have adversely affected both the quantity and the quality of storm water runoff and have contributed to the degradation of the nations receiving waters. Studies have shown that storm water from urban, suburban, commercial, and industrial areas commonly contains elevated levels of heavy metals, synthetic organics, pesticides, fuels, waste oils, and pathogens (U.S. EPA, 1983). The U.S. EPA has determined that this type of pollution, known as nonpoint source pollution or storm water pollution, is now *the single largest cause of the deterioration of our nation's water quality* (U.S. EPA, 1995). Storm water pollution leads to a decline in fisheries, restrictions on swimming and other aquatic uses, and limits our ability to enjoy many of the other benefits that water resources provide (U.S. EPA 1992). Table 2-1 provides a general list of the types of pollutants commonly found in urban storm water, the major sources and their potential environmental impacts. Included in this manual are a list of typical Best Management Practices (BMPs) designed to minimize the impacts on receiving waters of typical pollutants generated by industrial and commercial activities.

2.2 NPDES Storm Water Permit Regulations

In 1987, Congress amended the Federal Water Pollution Control Act (also known as the Clean Water Act) in order to protect receiving water bodies from the impacts of urban runoff. The amendments established a framework for regulating municipal and industrial discharges under the National Pollutant Discharge Elimination System (NPDES) storm water permit program. According to the Clean Water Act Mandate, municipalities regulated under the NPDES storm water program must reduce pollutant loadings in municipal separate storm sewer systems (MS4s) to the "maximum extent practicable" (MEP) and must effectively prohibit non-storm water discharges to and from their MS4s as a first step toward achieving pollutant loading reductions consistent with applicable water quality standards (U.S. EPA, 1997). Facilities which discharge industrial storm water either directly to surface waters (streams, rivers, lakes, wetlands, etc.) or indirectly through storm drains must be covered by a NPDES permit. All industrial (and commercial) storm water dischargers must control pollutant discharges.

Table 2-1
Pollutants Commonly Found in Urban Runoff

Pollutant	Major Sources	Potential Effects
Nutrients <ul style="list-style-type: none"> • Nitrogen • Phosphorus 	<ul style="list-style-type: none"> • Fertilizers • Animal Waste • Detergents • Atmospheric deposition • Leaking sewage pipes 	<ul style="list-style-type: none"> • Lowers oxygen levels • Destroys habitat • Promotes algal blooms • Limits recreation • Interferes with navigation
Pathogens <ul style="list-style-type: none"> • Bacteria • Viruses 	<ul style="list-style-type: none"> • Animal waste • Illicit connections between storm sewers and sewage lines • Leaking sewage pipes 	<ul style="list-style-type: none"> • Poses human health risks • Closes beaches • Closes shellfish harvesting areas
Hydrocarbons <ul style="list-style-type: none"> • Oil • Grease • Petroleum-based products • Polycyclic aromatic hydrocarbons (PAHs) 	<ul style="list-style-type: none"> • Parking Lots • Roads • Automobile emissions • Improper disposal of used motor oil • Illicit connections to drain systems 	<ul style="list-style-type: none"> • Lowers levels of dissolved oxygen in receiving waters • Causes toxic impacts • Damages habitat
Toxic Organics <ul style="list-style-type: none"> • Pesticides • Polychlorinated biphenyls (PCBs) 	<ul style="list-style-type: none"> • Lawn care • Agricultural lands • Industrial uses • Illicit connections to storm drain systems 	<ul style="list-style-type: none"> • Causes toxic impacts • Leads to human and animal reproductive abnormalities • Increases animal mortality rates
Sediments	<ul style="list-style-type: none"> • Construction sites • Agricultural lands • Logged forest lands • Eroded streambanks 	<ul style="list-style-type: none"> • Increases water turbidity • Alters water flows • Destroys benthic habitat • Blocks sunlight • Attracts particulate forms of metals and nutrients
Metals <ul style="list-style-type: none"> • Lead • Copper • Cadmium • Zinc • Mercury • Chromium • Selenium • Nickel 	<ul style="list-style-type: none"> • Illicit storm drain connections • Automobile usage – emissions, brake pad residues • Atmospheric deposition • Industrial activities • Commercial activities 	<ul style="list-style-type: none"> • Increases toxicity of sediment and water column • Adds toxics to food chain • Causes genetic defects, reproductive abnormalities and increased mortality rates among fish and wildlife • Increases risks of cancer, neurological disorders and birth defects among humans
Litter	<ul style="list-style-type: none"> • Human activities 	<ul style="list-style-type: none"> • Aesthetic impacts • Impairs recreational uses • Threatens aquatic life
Chlorides	<ul style="list-style-type: none"> • Outdoor storage and use of salts on roads, driveways and sidewalks in cold areas 	<ul style="list-style-type: none"> • Toxic to freshwater organisms
Elevated Temperatures	<ul style="list-style-type: none"> • Industrial sources • Removal of trees next to streams and rivers • Impervious surfaces and conveyances 	<ul style="list-style-type: none"> • Threat to insects, fish and other temperature sensitive aquatic species

Sources: Terrene Institute, 1996; U.S. EPA, 1995.

The Storm Water Phase I Rule (55 CFR 47990; 16 November 1990) requires all operators of medium and large Municipal Separate Storm Sewer Systems (MS4s) to obtain an NPDES permit and develop a storm water management program designed to prevent harmful pollutants from being washed by storm water runoff or dumped directly into the MS4 and then discharged into local water bodies. Per 40 CFR 122.26, large and medium MS4s, such as the Cities of Reno and Sparks and Washoe County, are required to:

“Provide a description of structural and source control measures to reduce pollutants from runoff from industrial and commercial areas that are discharged from the MS4 that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

2.3 Nevada’s General Permit for Industrial Storm Water Discharges

For specific industrial facilities operating in the State of Nevada, a statewide general permit applies to storm water discharges requiring an NPDES permit. The state agency responsible for issuing NPDES permits the Nevada Division of Environmental Protection (NDEP). Appendix A presents a copy of the current Nevada General Permit for Stormwater Associated with Industrial Activity (Stormwater General Permit NVR050000). This permit authorizes eligible dischargers to discharge storm water associated with industrial and commercial activity to Waters of the United States. Best management practices (BMPs) are set forth to be used by industrial and commercial activities to control and reduce the pollution of water.

The following presents a summary of Section(s) of Nevada General Permit for Stormwater Associated with Industrial Activity (NVR050000) dated 11 April 2003, referred to hereinafter as the NV General Industrial Permit. Only the industrial and commercial business types potentially found in the Truckee Meadows are listed below (additional industrial activities are listed in the permit in Appendix A). For convenience, simplified explanations of some of the regulatory/statutory text provided in the permit have been provided. In the even of a conflict, the text and definitions found in the NV General Industrial Permit shall take precedence.

According to section I.A.5.b of this permit, Stormwater Discharges Associated with Industrial Activity includes:

- Facilities subject to storm water effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR subchapter N;
- Certain facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 31I, 32 (except 323), 33, 344I, 373;
- Hazardous waste treatment, storage, or disposal facilities;
- Landfills, land application sites, and open dumps that receive or have received any industrial wastes;
- Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards;
- Steam electric power generating facilities, including coal handling sites;

- Certain transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, and airport deicing operations;
- Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system used in the storage, treatment, recycling and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR part 403; and,
- Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-25.

Section I.B. of the NV General Industrial Permit also requires that a signed Notice of Intent (NOI), a filing fee, and a Storm Water Pollution Prevention Plan (SWPPP) shall be completed and available for inspection at the project site or operation covered by this permit. The SWPPP shall be prepared in accordance with good engineering practice and shall consist of site specific information, such as the BMPs implemented, inspection and maintenance procedures and records, identification of non-storm water discharges, and a description of permanent storm water controls. The SWPPP must be revised as changes in design, components or process are made. The SWPPP shall include facility identification, site characteristics, and testing certification information. Additionally, certain industrial facilities have storm water effluent guidelines for at least one of their subcategories, as described in section I.B.7.f (i) of the NV General Industrial Permit. If a facility is classified as one of these subcategories, that facility is subject to the standards listed the Code of Federal Regulations (CFR) for that category, must sample storm water discharges from the facility once per year.

These facilities include:

- Cement manufacturing
- Feedlots
- Fertilizer manufacturing
- Petroleum refining
- Phosphate manufacturing
- Steam electric power generation
- Paving and roofing materials
- Landfills

2.4 Permissible Non-Storm Water Discharges

The NV General Industrial Permit authorizes permittees to discharge certain miscellaneous non-storm water discharges if those discharges are not significant contributors of pollutants. BMPs shall be implemented if needed, however, to minimize impacts of these discharges. According to Section I.A.5.g (i), such discharges may include:

- Discharges from fire hydrant flushings
- Waters used to wash vehicles where detergents are not used
- Water used to control dust
- Potable water sources including water line flushings
- Routine external building wash down which does not use detergents
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
- Air conditioning condensate
- Uncontaminated ground water or spring water
- Foundation or footing drains where flows are not contaminated with process materials such as solvents

2.5 Overview of Industrial and Commercial BMPs

To promote the concept and practice of preventing pollution at the source before causing environmental problems, a variety of source controls can be implemented (U.S. EPA, 1992). If not managed adequately, activities at industrial or commercial sites may provide sources of pollutants that come in contact with rain or runoff as it drains over the area where activities have been conducted. These pollutants then leave the site when runoff drains into the municipal storm drain system (e.g. the MS4), resulting in polluted storm water ultimately being discharged to the Truckee River and its tributaries. This handbook details best management practices (BMPs) for typical industrial and commercial activities that may pollute storm water. These include on-site practices, as well as specific practices for mobile units. General Industry Category (IC) BMP Guide Sheets and Source Control (SC) Fact Sheets are provided in Sections 4 and 5, respectively. The Guide Sheets and Fact Sheets contain a description of the particular activity, the types of pollutants commonly generated from that activity, and source control BMPs designed to control pollution associated with that activity. Additional information including employee training, good housekeeping measures, and references are also provided. The successful implementation of appropriate source control measures at industrial or commercial sites can reduce or eliminate the need for higher cost structural treatment control measures. Detailed information on structural treatment control measures can be found in the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com).

2.6 Storm Water Quality Hydrology of the Truckee Meadows

As noted in Sections 2.0 and 2.1, urbanization in the Truckee Meadows has resulted in an increase in the volume of runoff, increased peak flows and sediment transport and the transport of a variety of pollutants in storm water runoff to the area's receiving waters (e.g. local streams, wetlands, and the Truckee River). Figure 2-1 provides an example of the hydrographic response of urbanization within a hypothetical watershed. The increased streamflow seen in the post-development hydrograph is due to the immediate runoff generated when the rainfall hits the increased impervious surfaces created through urbanization, as opposed to when the rainfall would infiltrate into pervious ground under the pre-development conditions. Collectively, untreated storm water runoff from residential, industrial and commercial land uses can have significant adverse impacts on water resources.

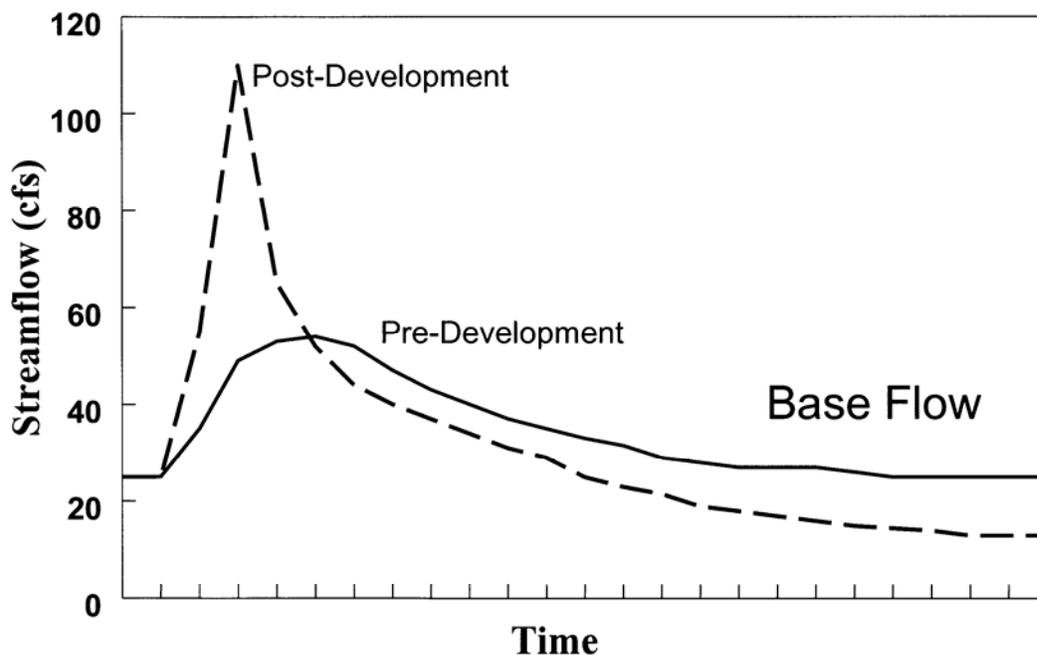


Figure 2-1. The hydrographic response of urbanization within a hypothetical watershed.
Source: The Center for Watershed Protection

The rate of runoff and the extent of pollutant loading depend on the hydrologic and geologic conditions, the types of land uses and the management practices implemented within the drainage area. Analyses of precipitation patterns across the country have shown that the relatively frequent small storm events, which wash urban surfaces much more often than the less frequent larger events, produce the vast majority of runoff containing pollutants. In addition, the majority of pollutants are typically transported during the “first flush” portion of a runoff event, which is often considered to be the first half-inch of runoff. Therefore, the sizing of treatment controls for storm water quality enhancement is most efficient and cost effective when they are designed to capture or convey and treat the most frequently occurring storm events as well as “first flush” portion of the majority of runoff producing storm events. Treatment controls, such as bioretention systems, extended detention basins, and storm water ponds and

wetlands, can be found in the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com).

An analysis of storm events at the Reno Tahoe International Airport from 1948 to 2002 indicates that the majority of local storms produce less than 0.50 inches of total rainfall and as storm sizes increase, the total number of storms significantly decreases. Therefore, sizing structural treatment controls for the larger storm events (e.g. storms up to 1.50 inches) may significantly increase the size and cost of structural treatment controls, while the total number of additional storms treated is insignificant. In addition, structural treatment controls designed to capture and treat runoff from the larger storm events typically release smaller runoff volumes over a shorter period of time, providing inadequate detention and treatment of the runoff from the smaller storm events. This is the reason why flood control detention structures designed to detain runoff volumes for the 5, 25 or 100-year storm events typically provide only a limited amount of storm water quality treatment.

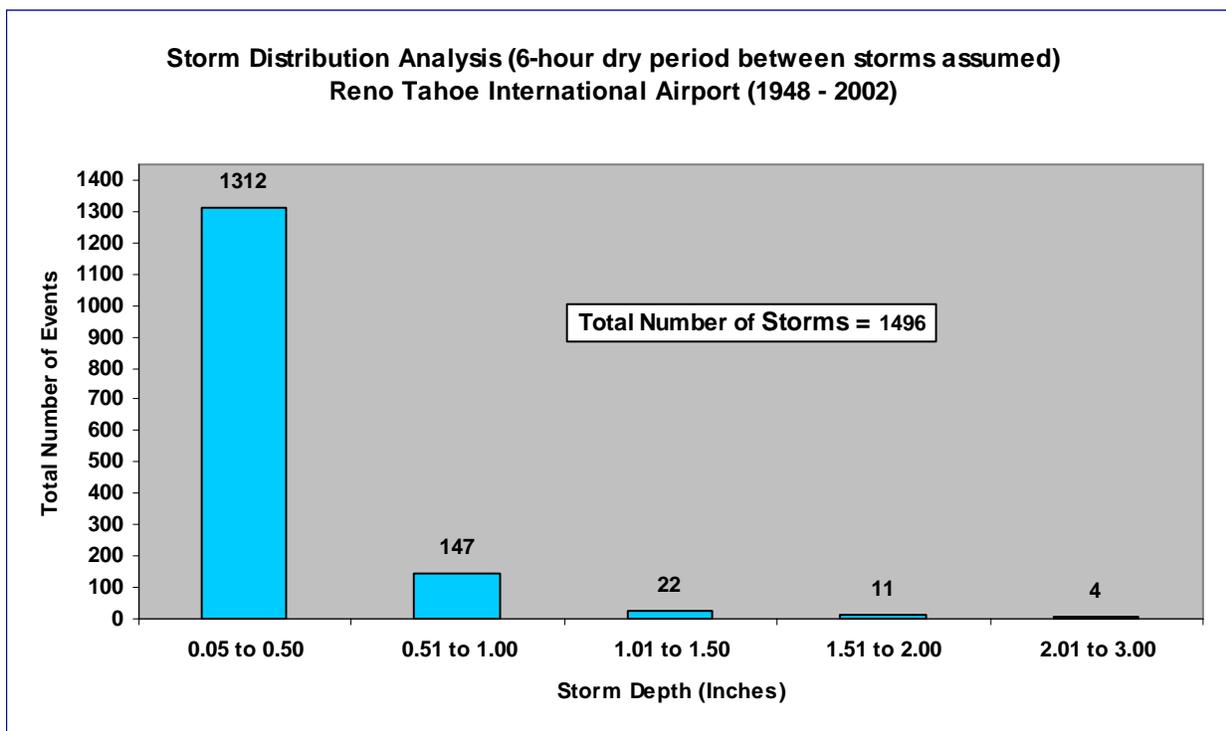


Figure 2-2. The figure above presents an analysis of local rainfall data. It graphically demonstrates the fact that the majority of storms in the Truckee Meadows produce less than 0.5 inches of rainfall. Source: Kennedy/Jenks Consultants

Section 3

**The Truckee Meadows Industrial Storm Water
Program**

Section 3: The Truckee Meadows Industrial and Commercial Storm Water Program

3.1 Legal Authority

In 2003, the Cities of Reno and Sparks and Washoe County adopted new municipal codes and ordinances that provide regulations and grant permitting and enforcement authority for storm water quality management. These codes and ordinances include the following requirements:

- The use of storm water BMPs at commercial and industrial sites
- The notification of spills at commercial and industrial sites
- The use of good housekeeping practices at commercial and industrial sites
- The prohibition of pollutants from being discharged to the storm drain system
- The prohibition of waste or other materials that might become a pollutant from being deposited onto streets, parking areas, or any public or private land
- Surface cleaning regulations
- Regular inspection and maintenance of private storm water facilities
- The right of entry onto private property for inspections by City and County staff

Enforcement procedures include notices of violation, the termination of service, and civil and criminal penalties. In addition, the Truckee Meadows Industrial and Commercial BMP Handbook, the Construction Site BMP Handbook, and Structural Controls Design Manual are adopted by reference. These codes and ordinances are contained in Chapter 12 of the City of Reno Municipal Code, Chapter 13 of the City of Sparks Municipal Code, and Washoe County Ordinance No. 1223 as it may be amended or superseded.

The Cities and County also have existing ordinances and practices that require permits for construction activities and a regulatory process for reviewing and approving plans and permits, and inspecting sites for compliance. The permits for construction activities include grading, site development, building, and encroachment permits. Plans requiring review include tentative, final, parcel and subdivision maps, site plans, drainage plans, and erosion and sediment control plans. The existing permitting and plan review process differs somewhat between the three jurisdictions and is based on different governmental structures, ordinances, policies and procedures.

The Cities of Reno and Sparks have adopted similar policies regarding site and facility inspection and the execution of maintenance activities. These policies require the installation, operation and long-term maintenance of post-construction BMPs for specific categories of development. It is important to note that some sites will be able to effectively address storm water pollution control through the use of source controls alone and will not be required to implement structural treatment controls. Other sites may be able to utilize regional structural

treatment controls. Policies and procedures that require the installation, operation and long-term maintenance of post-construction BMPs for specific development categories is a common method used by many communities across the nation to address the requirements of their NPDES municipal and industrial storm water permits.

3.2 Local Policies and Procedures

As noted in Section 2.2, the Cities of Reno and Sparks and Washoe County are required under federal and state regulations (U.S. EPA and NDEP) to reduce pollutant loadings in their municipal storm drain systems to the “maximum extent practicable” (MEP). To address these requirements, the Cities and County have developed a number of policies and procedures for industrial and commercial land uses.

Any commercial or industrial facility that uses or stores hazardous waste or has the potential to discharge any waste greater in strength than normal storm water runoff is required to obtain an Environmental Control Permit. Depending upon the types of material stored at the facility and the potential threat of contamination, the permit may require regular inspection of the facility. In addition, the Cities Environmental Control Programs implements the National Pretreatment Program at the local level. The Program involves federal, state, and local agencies to protect the Publicly Owned Treatment Works (POTW) such as the Truckee Meadows Water Reclamation Facility. By reducing the amount of pollutants discharged to the municipal sanitary sewer system, the program protects water quality and improves chances for reusing water and biosolids. The City of Reno and City of Sparks Environmental Control Programs regulate all dischargers within the Truckee Meadows and are on call 24 hours a day for hazardous spills. These programs also conduct inspections for industrial and commercial storm water discharges to the municipal storm drain system.

3.2.1 Inspection and Enforcement Policies and Procedures

The Cities of Reno and Sparks have identical policies regarding the inspection of industrial facilities discharging to the storm drain system. As stated in Chapter 12 of the City of Reno Municipal Code, and Chapter 13 of the City of Sparks Municipal Code, “The Public Works Director shall have the right of entry for inspection purposes of the facilities discharging to the municipal separate storm sewer system (MS4) to ascertain compliance with the city’s storm water regulations.” Such inspections may include the examination of records, random sampling of storm flows, sampling in areas with evidence of storm water pollution, and the investigation of illicit discharges. The Public Works Director may require the construction, operation and maintenance of monitoring equipment at the expense of the owner. Required monitoring would be accompanied by regular submission of monitoring reports to the Public Works Department. Flow measurement and sampling may also be conducted by City personnel, who may install, operate and maintain sampling equipment on the premises of the discharger.

Very similar procedures are followed by the Cities of Reno and Sparks for enforcement of storm water discharge regulations. In summary, the chief of police can give the Environmental Control officer the authority to issue cease and desist orders to any discharger that is threatening the storm drain system, or endangering public health and safety. Cease and desist orders may include directions to take appropriate remedial or preventative action, and to comply with city regulations immediately or in accordance with a timetable. Violations are considered a misdemeanor offense, and may result in an on-site citation or permit revocation. In the event that an illegal discharge results in the obstruction, damage or impairment of City storm water

facilities, the City may charge the discharger for the work required to repair or clean the facilities. Reno and Sparks City codes also contain provisions for the suspension or termination of sewer services in the event that a discharge causes or threatens to cause contamination, pollution or public nuisance.

3.2.2 Nevada General Industrial Permit

Some industrial and commercial facilities discharging to the storm drain system are required under the Federal Clean Water Act to obtain coverage under the NV General Industrial Permit from NDEP and to develop and maintain a Storm Water Pollution Prevention Plan (SWPPP). The types of facilities subject to the NV General Industrial Permit are listed in Section I.A.5. of the permit (Appendix A). These facilities include, but are not limited to, the following common urban industrial and commercial land uses:

- Vehicle repair/maintenance operations which are a part of a listed transportation facility.
- Fueling stations which are a part of a listed transportation facility.
- Establishments primarily engaged in the wholesale or retail distribution of used motor vehicle parts.
- Establishments primarily engaged in assembling, breaking up, sorting, and wholesale distribution of scrap and waste materials. This industry includes auto wreckers engaged in dismantling automobiles for scrap.

3.2.2.1 Developing a Storm Water Pollution Prevention Plan (SWPPP)

Section I.B.1 of the NV General Industrial Permit (Appendix A) requires owners of specific industrial and commercial businesses to complete and maintain a Storm Water Pollution Prevention Plan (SWPPP) at the site. This SWPPP shall be prepared in accordance with good engineering practices and shall consist of site specific information (e.g. business and owners name and address, site map, etc.), the Best Management Practices (BMPs) to be used on site, inspection and maintenance procedures, a list of any potential non-storm water discharges, and a description of permanent storm water treatment controls used at the site (Section I.B.3).

In an effort to reduce pollutant loadings and improve water quality, the U.S. EPA and NDEP storm water programs emphasize pollution prevention and reliance on BMPs for facilities that have the potential to discharge polluted storm water. These facilities are encouraged to follow the guidance provided in the U.S.EPA document entitled “Developing Pollution Prevention Plans and Best Management Practices, Summary Guidance.”

Located online at <http://www.epa.gov/npdes/pubs/owm0236a.pdf>, this document is intended to guide industrial facilities on the development of a SWPPP and identification of appropriate BMPs. A comprehensive, completed model SWPPP is included as an example for additional review and guidance in the appendices of the EPA document noted above.

The primary components of a SWPPP are:

- Planning and organization
 - Establish a pollution prevention team

- Site assessment
 - Develop a site map
 - Conduct a materials inventory
 - Identify previous occurrences of significant spills and leaks
 - Conduct a non-storm water discharge assessment and certification
 - Summarize existing storm water sampling data
 - Prepare a narrative assessing on-site activities and potential to contaminate storm water
- BMP selection and plan design
 - Provide a list of pollutant sources identified on site
 - Provide a list of BMPs selected and a brief description
- Implementation
 - Develop a schedule for implementing the selected storm water BMPs
 - Develop an employee training program
- Evaluation and site inspection
 - Conduct annual site compliance evaluations
 - Record and maintain records
 - Make revisions to plan as necessary with changes in the facility's design, construction, operation or maintenance

The effects of increased urbanization typically result in altered natural drainage patterns and addition of pollutants to the runoff that enters surface waters, particularly runoff from industrial and commercial land uses. As noted previously, storm water discharges from specific industrial and commercial facilities must obtain coverage under the NV General Industrial Permit, which requires the development and implementation of a SWPPP for each facility. The SWPPP is designed to reduce pollution at the source, before it can cause environmental problems.

Guidance provided in the U.S.EPA document noted above includes background information on pollution prevention planning requirements for facilities regulated under the NV General Industrial Permit. Facilities are encouraged to follow a step-by-step process to ensure that pollutants are not making their way to storm water discharges (e.g. drainage to the municipal storm drain system, a nearby drainage, and eventually to a receiving water body). Appropriate BMPs must be selected and implemented to prevent or reduce the pollution in rain water or snowmelt runoff and wash water from an industrial or commercial facility. Additionally, industrial or commercial business owners who are subject to reporting requirements under the Emergency Planning and Community Right-to-Know Act (EPCRA) will have to meet special requirements; these additional requirements are detailed separately for each phase of SWPPP development.

The step-by-step process in developing an SWPPP includes five major phases (outlined above): planning and organization, site assessment, BMP selection and plan design, implementation, and evaluation and site inspection. Worksheets accompany each phase for specific guidance;

completed worksheets for reference are found in the model SWPPP. The first phase, planning and organization includes designation of a specific individual or team to develop, implement maintain, and revise the SWPPP as necessary, as well as designate responsibilities of each individual or team member. Next, a pollution source assessment is made to determine what pollutants or practices at the facility may be a source of storm water contamination. Proper selection of BMPs is made upon completion of this assessment to target the identified potential pollutants. The BMPs must then be implemented, and employees trained in spill prevention and response, good housekeeping, and material management practices as appropriate. Schedules must be developed that outline BMP implementation and employee training programs. Finally, a site evaluation must be completed by qualified personnel at least once per year. This evaluation includes an inspection for pollutants entering the storm drain system, effectiveness and proper operation of BMPs, and revisions to the SWPPP as necessary.

Administrative guidance relating to organizing and developing as SWPPP is provided under “General Requirements” in the EPA document. This section outlines procedures for plan development and implementation, required authorized signatures, on-site SWPPP location and access, and the potential for additional improvements or modifications that may be required by the permitting authority. The document must be available at all times and presented on request to representatives from the U.S. EPA, the NDEP and/or the appropriate jurisdictional authority (i.e. Reno or Sparks Environmental Control, if requested).

Certain facilities must also meet special requirements in addition to the minimum BMPs set forth in the document. An authorization letter issued to a permit holder under the NV General Industrial Permit may include special conditions. Special requirements may include additional monitoring or control requirements, and additional preventive measures to control potential discharges.

3.2.2.2 SWPPP Monitoring and Reporting

Per Section 1.B.7. of the NV General Industrial Permit, annual site compliance evaluations are required to assess the effectiveness of SWPPPs. These evaluations must be conducted by qualified personnel at least once per year, to include but not be limited to the following:

- Inspection of all areas identified in the SWPPP as potential pollutant sources
- A review of the selected BMPs to determine if they are appropriate for the facility and how each will effectively prevent or lessen pollution
- A survey of all potential non-storm water discharge sources (e.g. outdoor washing activities)
- Inspection and evaluation of all structural controls to ensure proper operation
- Evaluation of non-structural BMP effectiveness (e.g. good housekeeping, spill prevention)
- Inspection of storm water discharge areas immediately downstream of outfall locations for evidence of pollutants entering the storm drainage system
- A review of records required by the NV General Industrial Permit

A report summarizing the annual compliance evaluation must be prepared and included with the SWPPP. The report must include information about the personnel conducting the evaluation, the dates of inspection, and any incidents of non-compliance. The operator of the facility must complete all necessary actions to address and eliminate all incidences of non-compliance within 90 days of the evaluation.

NDEP requires quarterly visual monitoring of storm water discharge from each outfall authorized by the NV General Industrial Permit. Per the NV General Industrial Permit, these observations must be conducted within the first hour of a storm event creating at least 0.1 inch of measurable rainfall. The storm event must be preceded by at least 3 days with no storm activity. Sampled runoff must be representative of the facility and not combined with runoff from other sources. Monitoring of outfall samples must be conducted in sufficient light, and must document observations of color, odor, clarity, foam, oil sheen, floating solids, settled solids, suspended solids, and any other indicators of storm water pollution.

The NV General Industrial Permit also mandates annual investigation and documentation of potential non-storm water discharges in the SWPPP. A non-storm water discharge is any discharge to municipal storm drain system that is not composed entirely of storm water. These discharges can occur as a result of activities such as vehicle washing, external building wash-down, fire hydrant flushing, and dust control. Unauthorized discharges can be detected by quarterly screening of on-site storm drainage systems for the presence of non-storm water flows during dry weather.

Many industrial facilities, including cement manufacturing, feedlots, fertilizer manufacturing, petroleum refining, mineral and mining processing, paving and roofing materials, and landfills have storm water effluent guidelines listed in the Code of Federal Regulations (40.CFR.411-445). These types of facilities may be required to include minimum annual sampling of storm water discharges as part of their SWPPP. Samples must be taken within the first 30 minutes of a storm event, analyzed for certain prescribed constituents, and results must be reported to NDEP and included in the SWPPP.

The SWPPP must be made available to State and local agencies upon request, and facilities are required to allow representatives of the U.S. EPA, NDEP and/or Reno or Sparks Environmental Control to enter the premises for the purposes of, but not limited to the following:

- Accessing records related to the NV General Industrial Permit
- Inspecting monitoring equipment and methods
- Collecting information in conducting compliance investigations
- Sampling discharges to determine compliance

3.2.2.3 SWPPP Maintenance, Update and Review Procedures

The SWPPP is a living document that should always be maintained to reflect the current status of the facility and the efforts being made to prevent storm water pollution. The success of the SWPPP depends on careful implementation of inspection, monitoring and maintenance procedures as well as regular evaluations and updates to ensure that the provisions of the plan continue to be effective.

A maintenance program for storm water structural treatment controls must be developed within the SWPPP, and carried out by qualified personnel. Mechanical equipment must be regularly maintained, and other structural controls should be inspected frequently to ensure effective operation. Records should be kept of maintenance schedules and estimated volumes of solids removed from catch basins and sediment ponds.

Employee education and training is also an important part of SWPPP maintenance. It is important that employees understand the purpose of the SWPPP and how to prevent pollution by following its guidelines. Individuals carrying out storm water sampling and monitoring activities must be trained in the proper techniques and protocols to ensure that samples are not contaminated, and valuable data is collected. Training should be conducted at least once per year, and records of training activities should be kept.

Each element of the SWPPP should be revised as needed to maintain accuracy as there are changes in the facility components or procedures. For example, if there is a significant change in the types of materials that are exposed to precipitation or runoff, the SWPPP must be updated within 30 days. Updates to the SWPPP should also occur to include recent sampling results, investigation results, and visual monitoring observations.

Following annual compliance evaluations, the SWPPP should be revised to address any issues of non-compliance and make updates related to changes in structural treatment controls, BMPs, site map, inventory of exposed materials, good housekeeping measures, or any other actions that could be taken to prevent pollution. Modifications to the SWPPP should be dated, and all revisions should be retained. Representatives from the U.S. EPA, NDEP or Environmental Control may request a review of the SWPPP and require revisions upon review or site inspection.

3.3 Public Reporting

Currently, the Cities Public Works and Environmental Control departments and the Counties Public Works and District Health departments receive and respond to complaints regarding illegal dumping and improper storage of chemicals and other materials. In the future, a centralized "Hotline" may be developed for public reporting of all water quality concerns and complaints. Currently, the illegal dumping of unknown substances and discharges of non-storm water substances to the storm drain system in the Truckee Meadows (other than those noted in Section 2.4) should immediately be reported to the appropriate jurisdictional authority:

- Nevada Division of Environmental Protection: (888) 331-6337
- City of Reno, Environmental Control Department: (775) 334-2168
- City of Sparks, Environmental Control Department: (775) 861-4152
- Washoe County District Health Department, Environmental Health Services Division: (775) 328-2436.

3.4 Public Resources

The Nevada Division of Environmental Protection (NDEP), Bureau of Water Pollution Control is the state agency responsible for issuing the Municipal Stormwater Permit (NVS000001) to the Cities and the County as well as the General Permits for Stormwater Associated with Construction Activity and Industrial Activity (NVR100000 and NVR050000, respectively). As such, NDEP can provide guidance to agency staff, contractors and design engineers with permit requirements, preparing SWPPPs and appropriate BMP selection. The NDEP website also provides information about State and U.S. EPA storm water programs.

Nevada Division of Environmental Protection
Bureau of Water Pollution Control
901 South Stewart Street, Suite 4001
Carson City, NV 89701
Phone: (775) 687-9429 Fax: (775) 687-4684
Current Contact: Mr. Cliff Lawson
Email: clawson@ndep.nv.gov
Website: <http://ndep.nv.gov/bwpc/storm03.htm>

The Nevada Small Business Development Center - Business Environmental Program of the University of Nevada, Reno provides free and confidential environmental assistance to Nevada businesses and government operations. They offer seminars on many topics, including hazardous waste management, waste minimization, and pollution prevention. The Business Environmental Program also provides on-site assistance to review waste handling procedures, recordkeeping practices, and process operations.

Their website (<http://www.envnv.org/pages/facts.htm>) provides fact sheets describing:

- ❑ Management of aerosol cans
- ❑ A list of local alternative solvent suppliers
- ❑ Statewide listing of Environmental Health and Safety Agencies
- ❑ Management of used antifreeze
- ❑ Hazardous waste container management and inspection requirements
- ❑ Solid Waste Source Reduction opportunities for the construction and demolition industry
- ❑ Hazardous waste contingency plans
- ❑ Waste management for dry cleaning facilities
- ❑ Determining your hazardous waste “generator status”
- ❑ Hazardous waste identification
- ❑ Guidelines for industrial use of Lockwood Landfill
- ❑ Hazardous waste manifesting procedure
- ❑ Pollution prevention for first responders
- ❑ Pollution prevention for commercial printing facilities
- ❑ Emergency Coordinator/Preparedness and Prevention Requirements
- ❑ Requirements for storing hazardous waste at or near the point of generation

- ❑ Toxicity Characteristic Leaching Procedure testing
- ❑ Managing hazardous and universal waste lamps and fluorescent tubes
- ❑ Management of used oil and oil filters
- ❑ Managing wipers and rags

Nevada Small Business Development Center - Business Environmental Program
 6100 Neil Road, Suite 400
 Reno, NV 89511
 Phone: (775) 689-9977 Toll Free: (800) 882-3233 Fax: (775) 689-6689
 Website: <http://www.envnv.org>

The Truckee Meadows Water Authority (TMWA) provides local landscape information that can be used to guide contractors, landscape architects and landowners with re-vegetation and final site stabilization efforts. TMWA's Landscape Information Package includes an "Irrigation and Design Guide", a "Plant Guide" and a "Maintenance and Planting Guide" with recommended hardy water-efficient plants and tips to design and maintain a robust landscape in the arid climate of the Truckee Meadows. As noted in the Truckee Meadows Low Impact Development (LID) Handbook and the Structural Controls Design Manual, landscaping (e.g. vegetated treatment controls) can be effectively used to retain and treat storm water onsite. These documents (available at www.TMstormwater.com) provided numerous examples of vegetated treatment controls and LID practices that can be used at industrial and commercial sites in the Truckee Meadows.

Truckee Meadows Water Authority
 1155 Corporate Blvd.
 Reno, NV 89502
 Phone: (775) 834-8000 Fax: (775) 834-8003
 Website: <http://www.tmh2o.com>

The University of Nevada Cooperative Extension (UNCE) provides community education and outreach in horticulture, natural resources, and other areas. UNCE coordinates the Master Gardener program and provides assistance to the public in identifying plants, diagnosing plant problems, and selecting appropriate plant materials. The Cliff Fouts demonstration garden incorporates a variety of landscape plants suitable for the area. UNCE also sponsors a gardening series for the public, "Gardening in Nevada", from February to April each year, and conducts an annual nursery worker training. Training is also provided on invasive weed identification and management.

University of Nevada Cooperative Extension, Washoe County office
 5305 Mill St.
 Reno, NV 89502
 Phone: (775) 784-4848 Fax: (775) 784-4881
 Current Contact: Frank Flavin, Area Director
 Website: <http://www.unce.unr.edu>

Section 4

General Industry Category BMP Guide Sheets

Section 4: General Industry Category BMP Guide Sheets

4.1 Introduction to the IC-BMP Guide Sheets

This section provides a number of General Industry Category (IC) BMP Guide Sheets based on the primary types of industrial and commercial businesses in the Truckee Meadows. Each IC-BMP guide sheet provides a description of the general industry, typical pollutants, and the general approach needed to reduce pollutant discharges to the storm drain system (e.g. appropriate BMPs). The owners, operators and managers of these industrial and commercial properties should reference and implement the recommended BMPs provided in these guide at areas exposed to runoff from storm events, washing, and irrigation. IC-BMP guide sheets are provided for the following industrial and commercial activities:

IC-1 Vehicle & Equipment Repair and Maintenance

IC-2 Vehicle Fueling Stations

IC-3 Vehicle Body Repair, Painting, Plating and Powder Coating

IC-4 Vehicle and Truck Washing Stations

IC-5 Vehicle Recycling

IC-6 Scrap Material Recycling

IC-7 Stone Cutting and Fabrication

IC-8 Concrete Ready-Mix Operations

IC-9 Mineral Testing Laboratories

IC-10 Restaurants and Fast Food Facilities

IC-11 Commercial Animal Handling

IC-12 Manufacturing and Processing

IC-13 Commercial Printing

IC-14 Mobile Fueling & Lubrication Operations

IC-15 Mobile Vehicle and Equipment Washing Operations

IC-16 Mobile Surface Cleaning Operations

IC-17 Mobile Carpet Cleaning Operations

IC-18 Mobile Food Service Operations

VEHICLE & EQUIPMENT REPAIR AND MAINTENANCE

IC-1

Description

Vehicle and equipment repair and maintenance consists of mechanical activities at public or private fixed facilities and mobile repair and maintenance operations on both fleet vehicles and heavy equipment at job sites.

Primary Potential Pollutants

- ✓ Petroleum Oil and Grease
- ✓ Antifreeze
- ✓ Brake Cleaners
- ✓ Solvents
- ✓ Absorbent Materials

General Considerations

In general, pollutants are kept from contacting storm water by conducting these activities within buildings or under cover.

Recommended BMPs

- ❑ Regularly train mechanics in spill prevention, spill response, emergency procedures, and environmental considerations of repair and maintenance activities.
- ❑ Provide operators with an up-to-date call list of local fire department, city and state emergency response agencies, and spill response contractors who shall be notified immediately in the event of a spill.
- ❑ Switch to non-toxic, less toxic, or biodegradable chemicals for maintenance and cleaning when possible. However, when using these products, do not allow runoff from their use to discharge to the storm drain system.
- ❑ Use recyclable cleaning agents when possible.
- ❑ Drain oil filters prior to disposal.
- ❑ Vessels containing a liquid outdoors shall be stored in a secondary containment area.
- ❑ Used batteries, cores and vehicle related parts shall be covered to prevent contact with storm water or stored in a containment area to prevent runoff.
- ❑ Keep storm water from running onto outdoor repair or equipment storage areas.
- ❑ Repair leaks and drips on incoming vehicles and equipment prior to storage.
- ❑ Monitor parked or stored vehicles regularly for leaks.
- ❑ Use drip pans or containers under vehicles that are dripping or likely to drip during repair.
- ❑ Wastewater from steam cleaning or pressure washing shall be routed to an oil/water separator connected to the sanitary sewer.

VEHICLE & EQUIPMENT REPAIR AND MAINTENANCE

IC-1

- ❑ Do not connect repair area drainage to the storm drain system or the sanitary sewer without approval.
- ❑ Do not wash down repair and service areas to the storm drain.
- ❑ Maintain spill clean up materials in repair areas.
- ❑ Sweep the floor regularly to remove absorbent materials that have been used.
- ❑ Install and maintain oil absorbent catch basin inserts in storm drains in the vicinity of the facility.
- ❑ See the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com) for additional information on catch basin inserts.
- ❑ Store used oil in non-leaking tanks or containers that are in good condition without rust or dents. The containers must be dedicated to the storage of used oil, and labeled with the words “Used Oil”.
- ❑ For additional information on local alternative solvent vendors, managing used oil, used oil filters, and used antifreeze, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-1a. The photograph above demonstrates good storm water management practices. This local vehicle repair facility is properly storing vehicle engine components outdoors. (Source: Sparks Environmental Control)

VEHICLE & EQUIPMENT REPAIR AND MAINTENANCE

IC-1



Figure IC-1b. The photograph above demonstrates good storm water management practices. Used batteries and brake shoes are being properly stored in covered shelving with containment pallets to capture any spills. (Source: Sparks Environmental Control)



Figure IC-1c. The photograph above demonstrates good storm water management practices. Used vehicle parts are being properly stored for disposal in a covered dumpster. (Source: Sparks Environmental Control)

VEHICLE & EQUIPMENT REPAIR AND MAINTENANCE

IC-1



Figure IC-1d. The photograph above demonstrates good storm water management practices. A trench drain located near the edge of the covered working area of this vehicle repair facility prevents spills and wash water from draining onto the pavement and entering the storm drain system. (Source: U.S. EPA)



Figure IC-1e. The photograph above demonstrates poor storm water management practices. Uncovered and uncontained used engine parts at this site are leaking petroleum hydrocarbons and other pollutants onto the ground which will eventually discharge to the storm drain system. (Source: Sparks Environmental Control)

Description

Fueling stations include commercial gas stations, businesses, and public agency facilities that fuel fleet vehicles, and any other private agency that fuels vehicles or equipment from fixed tanks.

Primary Potential Pollutants

- ✓ Gasoline
- ✓ Diesel
- ✓ Petroleum Oil and Grease
- ✓ Sediment
- ✓ Antifreeze
- ✓ Absorbent Materials

General Considerations

In general, fueling and maintenance activities should be conducted under cover to prevent contact of pollutants with storm water.

Recommended BMPs

Gas stations and other larger fueling facilities are subject to federal and state regulations that dictate containment and equipment requirements. These regulations are more extensive than those required for individual facilities or locations with small fuel tanks. The following recommendations are generally intended for these smaller facilities.

- ❑ Cover the fueling areas to prevent rainfall from hitting the tank, nozzles, and fueling pad.
- ❑ Elevate above grade or curb fueling areas if possible to prevent storm water run-on.
- ❑ Direct drainage from fueling areas to a sump or treatment system upon approval.
- ❑ Train employees in pollution prevention and spill response.
- ❑ Provide an up-to-date call list of local fire department, city and state agencies, and spill response contractors to be notified immediately in the event of a spill. Current contact information for Nevada can be found at <http://www.envnv.org/pdf/Agencies.pdf>
- ❑ Provide spill control and absorbent materials in the vicinity of the fueling area.
- ❑ Post signs to remind employees not to “top off” tanks.
- ❑ Clean up spills, leaks and applied absorbent materials immediately.
- ❑ Install and maintain oil absorbent catch basin inserts in storm drains in the vicinity of the facility.
- ❑ See the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com) for additional information on catch basin inserts.
- ❑ Above-ground fuel storage tanks should be diked and/or valved to prevent spills.

VEHICLE FUELING STATIONS

IC-2

- ❑ For additional information on local alternative solvent vendors, managing used oil, used oil filters, and used antifreeze, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-2a. The photograph above demonstrates good storm water management practices. This commercial vehicle fueling station is covered and kept clean. (Source: U.S. EPA)



Figure IC-2b. The photographs above show a heating oil spill from a local fueling station that was allowed to drain into a nearby storm drain inlet on the right. This is an illegal discharge that resulted in fines. (Source: Reno Environmental Control)

VEHICLE BODY REPAIR, PAINTING, PLATING AND POWDER COATING

IC-3

Description

This industry category includes auto and other vehicle body shops and any other facilities that conduct body work, sanding, sand-blasting, painting, plating, and powder coating. These BMPs should also be considered and implemented by other industries or facilities that paint or finish furniture and other manufactured products.

Primary Potential Pollutants

- ✓ Flammable solvents
- ✓ Paint
- ✓ Dust
- ✓ Sediment
- ✓ Petroleum Oil and Grease
- ✓ Antifreeze
- ✓ Metals
- ✓ Toxic organic compounds

General Considerations

In general, cover and contain all operations to prevent airborne fugitive paint and dust from leaving the facility, settling on the ground, and being washed into storm drain systems. The facility must meet any local air quality regulations, and may need to install and maintain air filtration systems to control airborne particles and wastewater treatment systems to meet local sanitary sewer discharge limitations.

Recommended BMPs

- ❑ Store all paint, powder coating, electroplating, sand-blasting media, process chemicals and materials under cover or indoors, and in accordance with the manufacturer's recommendations.
- ❑ Train employees in pollution prevention, spill prevention, and proper application of paints to reduce misuse and overspray.
- ❑ Conduct all sand-blasting, powder coating, electroplating and painting activities indoors or undercover in areas that drains to the sanitary sewer or a blind sump.
- ❑ For painting use a ground cloth, tarp, or other drip cloth under all outdoor areas of mixing or tool cleaning.
- ❑ Sweep (do NOT hose down) all areas at the end of each day that could contribute pollutants directly to storm water or where pollutants could be tracked or blown away from the site.
- ❑ Clean water-based paint from brushes and equipment in sinks connected to the sanitary sewer or in portable containers that can be emptied into the sanitary sewer.

VEHICLE BODY REPAIR, PAINTING, PLATING IC-3 AND POWDER COATING

- ❑ Clean oil-based paint from brushes and equipment within contained equipment and where thinners and solvents can be collected for re-use, recycling and/or proper disposal.
- ❑ Do not clean any equipment in areas where runoff will enter the sanitary sewer or storm drain systems.
- ❑ Maintain spill clean-up materials on site at all times.
- ❑ For additional information on local alternative solvent vendors, managing aerosol cans, and hazardous waste, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states "No Dumping – Drains to the River". Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-3a. The photograph above demonstrates good storm water management practices. This powder coating operation is being conducted indoors to prevent any spills or overspray from occurring in areas exposed to storm water. (Source: The Powder Coating Institute)

VEHICLE BODY REPAIR, PAINTING, PLATING AND POWDER COATING

IC-3



Figure IC-3b. The photograph above demonstrates poor storm water management practices. Sanding / body work waste from an auto body repair shop is draining into a valley gutter and into the storm drain system (Source: Sparks Environmental Control).



Figure IC-3c. The photograph above demonstrates poor storm water management practices. These drums should be stored under cover or indoors to prevent interaction with storm water (Source: Sparks Environmental Control).

Description

Vehicle and truck washing includes all fixed facilities that wash or steam clean vehicles or trucks.

Primary Potential Pollutants

- ✓ High and Low pH
- ✓ Sediment
- ✓ Petroleum Oil and Grease
- ✓ Detergents

General Considerations

In general, all washing and steam cleaning should be conducted indoors or under cover in a facility that drains to the sanitary sewer or a wash water recycling system. Do not allow vehicle or equipment wash water to enter the storm drain system.

Recommended BMPs

- ❑ Sweep the vacuum and detail areas regularly to remove debris.
- ❑ Solids removed from wash bay drains shall be stored in a covered leak-proof dumpster.
- ❑ If possible, use biodegradable, phosphate-free detergents. However, when using these products, do not allow runoff from their use to discharge to the storm drain system.
- ❑ Wash line and nozzle length shall not exceed length of wash pad.
- ❑ Prohibit oversized vehicle washing in open wash bays to prevent overspray to storm drain system.
- ❑ Post signage prohibiting vehicle maintenance and forklift battery cleaning.
- ❑ Wastewater from steam cleaning or pressure washing shall be routed to an oil/water separator connected to the sanitary sewer.
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-4a. The photograph above demonstrates good storm water management practices. A typical enclosed commercial car wash captures wash water for recycling and/or discharge to the sanitary sewer. (Source: Kennedy/Jenks Consultants)



Figure IC-4b. The photograph above demonstrates good storm water management practices. A dedicated car wash area at a vehicle repair facility is covered, bermed and graded to drain through an approved pre-treatment device connected to the sanitary sewer. (Source: U.S. EPA)

Description

Vehicle recycling includes businesses that collect and recycle vehicles and their parts.

Primary Potential Pollutants

- ✓ Petroleum Oil and Grease
- ✓ Gasoline
- ✓ Diesel
- ✓ Antifreeze
- ✓ Batteries
- ✓ Sediment
- ✓ Litter
- ✓ Metals

General Considerations

The types of activities covered by this category can result in many different types of pollutants. Therefore, preventing storm water contact with potential pollutants and treatment of storm water runoff from the site are the primary BMPs that need to be implemented.

Recommended BMPs

- ❑ Drain gasoline, oil, antifreeze, and any other fluids from vehicles, equipment, and machinery upon arrival at the facility and prior to storage.
- ❑ Store used oil and antifreeze in non-leaking tanks or containers that are in good condition without rust or dents. The containers must be dedicated to the storage of used fluids, and labeled with the words "Used Oil" or "Used Antifreeze".
- ❑ Cover or secondarily contain stockpiles of batteries and other materials to prevent storm water from contacting pollutants.
- ❑ Pave, curb or slope the storage areas to route storm water to treatment systems or retention systems upon approval by the local authority.
- ❑ Control and treat all runoff from vehicle recycling areas.
- ❑ Sweep parking and other impervious areas of the facility regularly to minimize sediment and litter accumulation.
- ❑ Install and maintain catch basin petroleum absorbent pads and filter inserts in the parking lot and vehicle storage drainage areas to prevent petroleum, sediment or litter from entering the storm drain system.
- ❑ Inspect and clean all catch basins regularly to prevent pollutant discharge and assess current BMP effectiveness.
- ❑ See the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com) for additional information on catch basin inserts.

- ❑ For additional information on local alternative solvent vendors, managing used oil, used oil filters, and used antifreeze, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-5a. The photograph above demonstrates good storm water management practices. Used batteries and brake shoes should be properly stored in covered containers. (Source: Sparks Environmental Control)



Figure IC-5b. The photograph above demonstrates poor storm water management practices - uncontained rubber and metal waste material from a tire re-treading facility has been allowed to accumulate in an exposed outdoor area. This waste is exposed to storm water and could become pollutants that discharge to the river. (Source: Sparks Environmental Control)



Figure IC-5c. The photograph above demonstrates good storm water management practices. This car storage area drains to a sand/oil separator device connected to the sanitary sewer. (Source: Sparks Environmental Control).



Figure IC-5d. The photograph above demonstrates good storm water management practices. All fluids should be drained from vehicles upon arrival at the facility and before storage (Source: Sparks Environmental Control).

Description

Scrap material recycling includes businesses that collect and recycle scrap materials, such as scrap metal, machine shop grindings, plastics, equipment, junk appliances, empty drums, and other recyclable materials such as wire, cans, bottles, and paper products.

Primary Potential Pollutants

- ✓ Soluble Cutting Fluids
- ✓ Petroleum Oil and Grease
- ✓ Metals
- ✓ Sediment
- ✓ Litter
- ✓ Gas & Diesel
- ✓ Toxic organic compounds

General Considerations

The types of activities covered by this category can result in many different types of pollutants. Therefore, preventing storm water contact with potential pollutants and treatment of storm water runoff from the site are the primary BMPs that need to be implemented.

Recommended BMPs

- ❑ Drain gasoline, oil, antifreeze, and any other fluids from vehicles, equipment, and machinery upon arrival at the facility and prior to storage.
- ❑ Store portable fueling tank(s) within secondary containment.
- ❑ Provide secondary containment of scrap metal grindings to capture residue petroleum products.
- ❑ Cover stockpiles of materials, if possible, to prevent storm water from contacting pollutants.
- ❑ Pave, curb or slope the storage areas to route storm water to treatment systems or retention systems upon approval by the local authority.
- ❑ Control and treat all runoff from scrap metal yards.
- ❑ Sweep open areas of the facility regularly to minimize sediment and litter accumulation.
- ❑ Install and maintain catch basin filter inserts to prevent sediment or other pollutants from entering the storm drain system. For additional information on catch basin inserts, See the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com)
- ❑ Inspect and clean catch basins regularly to prevent pollutant discharge and assess current BMP effectiveness.
- ❑ Train employees in pollution prevention and the impacts that site specific pollutants could have on surface waters.

SCRAP MATERIAL RECYCLING

IC-6

- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-6. The photograph above demonstrates poor storm water management practices - improper containment of sediment and runoff from stockpiles. Vehicles exiting site will track out sediment and other pollutants onto paved roadways, which will eventually discharge to the storm drain system. (Source: Sparks Environmental Control).

Description

Stone cutting and fabrication activities produce discharge water containing residue and sediment from the stone cutting operations and lubricants associated with use of the cutting equipment. Stone cutting operations use a substantial amount of water to suppress dust and cool equipment. The water becomes contaminated with minerals, stone dust pollutants, and sediment.

Primary Potential Pollutants

- ✓ Stone Dust
- ✓ Sediment
- ✓ Lubricants, Adhesives and Solvents

General Considerations

In general, pollutants are kept from contacting storm water by providing secondary containment in work areas and collecting process wastewater for treatment prior to sanitary sewer discharge.

Recommended BMPs

- ❑ Proper handling, storage and disposal of Stone, Lubricant, Adhesive and Solvent wastes. Minimize the use of solvents for parts cleaning and clean up all spills.
- ❑ Train employees to handle/transfer/cut raw materials in a manner to reduce particulate emissions and wastewater runoff.
- ❑ Do not wash down stone cutting areas where discharge to the storm drain system will occur. All interior drains shall be connected to the sanitary sewer system upon approval.
- ❑ Utilize proper ventilation and filtering to prevent escape of dust.
- ❑ Use dry clean-up whenever possible (sweeping, dust collection vacuum, wiping, etc.).
- ❑ Reuse/recycle/dispose of leftover stone properly.
- ❑ Use modern machinery to minimize dust generation.
- ❑ Reuse/recycle waste cutting water on-site.
- ❑ Store all liquid materials indoors if possible. Outdoor storage of liquids shall be in secondary containment.
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states "No Dumping – Drains to the River". Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-7a. The photograph above demonstrates poor storm water management practices - improper containment of stone cutting slurry at this facility has resulted in an illegal discharge to the storm drain system. (Source: City of Reno).



Figure IC-7b. The photograph above demonstrates poor storm water management practices - equipment used to dye concrete is being cleaned over the storm drain inlet, discharging chemicals directly to the storm drain system (Source: Sparks Environmental Control).



Figure IC-7c. The photograph above demonstrates good storm water management practices. This indoor granite/stone cutting facility uses proper filtering and ventilation to prevent the escape of dust. It also recycles all of its process water, having no discharges to the sanitary sewer or storm drain systems (Source: Sparks Environmental Control).

Description

Businesses that manufacture concrete blocks and bricks, pipe, pre-stressed concrete building components, and the production and delivery of ready-mix concrete and gypsum products have the potential to contaminate storm water. Sources of pollution include the loss of raw materials from stockpiles, vehicle track out and the washing of waste concrete from trucks, equipment and the general work area in a manner that allows these materials to enter the storm drain system. In addition, the runoff of water from the curing of concrete products can also contribute to storm water pollution. If maintained on site, trucks and equipment can also generate waste oil and solvents. Soluble cement constituents will contribute to high pH and metals concentrations in storm water runoff. An increase in total dissolved solids (TDS) can also be seen in runoff due to residue from cement, sand and fines. Admixture chemicals used to control concrete characteristics must be also properly stored and handled to ensure they are not spilled and later become pollutants in storm water runoff.

Primary Potential Pollutants

- ✓ Sediment produced from vehicle track out and raw materials (sand, gravel, gypsum)
- ✓ Dust
- ✓ Petroleum Oil and Grease
- ✓ Chemicals (calcium chloride, muriatic acid)
- ✓ Concrete waste

General Considerations

In general, pollutants are kept from contacting storm water by providing secondary containment of process areas and storing materials inside or in contained locations. In addition, the washing of waste concrete from trucks, equipment and the general work area must be conducted in a manner that captures the runoff and prevents it from entering the storm drain system.

Recommended BMPs for Fixed Facilities

- ❑ Do not wash out concrete trucks, equipment or tools into storm drains, gutters, alleys, open ditches, streets or streams.
- ❑ All washing of concrete trucks, equipment or tools shall be conducted in a dedicated washout area. Water from the washout area should be recycled or drained/discharged to the sanitary sewer upon approval.
- ❑ Signs shall be painted on storm drain inlets to indicate that they are not to receive liquid or solid waste or concrete washout.
- ❑ Post signage directing concrete vehicles and equipment to the concrete washout area.
- ❑ Store raw materials properly to prevent runoff to drainage areas. Curbs can be used to direct storm flow around stockpiles.
- ❑ Minimize the discharge of spilled cement, aggregate, dust, etc., through regular cleaning and sweeping of paved areas.
- ❑ Store materials in enclosed containers sheltered from wind whenever possible.

- ❑ Use water sprays and/or dust suppressants for stockpiles and unpaved areas where needed.
- ❑ Provide a tire wash area for all vehicles that enter and exit the material storage and processing/loading areas of the facility.
- ❑ Minimize wastewater volume by recycling and reusing process water whenever possible.
- ❑ Segregate and collect drainage from the process area with curbs or drains.
- ❑ Prevent offsite storm water runoff from draining onto the facility and the process areas of the site by diverting it with perimeter ditches.
- ❑ Use curtains or socks for truck loading operations to minimize dust emissions.
- ❑ Use water sprays to remove fugitive emissions during truck loading operations.
- ❑ Sweep paved portions of the yard frequently to remove accumulated dust.
- ❑ Educate all employees and subcontractors on proper concrete waste management.
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).

Recommended BMPs for Temporary Facilities or Mobile Operations

- ❑ Prevent pollution from concrete and mortars by establishing a designated temporary concrete washout area for concrete trucks, equipments, tools, and mortar mixers.
- ❑ Post a sign next to temporary concrete washout areas to identify the location.
- ❑ Concrete washout facilities should be used only to temporarily contain wash water from the cleaning of concrete-coated equipment and washout from concrete trucks. They should not be used for disposal of excess concrete and cement and trucks should not be allowed to back turn and dispose of residual loads.
- ❑ Concrete washout facilities can be designed above or below grade. Below grade facilities with a berm preventing the run-on of storm water are preferred.
- ❑ The capacity of concrete washout facilities should be determined based on the estimated amount of concrete washout waste generated at site. The volume must also be designed to contain the additional volume from rain falling directly into the facility during the 2-yr, 24-hr storm event.
- ❑ Concrete washout facilities may need to be lined if the area is located near a stream or waterbody or in an area of shallow groundwater.
- ❑ Locate concrete washout areas a minimum of 50 feet from, waterways and the storm drain system.
- ❑ Collect and dispose of properly all spilled PCC and AC or waste and slurry residues.
- ❑ Mix only an appropriate amount of fresh concrete or cement mortar and store materials away from waterways or storm drains.

CONCRETE READY-MIX OPERATIONS

IC-8

- ❑ Recycle washout water by pumping it back into the mixers for reuse. However, if this is not feasible then allow the wastewater to percolate into the ground and/or evaporate. Collect and dispose of the remaining concrete.
- ❑ Clean out washout area and properly dispose of wastes at least once per week or when the washout is 75 percent full. Construct temporary new washout areas as needed.



Figure IC-8a. The photograph above demonstrates good storm water management practices at a fixed facility. A tire wash at a local concrete ready-mix operation reduces track out of sediment and concrete waste onto paved roadways. (Source: Sparks Environmental Control)



Figure IC-8b. The photograph above demonstrates poor storm water management practices at a construction site by a mobile concrete ready-mix operation. Concrete washout should **never** be discharged onto the ground surface, into landscaped areas or into the storm drain system (Source: Concrete Washout Systems, Inc.).



Figure IC-8c. The photographs above demonstrate good storm water management practices at a construction site. A dedicated signed concrete washout area is provided in waterproof containment system and the waste materials are recycled (Source: Kennedy/Jenks).



Figure IC-8d. The photograph above demonstrates good storm water management practices at a construction site. Concrete washout is contained in a portable washout system and the waste materials are recycled (Source: Concrete Washout Systems, Inc.).

Description

Mineral Testing Laboratories have the potential to contaminate storm water from improper outdoor storage of precious metal ore samples. Typically the ore is stored in 50 pound bags on pallets, 55 gallon drums, super sacks or a combination of all three methods. In addition, large trash dumpsters and hazardous waste storage containers are located onsite. Occasionally process chemicals and equipment may also be noted in outdoor storage areas.

Primary Potential Pollutants

- ✓ Sediment
- ✓ Metals
- ✓ Cyanide
- ✓ High and Low pH
- ✓ Petroleum Oil and Grease
- ✓ Chemical Solvents

General Considerations

In general, pollutants are kept from contacting storm water by conducting daily inspection of outdoor storage, placing ore into new storage bags when bags begin to deteriorate, and provide secondary containment for ore and process chemicals. In addition, ensure dumpsters are covered and leak proof.

Recommended BMPs

- ❑ Daily sweeping of storage and dumpster areas.
- ❑ Utilize secondary containment for products stored outdoors.
- ❑ Install and maintain catch basin filter inserts to prevent sediment or other pollutants from entering the storm drain system.
- ❑ See the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com) for additional information on catch basin inserts.
- ❑ Inspect and clean catch basins regularly to prevent pollutant discharge and assess current BMP effectiveness.
- ❑ Train employees in pollution prevention and the impacts that site specific pollutants could have on surface waters.
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-9a. The photograph above demonstrates good storm water management practices at a mineral testing laboratory. This hazardous waste dumpster is appropriately covered to prevent storm water from entering and reacting with the contents. The adjacent drop inlet has also been fitted with a catch basin insert (Source: Sparks Environmental Control).

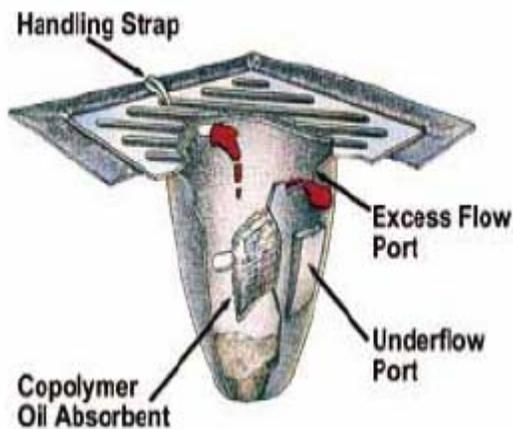


Figure IC-9b. The photograph above demonstrates a structural treatment control BMP. This bag-type catch basin filter insert can be installed and maintained in catch basins in the vicinity of mineral testing facilities to prevent sediment and other pollutants from entering the storm drain system. (Source: Kevin P. Walker, C&S Engineers, 2005)



A worker inserts a catch basin insert for oil and grease, trash, debris, and sediment removal from storm water as it enters the storm drainage system (Source: AbTech Industries, 2001)

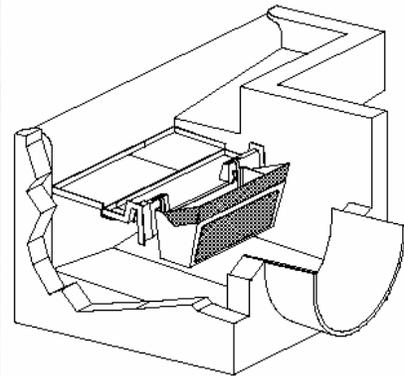
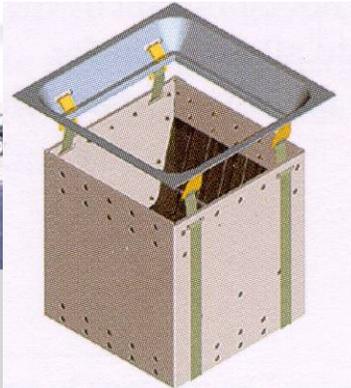


Figure IC-9c. Examples of a basket-type insert for a curb inlet catch basin and a box type insert for a vertical drop inlet (Graphics provided by [Bio Clean Environmental Services, Inc.](#) and [Abtech Industries™](#), respectively).



Figure IC-9d. The photograph above demonstrates good storm water management practices. Ore bags are covered and neatly stored, and no leaks or spills are evident. Secondary containment could be used to further prevent potential storm water contamination (Source: Sparks Environmental Control).

RESTAURANTS AND FAST FOOD FACILITIES IC-10

Description

Restaurants and Fast Food Facilities can produce storm water pollutants when conducting outdoor cleaning activities and not maintaining and covering outdoor trash receptacles and animal vegetable oil/grease storage areas.

General Considerations

Most activities are conducted indoors; however, storage of trash, used cooking oil, and outdoor cleaning of Drive Through/Parking Lot and storage areas may occur.

Primary Potential Pollutants:

- ✓ Animal Vegetable Oil and Grease
- ✓ Petroleum Oil and Grease
- ✓ Detergents and/or toxic cleaners
- ✓ Litter

Recommended BMPs:

- ❑ Sweep all outdoor areas on a regular basis.
- ❑ Sweep all outdoor impervious areas prior to washing. Usage of detergents during washing practices is prohibited.
- ❑ Train employees in pollution prevention and the impacts that site specific pollutants could have on surface waters.
- ❑ Collect all water from equipment, floor mats and food material cleaning and discharge to the sanitary sewer. Do NOT allow any of this wastewater to flow into the storm drain system.
- ❑ Maintain covers or lids on dumpsters, trash receptacles and grease rendering bins.
- ❑ Maintain and regularly clean animal vegetable oil and grease storage areas. Do NOT wash this area with water that drains into the storm drainage system.
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).



Figure IC-10a. The photograph above demonstrates good management practices at a local restaurant. The trash enclosure is kept clean and drains to the sanitary sewer system (Source: Sparks Environmental Control).



Figure IC-10b. The photographs above demonstrate poor management practices that resulted in illegal discharges to the storm drain system and fines. (Source: Reno Environmental Control)

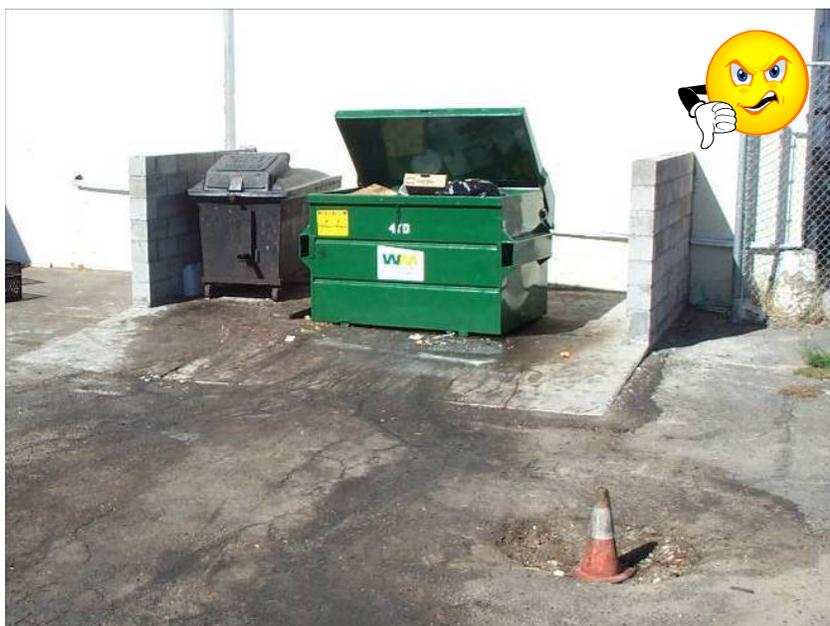


Figure IC-10c. The photograph above demonstrates poor storm water management practices at a local restaurant. The sanitary sewer drain under the rendering/trash pad is plugged and grease and food wastes are leaking out of the bins and flowing directly to the storm drain system (Source: Sparks Environmental Control).

Description

Commercial animal handling includes research facilities, kennels, veterinaries, animal boarding services, racetracks and livestock holding yards.

General Considerations

Pollution prevention at animal handling facilities consists primarily of preventing animal wastes and manure from entering the storm drain system.

Primary Potential Pollutants

- ✓ Nutrients (N and P)
- ✓ Total bacteria
- ✓ Solids
- ✓ Total Suspended Solids (TSS)
- ✓ High and Low pH
- ✓ Medical Wastes

Recommended BMPs

- ❑ Sweep and clean animal handling and keeping areas daily.
- ❑ Discharge livestock wastewater to the sanitary sewer and not to the storm drain system.
- ❑ Keep animals confined to areas that can be cleaned or maintained to prevent pollutant contact with storm water.
- ❑ Do not wash down floors or animal keeping areas to the storm drain system.
- ❑ Animal feces storage containers shall be covered, leak proof and stored a minimum of 50 feet from all storm drain inlets.
- ❑ Laboratory wastes associated with some animal handling establishments shall be stored in a manner to prevent discharge into the sanitary sewer and storm drain systems.



Figure IC-11a. The photograph above demonstrates good management practices at a horse stable. The manure at this site is regularly removed, temporarily stored in a covered dumpster, and properly disposed of offsite (Source: CASQA).



Figure IC-11b. The photograph above demonstrates good storm water management practices. Animals at this handling facility are kept in areas that can be easily cleaned and maintained. Wash water is channeled into a drain connected to the sanitary sewer system (Source: Rondivills Kennels).

Description

Manufacturing or processing includes facilities, such as, machine shops, food processing plants, mills, or other fabrication plants where materials or activities may be exposed to storm water.

Primary Potential Pollutants

- ✓ Animal Oil and Grease
- ✓ Petroleum Oil and Grease
- ✓ Nutrients
- ✓ Solvents
- ✓ Metals
- ✓ High and low pH
- ✓ Total Suspended Solids (TSS)

General Considerations

In general, prevent the contact of storm water with any manufacturing activities, processes, and/or raw or finished materials.

Recommended BMPs

- ❑ Cover and contain all outdoor areas of manufacturing or liquid material storage. This includes covering all stockpiles of raw materials, by-products, and finished products that may contact storm water.
- ❑ Prevent storm water run-on to processing areas.
- ❑ Maintain the facility so that storm water does not pool onsite, especially in areas where it can remain in contact with stored materials and become contaminated.
- ❑ Conduct equipment cleaning where wastewater can be collected and disposed properly.
- ❑ Use non-toxic materials for processing, manufacturing, and cleaning whenever possible.
- ❑ Provide regular training of employees in spill prevention, spill response and emergency procedures, equipment maintenance, and the effects of the exposure of materials and potential pollutants to storm water.
- ❑ Discharge of process wastewater to the storm drain system is strictly prohibited. Any sanitary sewer discharge shall require approval by the local sewer authority.
- ❑ Sweep all outdoor paved areas regularly removing litter, track out or blowing of materials to areas that discharge to the storm drain system.
- ❑ If necessary, install and maintain catch basin filters in storm drains to collect sediment and other potential pollutants.
- ❑ See the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com) for additional information on catch basin inserts.

- ❑ Maintain all manufacturing equipment in good working order and eliminate drips or leaks of potential pollutants
- ❑ For additional information on local alternative solvent vendors, managing aerosol cans, and hazardous waste, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>



Figure IC-12. The photograph above demonstrates good storm water management practices - proper disposal and containment of old greasy parts from a local heavy industrial repair facility. (Source: Sparks Environmental Control)

Description

This industrial category includes commercial and retail printing and copying businesses.

General Considerations

Because activities are conducted indoors, storm water pollution prevention is focused on outdoor loading/unloading and storage of new and used chemicals and other materials and preventing exposure of these materials.

Primary Potential Pollutants:

- ✓ Ink
- ✓ Fountain solution
- ✓ Petroleum Oil and Grease
- ✓ Solvents
- ✓ Flammables
- ✓ Paper products

Recommended BMPs:

- ❑ Store all new and used liquid materials in proper, labeled containers and under cover, in containment or indoors.
- ❑ Sweep and collect litter daily in and around trash receptacle and recycling area.
- ❑ Minimize the use of solvents for cleaning.
- ❑ Recycle inks as necessary and do not dispose into trash.
- ❑ Dispose of all process waste in accordance with Federal, State and Local regulations.
- ❑ Provide regular training of employees in spill prevention, spill response and emergency procedures, equipment maintenance, and the effects of the exposure of materials and potential pollutants to storm water.
- ❑ For more information on pollution prevention waste reduction and regulatory compliance for commercial printing operations, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>
- ❑ Mark all onsite and vicinity storm drain inlets with a sign that states "No Dumping – Drains to the River". Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook.



Figure IC-13. The photographs above demonstrate good storm water management practices. Storm drain inlets in the vicinity of commercial businesses are being stenciled with a sign that indicates “No Dumping – Drains to River” (Source: Kennedy/Jenks Consultants).

Description

Mobile fueling and lubrication is the practice of filling the fuel tanks of vehicles and equipment or lubricating vehicles and equipment at a location other than a fixed fueling facility. This activity is primarily conducted by tank trucks that are driven to construction site or other remote locations. Diesel fuel is considered as a Class II Combustible Liquid, whereas gasoline is considered a Flammable Liquid.

Primary Potential Pollutants

- ✓ Gasoline
- ✓ Diesel
- ✓ Petroleum Oil and Grease
- ✓ Lubricants

General Considerations

Proper training of operators in spill control and pollution prevention practices is necessary.

Recommended BMPs

Implement the following general BMPs:

- ❑ Regularly train mechanics in spill prevention, spill response, emergency procedures, and environmental considerations of fueling and maintenance activities.
- ❑ Provide operators with an up-to-date call list of local fire department, city and state emergency response agencies, and spill response contractors to be notified immediately in the event of a spill.
- ❑ Temporary fueling tanks should be in secondary containment (see Construction BMP Handbook at www.TMstormwater.com).
- ❑ Cover storm drains in the vicinity during fueling operations.

Establish general fueling procedures using the following guidelines:

- ❑ Locate the fueling location at least 50 feet from the nearest storm drain or cover inlet with a storm drain plug or cover kit PRIOR to fueling.
- ❑ If fueling is to be conducted at a location within 150 feet of wetlands, creeks, or drainage ditches, assure that the flow of any spill would be directed away from those areas or move the fueling location.
- ❑ Place a drip pan or absorbent pad under fueling/lubricating location PRIOR to fueling/lubrication.
- ❑ Handle hoses and nozzles properly to prevent spills or drips.
- ❑ If possible, avoid extending hoses across lanes of traffic. If necessary, place traffic cones along hose line to prevent vehicles from crossing hose line.
- ❑ Stop fueling when automatic shut-off engages. Do not "top off."

MOBILE FUELING AND LUBRICATION

IC-14

- ❑ Keep drip pans under vehicle whenever disconnecting hoses, liquid filters or draining fluids.
- ❑ Maintain spill clean-up materials on the truck, including:
 - Oil absorbents.
 - Oil absorbent booms.
 - Storm drain plugs or covers.
 - Non-metallic shovels.
- ❑ For additional information on local alternative solvent vendors, managing used oil, used oil filters, and used antifreeze, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>



Figure IC-14a. The photograph above demonstrates good storm water management practices. Portable fuel and lubrication tanks are temporarily stored in a bermed and lined pit to prevent storm water drainage into the fueling area, to contain any spills, and prevent runoff to the storm drain system. (Source: U.S. EPA).



Figure IC-14b. The photograph above demonstrates a poor storm water management practice. This fuel tanker truck is parked directly over a storm drain inlet. Mobile fueling vehicles such as this should be parked at least 50 feet from the nearest storm drain. (Source: Air Force Center for Environmental Excellence).

MOBILE VEHICLE AND EQUIPMENT WASHING IC-15

Description

Mobile vehicle and equipment washing includes cleaning or power washing activities that are not located in a fixed location, but must utilize a wastewater capture system or a direct connection into the sanitary sewer system with a pretreatment device. It includes mobile cleaning or power washing of vehicle exteriors, engine or equipment degreasing, auto detailing, and car lot rinsing.

Primary Potential Pollutants

- ✓ Petroleum Oil and Grease
- ✓ Sediment
- ✓ Detergents
- ✓ High and low pH

General Considerations

In general, pollutants are kept from contacting storm water by washing without soaps or solvents, keeping polluted water out of the storm drains and disposing of wastewater into the sanitary sewer system upon local authority approval. The use of self-contained, mobile wastewater collection and treatment units are recommended and may be cost-effective for mobile cleaning activities.

Recommended BMPs

- ❑ Assess the area to establish where wash water will flow, drain and discharge.
- ❑ Cover and seal off any storm drains in the vicinity during washing activities.
- ❑ Use wash pads to capture wash water when practicable.
- ❑ Collect and remove wash water for recycling or disposal to the sanitary sewer.
- ❑ Do not discharge wash water to the storm drain system.
- ❑ Use phosphate-free biodegradable detergents when practicable. However, when using these products, do not allow runoff from their use to discharge to the storm drain system.
- ❑ Sweep, collect, and dispose of debris properly.
- ❑ Train employees on the potential pollutants and impacts of wash water on storm and surface waters.
- ❑ Train employees on proper procedures for washing vehicles and equipment.
- ❑ Consider use of fixed commercial washing facilities.

MOBILE VEHICLE AND EQUIPMENT WASHING IC-15



Figure IC-15a. The photograph above demonstrates good storm water management practices. Runoff from mobile power washing operations may drain onto nearby turf areas rather than the storm drain system, provided that detergents or degreasers are not used (Source: CASQA).



Figure IC-15b. The photograph above demonstrates a storm water BMP. A storm drain cover such as this can be used to seal off storm drains in the vicinity during washing activities. (Source: Kevin P. Walker, C&S Engineers, 2005)

Description

Mobile surface cleaning includes cleaning or power washing of surfaces such as sidewalks, driveways, parking areas, restaurant/food handling and grease venting equipment, storage areas, building exteriors and graffiti removal.

Primary Potential Pollutants

- ✓ Petroleum Oil and Grease
- ✓ Animal Vegetable Oil and Grease
- ✓ Litter
- ✓ Sediment
- ✓ Toxic Organic Compounds
- ✓ Paint Chips

General Considerations

Prior to surface washing, you must exercise reasonable means to eliminate all discharges into the storm drain system. The use of self-contained, mobile wastewater collection/treatment units may be appropriate and cost-effective for some mobile cleaning activities. A general approach should entail dry cleanup before washing down; washing without soaps or solvents; keeping polluted water out of storm drains; and disposal of wastewater to the sanitary sewer system upon approval of your local authority.

Recommended BMPs

- ❑ Use dry clean up first to remove debris.
- ❑ Use absorbents to pick up oil, then dry sweep.
- ❑ Wash surfaces without usage of detergents.
- ❑ Block/cover storm drain inlets, and contain wash water runoff for removal and treatment.
- ❑ With written approval, discharge the waste water to landscaping or the sanitary sewer.
- ❑ Review local surface washing ordinances to ensure compliance.

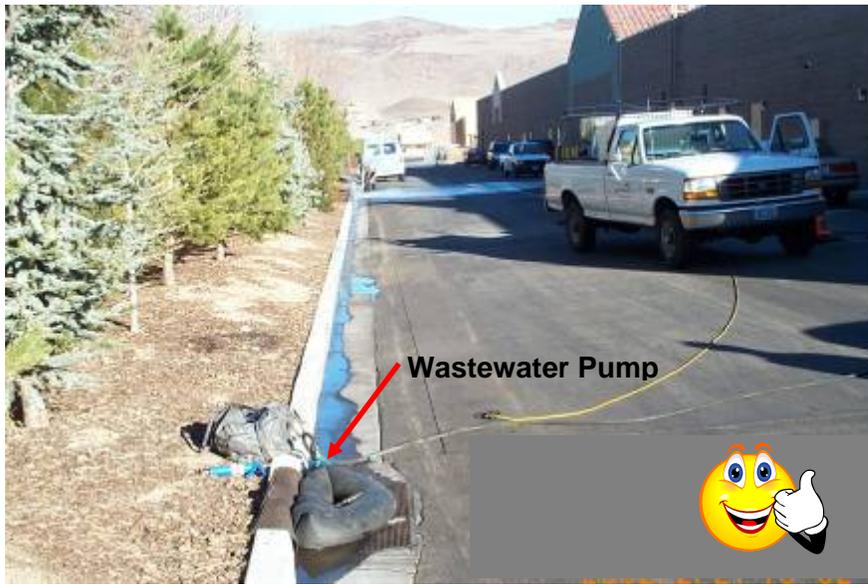


Figure IC-16a. The photograph above demonstrates good storm water management practices - a vehicle inner tube filled with water or sand is sitting on top of a floor mat to prevent parking lot wash water from entering the storm drain inlet. In addition, the ponded wash water is being pumped away from the storm drain inlet for proper disposal to the sanitary sewer system. (Source: Sparks Environmental Control).



Figure IC-16b. The photograph above demonstrates a poor storm water management practice. This mobile power washing operation is cleaning restaurant kitchen floor mats on a public sidewalk. The wash water is being allowed to drain directly into the street and a nearby storm drain inlet. This activity is an illegal discharge to the storm drain system that may result in fines. (Source: CASQA).

Description

These business conduct carpet and upholstery cleaning from a mobile unit, which differs from other cleaning activities in that the cleaning is not conducted in a dedicated, fixed location.

Primary Potential Pollutants

- ✓ Toxic organic compounds (cleaning chemicals)
- ✓ Sediment
- ✓ Carpet fibers

General Considerations

Wash water or wastewater from these activities should never be discharged to the street, gutter, or near a storm drain. These guidelines apply even to cleaning products labeled “nontoxic” and “biodegradable.” “Nontoxic” means the product is not toxic to the user. “Biodegradable” means the product will eventually break down. Such products can harm wildlife if they enter the storm drain.

Recommended BMPs

- ❑ Cleaning waste must be discharged to a sink, toilet, or other drain connected to the sanitary sewer system – never to a street, gutter, parking lot or storm drain.
- ❑ Empty the spent cleaning fluid tank into a utility sink, indoor sanitary sewer connection or a sanitary sewer cleanout at the customer site, or the service provider’s home base.
- ❑ Reduce use of water or use dry methods.
- ❑ Filter solids out prior to discharge into the sanitary sewer to avoid clogging pipes. Dispose of filtered material in the garbage, provided the carpet was not contaminated with hazardous materials. In the latter case, contact your local sanitary sewer authority for proper disposal method.



Figure IC-17. The photograph above demonstrates good storm water management practice. This mobile carpet cleaning operation is pumping and containing used wash water in a tank located inside the van. The used wash water is later discharged to a RV dump station or to the sanitary sewer system for proper disposal. (Source: CASQA).

Description

Mobile food service operations commonly known as catering vehicles or lunch wagons have the potential for generating storm water pollution if grey water, animal vegetable oil and grease, and litter wastes are not properly disposed.

Primary Potential Pollutants

- ✓ Organic Material (food waste)
- ✓ Animal Vegetable Oil and Grease
- ✓ Holding Tank Grey Water
- ✓ Detergents
- ✓ Litter

General Considerations

In general, pollutants are kept from contacting storm water by having an approved discharge point into the sanitary sewer system by way of a RV dump site or commissary. Proper recycling of animal vegetable oil and grease and a litter receptacle available for consumer use is required.

Recommended BMPs

- ❑ Discharge to an approved restaurant, commissary or RV dump site that can accept and discharge wastewater to the sanitary sewer.
- ❑ Sweep, collect, and dispose of litter using a readily available litter receptacle.
- ❑ Clean floor mats and equipment over a drainage system connected to sanitary sewer.
- ❑ Exterior washing of catering vehicles shall be conducted only at a commercial car wash.
- ❑ Conduct catering vehicle maintenance at a licensed automotive repair shop.



Figure IC-18. The photographs above demonstrate good storm water management practices. Wastewater from this mobile food service operation is being discharged to the sanitary sewer via a trash enclosure drain at a local restaurant (Source: Sparks Environmental Control).

Section 5

Source Control BMP Fact Sheets

Section 5: Source Control BMPs Fact Sheets

5.1 Introduction to the Source Control BMP Fact Sheets

This section provides a number of source control (SC) BMP fact sheets for industrial and commercial businesses in the Truckee Meadows that have open gravel or dirt lots and/or ditches, are required to develop and maintain a Storm Water Pollution Prevention Plan (SWPPP), utilize outdoor loading and unloading areas, vehicle parking and storage areas, conduct outdoor building and grounds maintenance activities, and/or outdoor building repair and construction activities. The owners, operators and managers of industrial and commercial properties that have these facilities or conduct these activities should reference and implement the recommended BMPs provided in the following SC-BMP fact sheets to eliminate or reduce the discharge of pollutants to the storm drain system. The following SC-BMP fact sheets are provided in this section:

- SC-1 Erosion and Sediment Control
- SC-2 Recordkeeping
- SC-3 Outdoor Loading and Unloading Areas
- SC-4 Vehicle Parking/Storage Area Maintenance
- SC-5 Building, Grounds and Landscaping Maintenance
- SC-6 Building Repair and Construction

Description

Erosion and sediment control includes any activity that protects the soil surface and prevents soil particles from being washed away by rainfall, flowing water, or wind. Erosion control may also be referred to as soil stabilization.

Applications

All facilities that have open gravel or dirt lots or ditches. Also includes earth disturbing construction activities at industrial and commercial sites. When construction activities disturb one or more acres of land, a permit is required from NDEP and the owner and/or operator of the site should consult the current version of the Truckee Meadows Construction Site BMP Handbook available at www.TMstormwater.com.

Recommended BMPs

- ❑ An extensive amount of potentially applicable additional information on BMPs for erosion, sediment, and waste control is available in the current version of the Truckee Meadows Construction Site BMP Handbook.

General Erosion control:

- ❑ Keep and maintain natural vegetation whenever possible.
- ❑ Re-plant when necessary.
- ❑ Use chemical stabilization of bare soil areas if applicable.
- ❑ Cover areas with potential erosion problems, such as slopes or soil stockpiles, with matting such as jute, coconut, or synthetic fiber or seed them with fast growing grasses.

General Sediment control:

- ❑ Install silt fences, straw waddles, or other barriers at locations where storm water runs off the site from bare soil areas.
- ❑ Maintain vehicle entrances/exits in order to prevent tracking of soil onto surface streets.
 - Pave or otherwise re-surface entrances/exits.
 - Maintain rock or quarry spalls at entrances/exits to knock soil/sediment off tires prior to leaving the site.
- ❑ Where the above source control BMPs are inadequate, consider installing structural treatment controls (specifications for structural treatment control BMPs are available in the current version of the Truckee Meadows Structural Controls Design Manual available at www.TMstormwater.com) such as:
 - Vegetative Treatment Systems
 - Bioretention Systems
 - Extended Detention Basins
 - Media Filtration Systems
 - Oil and Water Separators

- Manufactured Treatment Controls (e.g. vortex separators and catch basin inserts)

Inspection and Maintenance Requirements

- ❑ Sweep paved areas regularly to collect loose particles.
- ❑ Inspect erosion control BMPs regularly.

Additional Information

- ❑ Organize appropriate training for personnel on maintaining proper erosion control.
- ❑ Irrigation of vegetation may be necessary.
- ❑ Perform routine evaluation of BMPs to determine if they are adequate and effective.



Figure SC-1a. The photograph above demonstrates a storm water BMP. The entrance/exit at this facility has been stabilized with rock to reduce the tracking of sediment from the dirt lot onto paved roadways. (Source: Sparks Environmental Control)



Figure SC-1b. The photograph above demonstrates poor storm water management practices. The entrance/exit at this facility has track-out of sediment from a dirt lot onto paved roadways. The sediment and associated pollutants from the site are discharging to the storm drain system, which could result in fines (Source: Sparks Environmental Control).



Figure SC-1c. The photograph above demonstrates a poor storm water management practice - improper disposal of reclaimed – non potable water for dust control. This practice is an illegal discharge that could result in fines. (Source: Reno Environmental Control)

Description

Recordkeeping is important for documentation of spills and to assure that BMPs are inspected and maintained on a regular schedule. Recordkeeping and internal reporting are good operating procedures because they can increase the efficiency of the facility and effectiveness of the BMPs implemented at a site.

Applications

All facilities that maintain a Storm Water Pollution Prevention Plan (SWPPP) and/or Spill Prevention Control and Countermeasure Plan (SPCC) or conduct activities outdoors, exposed to storm water, should keep records of training, spills, inspections, and maintenance activities.

Recommended BMPs

- ❑ Record all training activities.
- ❑ Maintain a vehicle and equipment inventory.
- ❑ Keep maintenance logs on equipment.
- ❑ Maintain records of material inventory.
- ❑ Maintain documentation of all reportable spills or spills that reach surface waters.
- ❑ Record all changes to the SWPPP or SPCC.

Inspection and Maintenance Requirements

Recordkeeping programs should be updated when the facility, site conditions, or BMPs change.

Additional Information

- ❑ Organize appropriate training for personnel on performing proper recordkeeping.
- ❑ For additional information on managing hazardous waste, spill prevention and regulatory compliance, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>

OUTDOOR LOADING AND UNLOADING AREAS **SC-3**

Description

Loading and unloading of solid and liquid materials usually takes place outside. Materials spilled during transfer can be a significant source of pollutants in storm water runoff.

Applications

Implement source control BMPs at loading docks, loading/unloading areas, and liquid storage tanks.

Note: EPA requires facilities that store more than 1,320 gallons of any combination of fuel or oil, aboveground, to prepare and maintain a Spill Prevention Control and Countermeasure Plan (SPCC) that addresses additional requirements for tanks and loading/unloading areas.

Recommended BMPs

- ❑ General Loading/Unloading BMPs
 - Check vehicles/equipment for leaks.
 - Prevent storm water run-on at the loading/unloading area.
 - Load/unload materials in covered areas whenever possible.
 - Park tank trucks and delivery vehicles in designated areas so any spills can be contained.
 - Avoid loading/unloading near storm drains.
 - Maintain cleanup materials, such as brooms and absorbent materials, readily accessible near the loading/unloading areas.
 - Connect loading area drains to a sump or to the sanitary sewer.
 - Park tank trucks or delivery vehicles in designated areas (at least 50 feet from the nearest storm drain).
 - Mark all onsite and vicinity storm drain inlets with a sign that states “No Dumping – Drains to the River”. Storm drain stenciling supplies are available from the jurisdictional authorities listed in Section 3.3 of this handbook (see examples on Figure IC-13).
- ❑ Solid Material Loading/Unloading
 - Sweep material handling areas regularly.
 - Immediately clean up any spilled materials to avoid tracking them away from the facility.
- ❑ Liquid Loading/Unloading
 - Wipe up spills with rags or other absorbent material immediately and dispose of clean-up materials properly.
 - Do not hose down the area into a storm drain.
 - Place drip pans under hose connections when loading/unloading liquids.

OUTDOOR LOADING AND UNLOADING AREAS SC-3

- Keep valves tightly closed.
- Keep drums sealed.
- Avoid “topping off.”
- The loading/unloading areas should be designed to prevent runoff of spills.

Inspection and Maintenance Requirements

- ❑ Conduct regular inspections of transfer equipment and make repairs as necessary.
- ❑ BMPs should be updated when the facility or activities change.
- ❑ Check equipment regularly for leaks.

Additional Information

- ❑ If appropriate, keep the Spill Prevention Control and Countermeasure Plan up to date.
- ❑ For additional information on managing hazardous waste, spill prevention and regulatory compliance, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>



Figure SC-3a. The photograph above demonstrates good storm water management practices. This loading dock is clean and free of debris. (Source: CASQA)

OUTDOOR LOADING AND UNLOADING AREAS SC-3



Figure SC-3b. The photographs above demonstrate poor storm water management practices – the trash and debris at this loading dock have resulted in illegal discharges to the storm drain system and fines. (Source: Sparks Environmental Control)

VEHICLE PARKING/STORAGE AREA MAINTENANCE

SC-4

Description

Parking lots and storage areas can contribute a variety of pollutants such as trash, sediment, heavy metals, fuel, oil, and grease to storm water runoff.

Applications

Applicable to all public and private facilities that provide vehicle parking or storage areas, including retail stores, fleet vehicle parking, rental vehicle and equipment storage, car dealerships, and driveways.

Recommended BMPs

- ❑ Sweep parking lots and storage areas on a regular schedule and at least once before the wet season.
- ❑ Establish good housekeeping practices to prevent litter and other pollutants from accumulating in the area.
- ❑ Maintain consistent parking space designations so that if a leak is detected on the ground, the corresponding vehicle can be identified and repaired.
- ❑ Keep gutters and catch basins clean and free of litter.
- ❑ Keep trash and other waste containers covered.
- ❑ Train employees in pollution prevention and good housekeeping practices.
- ❑ If vehicle and equipment washing is conducted onsite, be sure to direct wash water away from storm drains, or collect it and remove it.
- ❑ Do not wash down paved areas into storm drains.
- ❑ Maintain spill control materials or absorbents onsite to quickly control spills before they get to storm drains. Be sure to sweep up and dispose of absorbent material before the next rainfall.
- ❑ If oil and grease is the major pollutant of concern, consider installing catch basin filters that remove oil from runoff. (Note: catch basin inserts/filters require periodic replacement and regular maintenance.)

Inspection and Maintenance Requirements

Perform periodic site inspections to assure that BMPs are being implemented and are effective.

Additional Information

- ❑ Check with local agency before discharging any wash water to sanitary sewer.
- ❑ If applicable, keep your Spill Prevention Control and Countermeasure Plan up to date.
- ❑ Make sure that subcontractors and other parties that may have access to the site are trained in pollution prevention.

VEHICLE PARKING/STORAGE AREA MAINTENANCE

SC-4



Figure SC-4a. The photograph above demonstrates good storm water management practices at a local industrial storage area and maintenance facility. Sand and salt stockpiles are being stored under a sprung tent structure to prevent their exposure to storm water. (Source: Kennedy/Jenks Consultants)



Figure SC-4b. The photograph above demonstrates good storm water management practices at a local industrial storage area. Fiber rolls or straw waddles have been placed along the perimeter of this dirt lot to prevent sediment and associated pollutants from being washed off the site and into the storm drain system. (Source: Sparks Environmental Control)

Description

Building and grounds maintenance includes activities ranging from landscape management to structural cleaning, maintenance and repair. Pollutants can include nutrients and chemicals from pesticides and fertilizers and metals, sediment and litter from washing down or cleaning buildings.

Applications

Applicable to all sites that conduct outdoor building and grounds maintenance activities with the potential to discharge runoff and pollutants to the storm drain system.

Recommended BMPs

- ❑ Use non-toxic chemicals for cleaning or maintenance whenever possible. However, when using these products, do not allow runoff from their use to discharge to the storm drain system.
- ❑ Choose cleaning agents that are recyclable.
- ❑ Train employees in pollution prevention procedures and pesticide/herbicide use and application techniques that minimize pollution.
- ❑ Implement an Integrated Pest Management Plan (IPM) that minimizes the use of chemicals for landscape management.
 - Use non-toxic or less toxic pesticides when available.
 - Do not mix or prepare pesticides near storm drains.
 - Store and handle chemicals following manufacturer specifications.
 - Avoid use of copper-based pesticides.
 - Use hand-weeding where practical.
 - Use pesticides and fertilizers only when wind speeds are low.
 - Work fertilizers into soil and avoid broadcast spreading.
- ❑ Pressure washing
 - If soaps or detergents are used, be sure to collect wash water and associated solids and dispose of properly.
 - If soaps or detergents are not used, use catch basin inserts or other screening methods to remove particles prior to discharge.
- ❑ Landscaping
 - Collect and remove or compost clippings. Do not allow them to get into storm drainage systems.
 - Use mulch or other erosion control methods on areas of exposed soil.
 - Do not stockpile landscaping materials on paved streets or sidewalks during rainy weather.

- Stockpiled materials shall be removed from streets and sidewalks when rain is predicted, and the area shall be swept clean (do NOT hose down).
- Building Maintenance and Repair
 - Use non-toxic materials whenever possible and dispose of all chemicals properly.
 - Use ground cloth or covers underneath outdoor painting, paint mixing, scraping, or sandblasting.
 - Use catch basin inserts or other covers when working near storm drainage catch basins.
 - Sweep and remove debris from work areas at the end of every day.
 - Store cleaning or toxic materials under cover when not in use.
- Clean all work areas at the end of every day.
- Do not wash concrete trucks, equipment or tools into storm drains, streets, ditches or landscaped areas. Refer to Fact Sheet IC-8 for additional information on BMPs for concrete washout.

Inspection and Maintenance Requirements

- Conduct regular (i.e., weekly or monthly) overall facility inspections.
- Perform routine preventive maintenance on irrigation systems to minimize over-watering and runoff.

Additional Information

See the Truckee Meadows Structural Controls Design Manual (www.TMstormwater.com) for additional information on catch basin inserts.



Figure SC-5a. The photograph above demonstrates good management practices. Landscaping materials that have been deposited on the sidewalk are being swept up as soon as possible. (Source: Kennedy/Jenks Consultants).



Figure SC-5b. The photographs above demonstrate poor management practices. Landscaping materials have been stockpiled on a local street during a rainy period and sediment is being washed into the storm drain system. (Source: Kennedy/Jenks Consultants).

Description

Exposed materials and surfaces during building repair or construction can be sources of sediment, trash, heavy metals, and oil and grease. Repair and construction activities can generate solvents, paints, thinners, cleaners, and other pollutants.

Applications

Applicable to all facilities that conduct outdoor repair and construction activities. **Note:** Larger construction projects (one acre or greater) are subject to the requirements outlined in the State of Nevada General Permit for Stormwater Associated with Construction Activity or Stormwater Associated with Small Construction Activity. Additional information about NPDES permit requirements and BMPs for erosion, sediment, and waste control at construction sites is available in the current version of the Truckee Meadows Construction Site BMP Handbook posted at: www.TMstormwater.com

Recommended BMPs

- ❑ Remove or cover new or used materials and potential pollutants at the end of each day.
- ❑ Identify nearby storm drains and assure that nothing is disposed into them.
- ❑ Maintain good housekeeping practices during the entire construction process.
 - Keep area clean and orderly.
 - Remove debris in a timely manner.
 - Dispose of used materials properly.
 - Store materials as specified by the manufacturer.
 - Keep used materials and debris in covered containers.
- ❑ Train employees in pollution prevention and the potential pollutants associated with construction activities.
- ❑ Control erosion and dust if ground surfaces are exposed.
- ❑ Do not wash concrete trucks, equipment or tools into storm drains, streets, ditches or landscaped areas. Refer to Fact Sheet IC-8 for additional information on BMPs for concrete washout.

Inspection and Maintenance Requirements

Conduct regular overall inspections to make sure BMPs are being implemented and are effective.

Additional Information

- ❑ Provide pollution prevention training for contractors.
- ❑ As noted above, larger construction projects, that disturb one or more acres of soil, may be required to develop and implement Construction Storm Water Pollution Prevention Plans (SWPPPs).

- For additional information on reducing and recycling solid waste from construction and demolition, read the related Business Environmental Program's fact sheets posted at <http://www.envnv.org/pages/facts.htm#waste>



Figure SC-6a. The photograph above demonstrates good storm water management practices at a construction site. Temporary soil stockpiles are being covered with plastic sheeting during a rainy period. (Source: CASQA)



Figure SC-6b. The photograph above demonstrates good storm water management practices at a construction site. A dedicated paint washout area is provided in a portable contained system and the waste materials are recycled (Source: Concrete Washout Systems, Inc.).



Figure SC-6b. The photograph above demonstrates poor storm water management practices at a construction site. Stucco and concrete wastes at this site have been allowed to accumulate on the ground and could become pollutants in storm water runoff. (Source: Concrete Washout Systems, Inc.).

Section 6

References and Additional Resource Information

Section 6: References and Additional Resource Information

References

- APWA, 1981. Urban Stormwater Management, Special Report No. 49, American Public Works Association Research Foundation.
- Bay Area Pollution Group, 1995. Outdoor Cleaning – Where does the water go? Guidelines for disposal of wash water from outdoor cleaning projects: Sidewalk/plaza/parking lot cleaning, vehicle cleaning/detailing, building exterior cleaning, waterproofing, equipment cleaning/degreasing.
- California Stormwater Quality Association (CASQA), 2003. Stormwater Best Management Practice Handbook – Industrial and Commercial.
- City of Boise, undated. Storm Water Management Design Manual.
- City and County of Denver, 2000. Stormwater Quality Control Plans: An Information Guide.
- City of Sacramento, 2000. Guidance Manual for Onsite Stormwater Quality Control Measures.
- Kennedy/Jenks Consultants, 2003. Truckee Meadows Construction Site Best Management Practice Handbook. Truckee Meadows Regional Stormwater Quality Management Program. Prepared for the City of Reno, the City of Sparks and Washoe County.
- Kennedy/Jenks Consultants, 2004. Truckee Meadows Structural Controls Design Manual. Truckee Meadows Regional Stormwater Quality Management Program. Prepared for the City of Reno, the City of Sparks and Washoe County.
- Kennedy/Jenks Consultants, 2005 Draft. Truckee Meadows Low Impact Development (LID) Handbook. Truckee Meadows Regional Stormwater Quality Management Program. Prepared for the City of Reno, the City of Sparks and Washoe County.
- National Ready Mixed Concrete Association. Environmental Management Practices. NRMCA Publication Number 191. 1996.
- Nevada Division of Environmental Protection, 2002. Nevada's 2002 303(d) Impaired Water List.
- Sacramento Stormwater Management Program, 2000. Guidance Manual for On-Site Stormwater Quality Control Measures.
- Ready Mix Concrete Industry Environmental Code of Practice, 1992 Update. Envirochem Special Projects Inc. Prepared for Conservation and Protection Environment Canada. March, 1993.
- Schueler, T., 1987. Controlling Urban Runoff, A Practical Manual for Planning and Designing Urban BMPs, July 1987.

Terrene Institute, 1996. A Watershed Approach to Urban Runoff: Handbook for Decisionmakers.

Urban Drainage and Flood Control District, 1999. Drainage Criteria Manual (V.3). City and County of Denver, Colorado.

U.S. EPA, 2002. Stormwater Phase II Compliance Assistance Guide. United States Environmental Protection Agency, Office of Water. EPA 833-R-00-002.

U.S. Environmental Protection Agency, 2000. Stormwater Phase II Final Rule, Illicit Discharge Detection and Elimination Minimum Control Measure. USEPA Office of Water, EPA 833-F-00-007, January 2000, Fact Sheet 2.5.

U.S. Environmental Protection Agency, 1997. Guidance Manual for Implementing Municipal Stormwater Management Programs, Volume I, Planning and Administration.

Websites

Best Management Practices for Business and Industry. County of Maui, Department of Water Supply <http://mauiwater.org/BMPInkbus.html>

California Stormwater Quality Association (CASQA), 2003. Stormwater Best Management Practice Handbook – Industrial and Commercial. <http://www.cabmphandbooks.com/>

City of Boise Stormwater; http://www.cityofboise.org/public_works/services/water/storm_water/

City of Costa Mesa, Department of Public Services, Water Quality. Water Pollution Best Management Practices – Businesses <http://www.ci.costamesa.ca.us/departments/waterqty/business/Wastewater%20Disposal%20Fact%20Sheet.pdf>

City of Palo Alto Stormwater; <http://www.city.palo-alto.ca.us/cleanbay/storm.html>

City of Sparks Municipal Code; <http://www.ci.sparks.nv.us/municode/>

City of Reno Municipal Code: <http://livepublish.municode.com/LivePublish/newonlinecodes.asp?infobase=11467>

Concrete Washout Systems, Inc. Media Photo Gallery: http://www.concretewashout.com/pages/media/photo_gallery/

King County Surface Water Management, 1995. Stormwater Pollution Control Manual, Best Management Practices for Businesses. King County, Washington <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Louisiana Dept. of Environmental Quality. Regulations – Ready-Mix Concrete/Hot-Mix Asphalt Plants. Located at: <http://www.deg.louisiana.gov/portal/tabid/1801/Default.aspx>

Low Impact Development (LID) Center <http://www.lowimpactdevelopment.org/>

- Orange County Stormwater Program, CA, 2006.
http://www.ocwatersheds.com/StormWater/documents_bmp_existing_development.asp#ind
- Pinellas County Environmental Management Pollution Prevention.
[http://www.pinellascounty.org/Environment/pagesHTML/pollutionPrevent/p2r2PDFs/oppportunityChecklists/Stonecutting.pdf](http://www.pinellascounty.org/Environment/pagesHTML/pollutionPrevent/p2r2PDFs/opportunityChecklists/Stonecutting.pdf)
- Pierce County Public Works and Utilities, Water Programs, 1997. Stormwater Pollution Prevention Manual: A Guide to Best Management Practices for Industries, Businesses and Homeowners. Pierce County, Washington.
<http://www.co.pierce.wa.us/pc/services/home/environ/water/wq/bmpmanual.htm>
- Rondivills Kennels. <http://www.rondivillskennels.com/>
- Sacramento Stormwater Management Program. <http://www.sactostormwater.org>
- San Bernardino County Stormwater Pollution Prevention for Businesses. http://www.co.san-bernardino.ca.us/stormwater/prevention_businesses.htm
- Stormwater Manager's Resource Center. <http://www.stormwatercenter.net>
- Stormwater, the Journal for Surface Water Quality Professionals.
<http://www.forester.net/sw.html>
- Surface Water Quality Program, 2004. Stormwater – Boise City Non-Stormwater Disposal Best Management Practices. Boise, Idaho.
http://www.cityofboise.org/public_works/services/water/surface_water/
- Truckee Meadows Regional Stormwater Quality Management Program.
www.TMstormwater.com
- Urban Drainage and Flood Control District (UDFCD), 1999. Urban Storm Drainage Criteria Manual, Volume 3 – Best Management Practices. Denver, Colorado.
<http://www.udfcd.org/usdcm/vol3.htm>
- Washoe County Development Code.
http://www.co.washoe.nv.us/comdev/comdevcode/comdevcode_index.htm
- Washington State Department of Ecology (DOE), 2004. Stormwater Management Manual for Eastern Washington. <http://www.ecy.wa.gov/pubs/0410076.pdf>
- Washington State Department of Ecology, 2005. Storm Water Management Manual for Western Washington, Volume IV – Source Control BMPs.
<http://www.ecy.wa.gov/pubs/0510032.pdf>
- Water Treatment Technologies, Stone Fabrication and the Clean Water Act, 2006.
www.watertreatmentonline.com

Appendix A

**Nevada General Permit for Stormwater
Associated with Industrial Activity**



Stormwater General Permit NVR050000

State of Nevada

Division of Environmental Protection

General Permit

In compliance with the provisions of the Federal Clean Water Act as amended (33 U.S.C. 1251 et seq: the "Act") and Chapter 445A of the Nevada Revised Statutes (NRS), eligible dischargers who have submitted a Notice of Intent, filing fee, and have a Stormwater Pollution Prevention Plan(s) completed and maintained on the Permittee's site location in accordance with this permit, are authorized to discharge

Stormwater Associated with Industrial Activity

To:

Waters of the United States

in accordance with the conditions set forth in Parts I and II hereof.

This permit shall become effective on April 11, 2003.

This permit and the authorization to discharge shall expire at midnight April 10, 2008.

Signed this 16th day of APRIL, 2003

A handwritten signature in cursive script that reads "Clifford M. Lawson".

Clifford M. Lawson
Bureau of Water Pollution Control

Part I SPECIFIC CONDITIONS

I.A PERMIT COVERAGE

- I.A.1 Objective: The objective of this permit is to control and reduce pollution of Waters of the U.S. from Stormwater Discharges associated with Industrial Activity through the use of Best Management Practices (BMPs).
- I.A.2 Stormwater Discharge Associated with Industrial Activity is defined at 40 CFR §122.26(b)(14).
- I.A.3 *Waters of the U.S.* is defined at 40 CFR §122.2. Discharges to storm drain systems that in turn discharge to Waters of the U.S. are considered to be discharges to Waters of the U.S.
- I.A.4 *Best Management Practice* (BMP) is defined at 40 CFR §122.2 and in addition the term shall include erosion and sediment controls, stormwater conveyance, stormwater diversion, and treatment structures, and any procedure or facility used to minimize the exposure of pollutants to stormwater or to remove pollutants from stormwater.
- I.A.5 Eligibility, Request for Inclusion, Continuation of Coverage
 - I.A.5.a Eligibility: This general permit authorizes Stormwater Discharges Associated with Industrial Activity to Waters of the U.S as defined by certain sectors within 40 CFR §122.26(b)(14).
 - I.A.5.b Stormwater Discharges Associated with Industrial Activity for this permit are defined as:
 - I.A.5.b.(i) Facilities subject to stormwater effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (ix) in this section);
 - I.A.5.b.(ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 31, 32 (except 323), 33, 344, 373;
 - I.A.5.b.(iii) Facilities classified as Standard Industrial Classifications 11 through 14 (mineral industry) including active or inactive mining operations (except for certain areas of coal mining operations no longer meeting the definition of a reclamation area under 40 CFR

434.11(1), or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge stormwater contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; (inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator; inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials, nor sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim);

- I.A.5.b.(iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under subtitle C of Resource Conservation and Recovery Act (RCRA);
- I.A.5.b.(v) Landfills, land application sites, and open dumps that receive or have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under subtitle D of RCRA;
- I.A.5.b.(vi) Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;
- I.A.5.b.(vii) Steam electric power generating facilities, including coal handling sites;
- I.A.5.b.(viii) Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under paragraphs (b)(14) (i)-(vi) or (viii)-(ix) of this section are associated with industrial activity;

- I.A.5.b.(ix) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR part 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with section 405 of the CWA; and,
- I.A.5.b.(x) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-25.
- I.A.5.c This permit does not authorize the following:
- I.A.5.c.(i) Mineral Industry Facilities defined within SIC code 10 under Category III of 40 CFR §122.26(b)(14); or
- I.A.5.c.(ii) Construction activity defined under Category X of 40 CFR §122.26(b)(14).
- I.A.5.d Request for Inclusion:
- I.A.5.d.(i) Eligible dischargers seeking authorization to discharge under this general permit shall submit a completed NOI (Exhibit A) on a form approved by the Division. A completed NOI and applicable filing fee must be submitted by the Operator of the Industrial Facility. Operators are defined as individuals that have the day-to-day operational control of those activities at the project necessary to ensure compliance with SWPPP requirements or other permit conditions. Provisional authorization begins 48 hours after a completed NOI is postmarked for delivery to the Division. If the Division provides for electronic submission of NOIs during the term of this permit, provisional authorization begins 24 hours following receipt of the electronic NOI form by the Division. Following review of the NOI, the Division may determine the NOI is complete and confirm coverage by providing a notification and an authorization number, determine the NOI is incomplete and deny coverage until a completed NOI is submitted, or deny coverage and require an application for an individual permit be submitted. Application deadlines are as follows:

- I.A.5.d.(i).(a) Existing Industrial Facilities - Facilities that are authorized under the existing National Pollutant Discharge Elimination System (NPDES) permit for discharges associated with industrial activity must submit an NOI within 90 days following the effective date of this permit.
- I.A.5.d.(i).(b) New Industrial Facilities - An NOI must be submitted at least 48 hours before a discharge of stormwater associated with industrial activity occurs.
- I.A.5.d.(i).(c) New Operator - Permit coverage may not be transferred. When the ownership of a facility changes, the new operator must submit an NOI at least 10 calendar days before the change in ownership. The previous operator must submit a Notice of Termination (NOT) at least 10 days before the change in ownership.
- I.A.5.e Terminating Coverage
- I.A.5.e.(i) A Permittee may terminate coverage under this general permit by providing a NOT on a form approved by the Division. Authorization to discharge terminates at midnight on the day that an NOT is postmarked for delivery to the Division. If the Division provides for an electronic submission of a NOT during the term of this permit, authorization to discharge terminates 24 hours following receipt of the electronic NOT form by the Division. A NOT must be submitted within 10 days after the facility ceases discharging stormwater associated with industrial activity, obtains coverage under an individual permit, obtains coverage under an alternative general permit, or within 10 days before transfer of ownership or responsibility of the facility.
- I.A.5.f Authorization
- I.A.5.f.(i) Eligible dischargers shall be included in this permit effective upon the authorization date.
- I.A.5.f.(ii) The authorization date shall be:
- I.A.5.f.(ii).(a) The date the Notice of Intent, and filing fee are received and approved by the Division, or

- I.A.5.f.(ii).(b) The effective date of this permit for all holders of expired general permit GNV0022233 that have submitted a new Notice of Intent for this permit.
- I.A.5.f.(iii) An authorization letter will be sent to the general permit holder stating the authorization date. Special conditions may be included.
- I.A.5.f.(iv) During the period beginning on the authorization date and lasting until permit coverage is terminated, the Permittee is authorized to discharge:
- I.A.5.f.(iv).(a) Stormwater Associated with Industrial Activity to Waters of the U.S. in accordance with the Stormwater Pollution Prevention Plan and the conditions of this permit.
- I.A.5.g Miscellaneous Non-stormwater Discharges:
- I.A.5.g.(i) Permittees authorized under this permit may be authorized for certain miscellaneous non-stormwater discharges and if those discharges are not significant contributors of pollutants. Such discharges may include: discharges from fire hydrant flushings; waters used to wash vehicles where detergents are not used; water used to control dust; potable water sources including waterline flushings; routine external building wash down which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated ground water or spring water; and foundation or footing drains where flows are not contaminated with process materials such as solvents. BMPS shall be implemented if needed to minimize impacts of these discharges. Non-stormwater discharges that are significant contributors of pollutants shall be eliminated or authorized under a separate permit. Although fire-fighting drainage may contain significant pollutant concentrations, the frequency of occurrence is low and the discharge is hereby authorized out of necessity.
- I.A.5.h Requirement for Individual Permit:
- I.A.5.h.(i) The Division may require the holder of a general permit to apply for and obtain an individual permit in accordance with NAC 445A.269.

- I.A.5.i Notice of Intent (NOI) requirements
- I.A.5.i.(i) The minimum information required on a NOI consists of:
- I.A.5.i.(i).(a) Owner Information - The name, address, and telephone number of the owner filing for permit coverage;
- I.A.5.i.(i).(b) The legal status of the owner (e.g. federal, state, tribal, private or public entity);
- I.A.5.i.(i).(c) Operator Information - The name, address, and telephone number of the operator of the site;
- I.A.5.i.(i).(d) Site Information – including the name, address, county, and latitude and longitude of the site;
- I.A.5.i.(i).(e) The name of the receiving water;
- I.A.5.i.(i).(f) A certification that a SWPPP has been developed and implemented according to the provisions of this permit; and
- I.A.5.i.(i).(g) The primary Standard Industrial Classification (SIC) code that best describes the industrial activity of the facility.
- I.A.5.j Notice of Change (NOC) requirements
- I.A.5.j.(i) If the owner or operator becomes aware that it failed to submit any relevant facts, or submitted incorrect information, in an NOI, the correct information must be provided to the Division in a NOC within 14 days after discovery. If relevant information provided in the NOI changes (for example, phone number or P.O. Box number) a NOC must be submitted within 14 days of the change.
- I.A.5.k Notice of Termination (NOT) requirements
- I.A.5.k.(i) The minimum information required on a NOT consists of:
- I.A.5.k.(i).(a) Stormwater general permit number;
- I.A.5.k.(i).(b) Facility operator information: name, address, city, state, zip code, phone;
- I.A.5.k.(i).(c) Facility/site location information: name, address, city, state, zip code, phone; and,

I.A.5.k.(i).(d) Certification statement signed and dated by the Permittee. The certification statement is:

“I certify under penalty of law that all stormwater discharges associated with industrial activity from the identified facility that was authorized by this General Permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this notice of termination, I am no longer authorized to discharge stormwater associated with industrial activity under this general permit, and that discharging pollutants in stormwater associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act.”

I.A.5.l Address for Submittal:

I.A.5.l.(i) All Notices of Intent, Termination, Change, filing fees and any other information required by this permit or the Division shall be submitted to the Division at the following address:

Stormwater Coordinator
Bureau of Water Pollution Control
Nevada Division of Environmental Protection
333 West Nye Lane
Carson City NV 89706-0851

I.B **STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

I.B.1 Prior to submitting the Notice of Intent and filing fee the SWPPP shall be completed and available for inspection at the project site or operation covered by this permit.

I.B.2 Upon authorization of a submitted NOI, a copy of the signed NOI and the letter of authorization received from the Division shall be included in the SWPPP.

I.B.3 The SWPPP shall be prepared in accordance with good engineering practice and shall consist of project information, BMPs, inspection and maintenance, non-stormwater discharges, and a description of permanent stormwater controls.

- I.B.4 Each of the plan elements must be revised as necessary to maintain accuracy if there are changes in design, components, or process if the SWPPP is found to be insufficient.
- I.B.5 The Division may require modifications to a SWPPP within a specified time frame.
- I.B.6 The Permittee shall make SWPPPs available upon request to the State or local agency approving sediment and erosion plans, or stormwater management plans; local government officials; or the operator of a municipal separate storm sewer receiving discharges from the site for review at the time of an on-site inspection.
- I.B.7 The SWPPP shall include the following minimum elements.
- I.B.7.a Facility Identification:
- I.B.7.a.(i) Permittee: Company or agency, street address, city, state, zip code, and phone number;
- I.B.7.a.(ii) Contact information: Name, street address, city, state, zip code, and phone number;
- I.B.7.a.(iii) Person(s) responsible for implementation of plan;
- I.B.7.a.(iv) Facility Name; and,
- I.B.7.a.(v) Facility Location: Address, City, State, Zip Code, and County.
- I.B.7.b Site Characteristics
- I.B.7.b.(i) Identify actual and potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the facility;
- I.B.7.b.(ii) Establish practices and any necessary controls that will prevent or effectively reduce pollution in stormwater discharges from the facility and that ensure compliance with the terms and conditions of this general permit;
- I.B.7.b.(iii) Describe how the selected practices and controls are appropriate for the facility and how each will effectively prevent or lessen pollution;

- I.B.7.b.(iv) Discuss how controls and practices relate to each other such that together they comprise an integrated, facility-wide approach for pollution prevention in stormwater discharges. The discussion may include references to literature or site-specific performance information on the selected controls and practices to demonstrate the appropriateness of each.
- I.B.7.c Non-Stormwater Discharges
- I.B.7.c.(i) All non-stormwater discharges that qualify for permit coverage shall be identified in the SWPPP. The SWPPP shall describe the discharge points and appropriate best management practices (BMPs) for these non-stormwater discharges.
- I.B.7.c.(ii) Investigation for Non-Stormwater Discharges – A survey of potential non-stormwater sources shall be conducted and documented at a minimum of once per calendar year.
- I.B.7.c.(iii) The on-site storm sewer system shall be tested or inspected (e.g. screened for dry weather flows) for the presence of non-stormwater flows at a minimum of once per quarter.
- I.B.7.c.(iv) Procedures shall be evaluated and implemented to eliminate any potential sources that are discovered and that are not permitted.
- I.B.7.c.(v) The SWPPP must ensure that non-stormwater sources are not combined with stormwater discharges from the facility, and are not allowed to enter the separate storm sewer system, unless they are authorized by the Division.
- I.B.7.c.(vi) Certification:
- I.B.7.c.(vii) The SWPPP must include a certification, signed according to Part II of this general permit. The certification shall include:
- I.B.7.c.(vii).(a) Documentation of how the evaluation was conducted, results of any testing, dates of evaluations or tests, and the points in the separate storm sewer system that were observed during the investigation; and
- I.B.7.c.(vii).(b) The investigation for non-stormwater discharges must be completed and the certification must be prepared and made readily available for review by authorized Division personnel upon request.

- I.B.7.c.(viii) Failure to Certify:
- I.B.7.c.(ix) If a part of the on-site storm sewer system can not be reasonably accessed to complete the evaluation, certification shall be provided for the remainder of the system.
- I.B.7.c.(x) Notice of this deficiency must be provided to the Division within 180 days after the NOI is submitted.
- I.B.7.c.(xi) Facilities that contribute non-stormwater discharges to a municipal separate storm sewer system must provide notice of this deficiency to the Division.
- I.B.7.c.(xii) The notice shall include an explanation of why the evaluation could not be performed and a list of all known potential, non-permitted, non-stormwater sources that could not be included in the certification.
- I.B.7.d Description of Potential Pollutants and Sources
- I.B.7.d.(i) The Description of Potential Pollutants shall identify and describe all activities and significant materials that may potentially be pollutant sources and shall include, at a minimum:
- I.B.7.d.(i).(a) Inventory of Exposed Materials – Develop an inventory that lists materials at the facility that may be exposed to precipitation or runoff;
- I.B.7.d.(i).(b) The inventory must include all materials that are handled, stored, processed, treated, or disposed of in a manner that allows exposure to precipitation or runoff. Materials stored in drums, barrels, tanks, and similar containers that are properly closed or sealed, in good structural condition, are not required to be listed in the inventory;
- I.B.7.d.(i).(c) A narrative description must be developed to describe all activities and potential sources of pollutants that may reasonably be expected to add pollutants to stormwater discharges or that may result in dry weather discharges from the storm sewer system; and

I.B.7.d.(i).(d) The above information shall be updated within 30 days following a significant change in the types of materials that are exposed to precipitation or runoff, or significant changes in material management practices that may affect the exposure of materials to precipitation or runoff.

I.B.7.e Site Map

I.B.7.e.(i) A site map (or maps) shall be developed that depicts the following:

I.B.7.e.(i).(a) The location of each outfall covered by the permit;

I.B.7.e.(i).(b) An outline of the drainage area that is within the facility's boundary and that contributes stormwater to each permitted outfall;

I.B.7.e.(i).(c) Locations of connections or discharges to municipal separate storm sewer systems;

I.B.7.e.(i).(d) Locations of all structures (e.g. buildings, garages, storage tanks);

I.B.7.e.(i).(e) Listing and location of structural control devices that are designed to reduce pollution in stormwater runoff;

I.B.7.e.(i).(f) Location of process wastewater treatment units (including ponds);

I.B.7.e.(i).(g) Location of bag house and other air treatment units exposed to precipitation or runoff;

I.B.7.e.(i).(h) Location of surface water bodies (including wetlands);

I.B.7.e.(i).(i) Location of vehicle and equipment maintenance areas;

I.B.7.e.(i).(j) Location of physical features of the site that may influence stormwater runoff or contribute a dry weather flow;

I.B.7.e.(i).(k) Location of processing areas, storage areas, material loading/unloading areas, and other locations where significant materials are exposed to precipitation or runoff; and

I.B.7.e.(i).(l) The site map shall show the flow of stormwater runoff from each of these locations so that the final outfall where the discharge leaves the facility's boundary is apparent.

I.B.7.f Sampling Data

I.B.7.f.(i) The following categories of facilities have stormwater effluent guidelines for at least one of their subcategories: cement manufacturing (40 CFR 411); feedlots (40 CFR 412); fertilizer manufacturing (40 CFR 418); petroleum refining (40 CFR 419); phosphate manufacturing (40 CFR 422); steam electric power generation (40 CFR 423); coal mining (40 CFR 434); mineral mining and processing (40 CFR 436); ore mining and dressing (40 CFR 440); paving and roofing materials (40 CFR 443); and landfills (40 CFR 445). A facility that falls into one of these general categories shall examine the applicable effluent guideline to determine if it is categorized in one of the subcategories that have storm water effluent guidelines. If a facility is classified as one of those subcategories, that facility is subject to the standards listed in the CFR for that category, must sample stormwater discharges from the facility, at a minimum, of once per calendar year;

I.B.7.f.(ii) All lab analysis received from stormwater discharge samples shall be submitted to the Division;

I.B.7.f.(iii) If applicable, all data from the laboratory analyses of stormwater discharge samples shall be summarized;

I.B.7.f.(iv) The summary shall be updated on an annual basis to include the results of all additional analyses;

I.B.7.f.(v) The data summary shall either be included as an attachment to the SWPPP or may be referenced and maintained separately;

I.B.7.f.(vi) The Division may require stormwater discharge sampling by the permittee to determine compliance with the terms of this permit; and,

I.B.7.f.(vii) If sampling is required, the sample must be taken within the first thirty (30) minutes of the discharge where practicable. Where not practicable, the discharge must be samples within the first sixty (60) minutes.

I.B.7.g Pollution Prevention Measures and Controls

I.B.7.g.(i) Pollution prevention practices that are determined to be reasonable and effective, required by a state or local authority, or necessary to remain compliant with this general permit, shall be implemented.

I.B.7.g.(ii) The SWPPP shall include detailed descriptions of the following minimum components and a schedule for implementation:

I.B.7.h Good Housekeeping Measures

I.B.7.h.(i) A section within the SWPPP shall be developed to ensure areas of the facility that contribute or potentially contribute pollutants to stormwater discharges (e.g. areas around trash dumpsters, storage areas, loading docks, and outdoor processing areas) are maintained in a clean and orderly manner; and,

I.B.7.h.(ii) Good housekeeping measures must include measures to eliminate or reduce exposure of garbage and refuse materials to precipitation or runoff prior to their disposal.

I.B.7.h.(iii) The good housekeeping measures shall be incorporated as a part of the employee training program.

I.B.7.i Spill Prevention and Response Measures

I.B.7.i.(i) A section within the SWPPP shall be developed and implemented to prevent spills and to provide for adequate spill response. This section must:

I.B.7.i.(i).(a) Identify areas where spills could contribute pollutants to stormwater discharges;

I.B.7.i.(i).(b) Develop and implement procedures to minimize or prevent contamination of stormwater from spills (e.g. training equipment operators to inspect for leaks each day during operation of equipment; installation of secondary containment structures around liquid storage tanks and drums; installation of overflow prevention devices on pumps and tanks; modification of material handling techniques; and routine inspection of drums, tanks and other containers);

I.B.7.i.(i).(c) Require drums, tanks, and other containers to be clearly labeled and properly sealed or closed;

- I.B.7.i.(i).(d) Require that hazardous waste containers that require special handling, storage, use, and disposal be clearly marked;
- I.B.7.i.(i).(e) Develop and implement specific spill prevention and clean up techniques;
- I.B.7.i.(i).(f) Make the Spill Prevention and Response Measures document available to facility personnel materials and equipment necessary for spill clean up;
- I.B.7.i.(i).(g) Develop and maintain an inventory of spill cleanup materials and equipment; and
- I.B.7.i.(i).(h) Incorporate these measures as a part of the employee training program.

- I.B.7.j Erosion Control Measures
 - I.B.7.j.(i) A section within the SWPPP shall be developed to address soil erosion. Erosion prevention measures and controls shall be evaluated and used as necessary to reduce soil erosion in areas of the facility that have ongoing erosion or potential for soil erosion. The following controls shall be evaluated, at a minimum: soil stabilization through vegetative cover; contouring slopes; paving; and installation of structural controls.

- I.B.7.k Structural Controls
 - I.B.7.k.(i) Physical structures shall be considered and installed along with other pollution prevention measures and controls, as necessary, to reduce pollutants in stormwater discharges. Examples of structural controls that may be utilized include vegetated swales, oil/water separators, settling ponds, and other physical structures.

- I.B.7.l Maintenance Program for Structural Controls
 - I.B.7.l.(i) A section within the SWPPP shall be developed to establish a maintenance program for stormwater structural controls. Oil/water separators, catch basins, sediment ponds, grass swales, berms, and other structural controls shall be inspected on a regular basis.

- I.B.7.l.(ii) Maintenance frequencies must be established for each of the controls at intervals that ensure effective operation. Mechanical equipment that is part of a structural control, such as a stormwater pump, must also be inspected at intervals described in the SWPPP and maintained at intervals necessary to prevent failures that could result in a discharge of pollutants. This section of the SWPPP shall identify qualified personnel to conduct inspections and establish inspection and maintenance schedules. Records must document the estimated volumes of solids removed from catch basins, sediment ponds, and other similar control structures.
- I.B.7.m Miscellaneous / Additional Best Management Practices: The following shall be addressed:
- I.B.7.m.(i) A section within the SWPPP shall be developed to establish BMPs to reduce the discharge and potential discharge of pollutants in stormwater. Development of BMPs shall be based on the activities and potentials for contamination that are identified in of Part I.B of this general permit, "Description of Potential Pollutants and Sources."
- I.B.7.m.(ii) Preventative maintenance shall be considered and included in the SWPPP where appropriate.
- I.B.7.m.(iii) Material handling and storage to minimize exposure of industrial materials shall be considered and included where appropriate.
- I.B.7.n Employee Training Program and Employee Education
- I.B.7.n.(i) A section within the SWPPP shall be developed to establish a training program. Training shall be provided to all employees who are responsible for implementing or maintaining activities identified in the SWPPP. Employee training shall include, at a minimum:
- I.B.7.n.(i).(a) Proper material management and handling practices for specific chemicals, fluids, and other materials used or commonly encountered at the facility;
- I.B.7.n.(i).(b) Spill prevention methods;
- I.B.7.n.(i).(c) The location of materials and equipment necessary for spill clean up;
- I.B.7.n.(i).(d) Spill clean up techniques;

- I.B.7.n.(i).(e) Proper spill reporting procedures; and
- I.B.7.n.(i).(f) Familiarization with good housekeeping measures, BMPs, and goals of the SWPPP.
- I.B.7.n.(ii) The schedule for employee training sessions must be developed based on pollutant potential, employee turnover rate, and may include other factors.
- I.B.7.n.(iii) Training must be conducted at least once per year and records of training activities must be maintained.
- I.B.7.n.(iv) Education must be provided to those employees at the facility that are not directly responsible for implementing or maintaining activities identified in the SWPPP, and that do not participate in the employee training program. At a minimum, these employees must be informed of the basic goal of the SWPPP.
- I.B.7.o Periodic Inspections
 - I.B.7.o.(i) Qualified personnel, who are familiar with the industrial activities performed at the facility, shall conduct periodic inspections to determine the effectiveness of the Good Housekeeping Measures, Spill Prevention and Response Measures, Erosion Control Measures, Maintenance Program for Structural Controls, Best Management Practices, and the Employee Training Program.
 - I.B.7.o.(ii) Periodic inspections must be conducted on a frequency of once per quarter, at a minimum, relating to Specific Requirements for Industrial Activities.
 - I.B.7.o.(iii) The inspections must be documented through the use of a checklist that is developed to include each of the controls and measures that are evaluated.
 - I.B.7.o.(iv) When revisions or additions to the SWPPP are recommended as a result of inspections, a summary description of these proposed changes must be attached to the inspection checklist. The summary must identify any necessary time frames required to implement the proposed changes. The Permittee must make the identified revisions as soon as practicable.

I.B.7.p Quarterly Visual Monitoring

I.B.7.p.(i) Stormwater discharges from each outfall authorized by this general permit must be visually examined on a quarterly basis. Where practicable, the same individual should carry out the collection and examination of discharges for the entire permit term to ensure consistency. Monitoring must be conducted during daylight hours, samples must be examined in a well lit area, and findings must document observations of color, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollution. Any noticeable odors must also be noted. Some examinations, such as an examination for odor and foam, may necessarily be conducted immediately following collection of the sample. All examinations must be performed within a time frame that ensures the sample is representative of the discharge.

I.B.7.p.(ii) Records of quarterly visual monitoring must include the date and time samples were collected and examined, names of personnel that collected and examined the samples, the nature of the discharge (e.g., runoff, snow melt), and the visual quality of the stormwater discharge.

I.B.7.q Records

I.B.7.q.(i) Records for each element in Part I.B of "Pollution Prevention Measures and Controls" shall be included and maintained as an attachment to the SWPPP. Records shall document and describe maintenance activities, inspections, spills, discharge quality, employee training activities, employee education activities, SWPPP updates/modifications, and other events relative to each element.

I.B.8 Management of Runoff

I.B.8.a Velocity Dissipation Devices

I.B.8.a.(i) Discharge velocities must be controlled to the extent necessary to prevent the destruction of the natural physical characteristics of receiving waters by erosion. Velocity dissipation devices may be constructed at discharge points or along channels and other stormwater collection areas that lead to outfalls. Management alternatives to minimize runoff, such as limiting impervious cover, may also be considered.

I.B.9 Comprehensive Site Compliance Evaluation

I.B.9.a Description

I.B.9.a.(i) The comprehensive site compliance evaluation is a required site inspection and an overall assessment of the effectiveness of the current SWPPP. This evaluation is in addition to other routine inspections required by the permit (e.g. inspections of good housekeeping measures, structural controls, and for identification of non-stormwater sources). This evaluation may, however, substitute for a periodic inspection if it is conducted during the regularly scheduled period for the periodic inspection.

I.B.9.b General Requirements

I.B.9.b.(i) The evaluation shall be conducted at least once per year by either one or more qualified employees or designated representatives, who are familiar with the industrial activities performed at the facility and the elements of the SWPPP. The evaluation must include:

I.B.9.b.(i).(a) Inspection of all areas identified in the Inventory of Exposed Materials section of the SWPPP;

I.B.9.b.(i).(b) Inspection of all structural controls, including the maintenance and effectiveness;

I.B.9.b.(i).(c) Inspection of all non-structural controls including BMP effectiveness, good housekeeping measures, and spill prevention;

I.B.9.b.(i).(d) Inspection of all reasonably accessible areas immediately downstream of each stormwater outfall that is authorized under this general permit; and

I.B.9.b.(i).(e) A review of all records required by this general permit.

I.B.9.c Site Compliance Evaluation Report

I.B.9.c.(i) The report must include a narrative discussion of the Permittee's compliance with the current SWPPP. The report shall document the personnel conducting the evaluation, the dates of the evaluation, and any incidents of non-compliance.

- I.B.9.c.(ii) For purposes of this inspection, a non-compliance incident is any instance where an element of the SWPPP is either not implemented, or where specific conditions of the permit are not met.
- I.B.9.c.(iii) If no incidents of non-compliance are discovered, the report shall contain a certification that the facility is in compliance with the SWPPP.
- I.B.9.c.(iv) If the report indicates an incident of non-compliance, the operator shall complete all necessary actions to come into compliance as soon as practicable, but no later than ninety (90) days following the evaluation.
- I.B.9.c.(v) The report shall either be included as a part of the SWPPP or referenced in the SWPPP and be made readily available for inspection and review by the Division upon request.
- I.B.9.d Revision of the SWPPP
- I.B.9.d.(i) The SWPPP shall be revised to include and address the findings of the Site Compliance Evaluation Report within 30 days following completion of the evaluation. Revisions must include all applicable changes that result from the comprehensive site compliance report and all applicable updates to:
- I.B.9.d.(i).(a) Elements of the SWPPP that require modification for effectiveness;
- I.B.9.d.(i).(b) Any additional elements (e.g. structural controls or BMPs) that should be added or modified for prevention of pollution;
- I.B.9.d.(i).(c) The site map;
- I.B.9.d.(i).(d) The inventory of exposed materials;
- I.B.9.d.(i).(e) The description of the good housekeeping measures;
- I.B.9.d.(i).(f) The description of structural and non-structural controls; and
- I.B.9.d.(i).(g) Any other element of the plan that was either found to be inaccurate or that will be modified.

I.B.10 Inspection of the Stormwater Pollution Prevention Plan and Site

I.B.10.a Site Inspection

I.B.10.a.(i) SWPPP Review - The SWPPP shall be maintained, with a copy of this general permit at the site and be readily available for review by authorized Division personnel upon request. The SWPPP must be modified as often as necessary. Each revision must be dated and all revisions must be retained according to Part II. The Division may determine, following a review or site inspection, that the SWPPP is not sufficient and require that the SWPPP be revised to correct all deficiencies.

I.B.11 General Monitoring and Records Requirements

I.B.11.a Representative Storm Events

I.B.11.a.(i) Monitoring, sampling, examinations, and inspections of stormwater discharges that are required as a provision of this general permit shall be conducted on discharges of runoff from a representative storm event. For the purposes of this general permit, a representative storm event is an event with at least 0.1 inch of measured precipitation that occurs with a minimum interval from the preceding measurable storm of at least 72 hours. The 72-hour interval is not required if either the preceding storm event did not yield a discharge that was sufficient for obtaining a sample, or if it is documented in the SWPPP that a less than 72-hour interval is representative for local storm events for the sampling period.

I.B.11.b Representative Discharges from Substantially Similar Outfalls

I.B.11.b.(i) If discharges of stormwater through two or more outfalls are substantially the same, sampling and monitoring may be conducted at one of the outfalls, and the results may be reported as representative of the discharge from the substantially similar outfall. Before results may be submitted as representative of discharges from substantially similar outfalls, the SWPPP must include a description of outfall locations and provide justification of why the discharge qualities from the outfalls are substantially similar. To determine if outfalls are substantially similar, the following characteristics of each outfall must be compared:

I.B.11.b.(i).(a) The industrial activities that occur in the drainage area to each outfall;

- I.B.11.b.(i).(b) Significant materials stored or handled within the drainage area to each outfall; and
- I.B.11.b.(i).(c) The management practices and pollution control structures that occur within the drainage area of each outfall.
- I.B.11.b.(ii) Substantially similar outfalls may not be established for non-stormwater discharges.

Part II STANDARD CONDITIONS

II.A OPERATING REQUIREMENTS

- II.A.1 Proper Operation and Maintenance: The Permittee shall implement all BMPs used to comply with this permit and maintain them in good working order.
- II.A.2 Removed Substances: Solids and other pollutants removed in the course of treatment or control of stormwater shall be disposed of in accordance with applicable laws, regulations, codes, and ordinances.
- II.A.3 Water Quality Standards: There shall be no discharge of substances that cause or contribute to a violation of the water quality standards of the State of Nevada in accordance with Nevada Revised Statute and Nevada Administrative Code 445A.
- II.A.4 Sampling and Analysis: If any samples or measurements are taken pursuant to this permit they shall be representative of the volume and nature of the discharge. Laboratory analyses shall be performed by a State of Nevada certified laboratory. Results from this lab must be provided to the Division in accordance with this permit.
- II.A.5 Test Procedures: Test procedures for analyses of pollutants shall conform to regulations (40 CFR § 136) published pursuant to Section 304(h) of the Act, under which such procedures may be required, unless other procedures are approved by the Division.
- II.A.6 Recording the Results: If any measurement or sample is taken pursuant to this permit, the Permittee shall record the following information:
- II.A.6.a The exact place, date, and time of sampling
 - II.A.6.b The dates the analyses were performed
 - II.A.6.c The person(s) who performed the analyses
 - II.A.6.d The analytical techniques or methods used, and
 - II.A.6.e The results of all required analyses.

II.A.7 Adverse Impact: The Permittee shall take all reasonable steps to minimize any adverse impacts to receiving waters from any unauthorized discharge including monitoring as necessary to determine the nature and impact of the unauthorized discharge.

II.B ADMINISTRATIVE REQUIREMENTS

II.B.1 Signature Requirements

II.B.1.a Notices of Intent: All notices of intent shall be signed as follows:

II.B.1.a.(i) By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

II.B.1.a.(i).(a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

II.B.1.a.(i).(b) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

II.B.1.a.(ii) For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

II.B.1.a.(iii) For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes:

II.B.1.a.(iii).(a) The chief executive officer of the agency, or

II.B.1.a.(iii).(b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

II.B.1.b Duly Authorized Representative

II.B.1.b.(i) All Stormwater Pollution Prevention Plans and any other information required by this permit or requested by the Administrator shall be signed by a person described in this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

II.B.1.b.(i).(a) The authorization is made in writing by a person described under Section II.B.1;

II.B.1.b.(i).(b) The authorization specifies either an individual or a position having responsibility for the overall operation of the facility or for environmental matters for the company; and

II.B.1.b.(i).(c) The authorization is submitted to the Division.

II.B.1.c Changes to Authorization

II.B.1.c.(i) If an authorization under Section II.B.1 is no longer accurate because the individual or position has changed, a new written authorization must be submitted to the Division prior to or together with any information signed by the new representative within 30 days.

II.B.1.d Certification

II.B.1.d.(i) Any person signing a document under Section II.B.1. shall make the following certification.

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I also confirm that a stormwater pollution prevention plan (SWPPP) has been completed, will be maintained at the project site, and that the SWPPP will be compliant with any applicable local sediment and erosion control plans. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are

significant penalties for submitting false information, including the possibility of fines for knowing violations.”

II.B.2 Records Retention

II.B.2.a All records and information resulting from activities performed pursuant to this permit shall be retained for a minimum of three years after acceptance of the NOT, or longer if required by the Division.

II.B.3 Availability of Reports

II.B.3.a Except for data determined to be confidential under NRS 445A.665, all reports prepared in accordance with the terms of this permit that have been submitted to the Division shall be available for public inspection at the office of the Division. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in NRS 445A.710.

II.B.4 Continuation of Coverage

II.B.4.a In accordance with NAC 445A.241, this permit shall remain in effect until reissued, and existing Permittees shall be included in the reissued permit if a new Notice of Intent is submitted prior to the expiration date of this permit. A filing fee is not required for this submittal.

II.B.5 Transfer of Ownership or Control

II.B.5.a If control or ownership of the Industrial Facility changes, the Permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Division. To transfer permit coverage, the new owner or controller must submit a written request to the Division in accordance with Section I.A.5.d.(i).(c). All transfer of permits shall be approved by the Division.

II.B.6 Annual Fee

II.B.6.a The Permittee shall remit an annual fee in accordance with NAC 445A.268 on or before July 1 every year.

II.B.7 Right of Entry

II.B.7.a.(i) The Permittee shall allow representatives of the Division upon the presentation of credentials:

- II.B.7.a.(i).(a) To enter upon the Industrial Facility site or the Permittees premises where any records are kept under the terms and conditions of this permit; and
- II.B.7.a.(i).(b) At reasonable times, to have access to and copy any records kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method used pursuant to this permit; perform activities required to collect information in conducting compliance investigations; and to perform any necessary sampling to determine compliance with this permit or to sample any discharge.
- II.B.8 Penalty for Violation of Permit Conditions
- II.B.8.a NRS 445A.675 provides that any person who violates a permit condition is subject to administrative and judicial sanctions as outlined in NRS 445A.690 through 445A.705.
- II.B.9 Furnishing False Information and Tampering with Monitoring Devices
- II.B.9.a Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained by the provisions of NRS 445A.300 to 445A.730, inclusive, or by any permit, rule, regulation or order issued pursuant thereto, or who falsifies, tampers with or knowingly renders inaccurate any monitoring device or method required to be maintained under the provisions of NRS 445A.300 to 445A.730, inclusive, or by any permit, rule, regulation or order issued pursuant thereto, is guilty of a gross misdemeanor and shall be punished by a fine of not more than \$10,000 or by imprisonment. This penalty is in addition to any other penalties, civil or criminal, provided pursuant to NRS 445A.300 to 445A.730, inclusive.
- II.B.10 Permit Modification, Suspension or Revocation
- II.B.10.a After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
 - II.B.10.a.(i) Violation of any terms or conditions of this permit
 - II.B.10.a.(ii) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts, or

II.B.10.a.(iii) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

II.B.11 Liability

II.B.11.a Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable Federal, State or local laws, regulations, or ordinances.

II.B.12 Property Rights

II.B.12.a The issuance of this permit does not convey any property rights, in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

II.B.13 Severability

II.B.13.a The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.