

## **Sector W**

# **Wood and Metal Furniture and Fixture Manufacturing Facilities Fact Sheet**

Fact Sheets include a general discussion of the issues and pollutants specific to each industrial sector, including a summary of the data used to formulate the Multi-Sector General Permit. Fact Sheet topics include:

- Discharges Covered Under the Sector;
- Industry Profile;
- Associated Storm Water Pollutants;
- Pollution Control Options;
- Special Conditions;
- Storm Water Pollution Plan Requirements;
- Monitoring and Reporting Requirements; and
- Numeric Effluent Limitations, if any.

The Fact Sheet is not to be used as the basis for permit compliance. Sector-specific Permit Language, immediately following this Fact Sheet, provides specific detail for permit compliance.

activity." This definition included point source discharges of storm water from eleven major categories of facilities, including facilities under Standard Industrial Classification (SIC) codes 2434 and 25. Part XI.W. of today's permit only covers storm water discharges associated with industrial activities from furniture and fixture manufacturing facilities. Furniture and fixture manufacturing facilities eligible for coverage under this section include facilities identified by the following SIC codes: wood kitchen cabinets (generally described by SIC code 2434); household furniture (generally described by SIC code 251); office furniture (generally described by SIC code 252); public buildings and related furniture (generally described by SIC code 253); partitions, shelving, lockers, and office and store fixtures (generally described by SIC code 254); and miscellaneous furniture and fixtures (generally described by SIC code 259).

Storm water discharges covered by this section include all discharges where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to precipitation and storm water runoff. Storm water that does not come into contact with an industrial activity or a significant material are not subject to permitting according to 40 CFR 122.26. This section is not applicable to any discharge subject to effluent limitation guidelines. However, the storm water component of the unpermitted discharge may be included under this section.

When an industrial facility, described by the above coverage provisions of this section, has industrial activities being conducted onsite that meet the

description(s) of industrial activities in another section(s), that industrial facility shall comply with any and all applicable monitoring and pollution prevention plan requirements of the other section(s) in addition to all applicable requirements in this section. The monitoring and pollution prevention plan terms and conditions of this multi-sector permit are additive for industrial activities being conducted at the same industrial facility (co-located industrial activities). The operator of the facility shall determine which other monitoring and pollution prevention plan section(s) of this permit (if any) are applicable to the facility.

2. Industry Profile

The manufacturing processes for furniture and fixture manufacturing facilities are not typically exposed to storm water. However, unloading operations and the storage of some raw materials, and waste products, may be exposed to precipitation. Because of the lack of industrial activities occurring outdoors and the necessity of keeping many of the raw materials dry, the primary sources of storm water pollutants originate from materials handling and waste management or disposal activities. Table W-1 lists potential pollutant source activities, and related pollutants associated with furniture and fixture manufacturing facilities. There are two primary types of furniture and fixture manufacturing facilities. The distinction is based on the primary raw material, wood or metal. The manufacturing processes and significant materials to produce wood and metal furniture or fixtures are not similar. However, these manufacturing activities and wood resources are not typically exposed to precipitation.

*W. Storm Water Discharges Associated With Industrial Activity From Wood and Metal Furniture and Fixture Manufacturing Facilities*

1. Discharges Covered Under This Section

On November 16, 1990 (55 FR 47990), the U.S. Environmental Protection Agency (EPA) promulgated the regulatory definition of "storm water discharges associated with an industrial

TABLE W-1.—Activities, Pollutant Sources, and Pollutants

Activity	Pollutant source	Pollutant
Wood Drying	Coal	TSS, pH, cadmium, arsenic.
	Saw Dust	TSS, COD, BOD <sub>5</sub> , pH.
	Ash	TSS, pH.
Furniture Manufacturing	Sizing Operations	TSS, BOD <sub>5</sub> , pH.
	Painting Operations	Lead, cadmium, COD.
	Gluing Operations	Solvents, COD, oil & grease.
	Used Rags	Solvents, COD, oil & grease.
	Processing materials unloading	Diesel fuel, gasoline, oil, TSS.
	Waste Material Transportation	TSS, BOD <sub>5</sub> , pH.
	Treatment Facilities	Solvents, COD, oil & grease.
	Open Dumps	TSS, BOD <sub>5</sub> , oil & grease, COD.
Other Activities	Air Emission Control Cleaning	TSS, pH, cadmium, lead, copper, zinc.

Source: Storm Water Group Applications, Parts 1 and 2.

Industrial activities occurring at furniture and fixture manufacturing facilities that pertain to the storm water

rule include, " \* \* \* but [are] not limited to, storm water discharges from industrial plant yards; material handling

sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 CFR Part

401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials and intermediate and finished materials; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water" (40 CFR 122.26(b)(14)). The most common industrial activities at furniture and fixture manufacturing facilities include material handling sites and raw material storage areas.

Significant materials include, " \* \* \* but [are] not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; \* \* \* hazardous substances designated under Section 101(14) of CERCLA; any chemical facilities required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges" (40 CFR 122.26(b)(12)). Significant materials commonly found at furniture and fixture manufacturing facilities include: wood; saw dust; metals; petroleum-based products; solvents; detergents; and waste materials.

Manufacturers of furniture and fixtures are separated by the primary raw material (i.e., wood and metal). The primary raw materials, industrial processes, waste and by-products, and final products differ for the production of wood furniture and metal furniture. Within each subsector the number of industrial activities and corresponding significant materials and waste products may also vary. Presented below are brief descriptions of the industrial activities and significant materials associated with the manufacturing of wood and metal furniture and fixtures. Due to similarities in the production of furniture and fixtures within subsectors, industrial activities and significant materials are fairly uniform across this sector. Unique practices are noted.

*a. Manufacturing of Wood Furniture and Fixtures.* The process of manufacturing wood furniture begins with the delivery and storage of wood. There are three different raw wood materials; lumber, veneer, and particle board. Since the manufacturing processes are not typically exposed to storm water for this industry, some of the "industrial activities" described below may not be susceptible to storm water exposure. Significant materials and materials management practices do refer to those materials exposed to storm

water, and to the subsequent management practices used to control storm water. Variations on exposure to industrial activities and significant materials are site-specific.

*(1) Industrial Activities.* Once delivered, raw lumber is allowed to air dry up to 1 year. After the lumber is sufficiently air dried it is then transported to a dry kiln for further drying. The lumber is kiln dried anywhere from 7 to 150 days. Once the lumber has been dried to a desired moisture content, the dried lumber is taken to the processing area. The remaining furniture manufacturing processes are all completed indoors. Manufacturers may also receive lumber that is already dried. Therefore, the manufacturers may not need to air or kiln dry the wood and proceed directly into the processing stage.

The dried lumber is run through planers, to create a smooth, preliminary working surface, and then cut to specified dimensions depending on the end use. The sized lumber is then taken through sanding and machining operations. Sanding produces a smooth, fine working surface. Machining can include boring, routing, lathe operations, mitre cutting, and finish cuts. From this point, each piece of wood is dedicated to a specific product.

Veneer is another raw material used in the production of furniture. In this process logs are placed in a steam vat to increase the moisture content of a log. The logs are turned on a lathe to peel off the veneer. The resulting veneer sheets are layered into stacks or "hacks." Moisture is removed from the hacks by kiln drying. After a desired moisture content has been achieved the hacks are disassembled. Veneer is frequently hot or cold pressed onto particle board or solid wood by utilizing adhesives.

Particle board is the third raw material incorporated into the manufacturing of wood furniture. The board is received, cut to size, and banded on all four edges with solid wood. The banding is accomplished in continuous, steam heated units utilizing adhesives. The panels are allowed to cool and then they are sanded. Particle board is frequently coated with veneer.

The products from the three raw materials may be combined during the machining and sanding step or during the final assembly of a furniture piece. The machining and sanding step may include: initial sizing of particle board, veneer, and lumber; laminating operations; and surface printing. Once all the pieces of a particular furniture item are manufactured and sized, assembly can begin. This process

generally involves an assembly line routing with many different individuals and machines working together to build the unit.

The final step in creating an upholstered piece of furniture involves surface finishing. This process may involve many separate coats of stains, lacquers, sealers, and finishes to a single unit. This is the step where a uniform wood color and texture are given to each piece of furniture or furniture grouping.

Facilities that manufacture upholstered furniture may have all of the previously mentioned activities, or may purchase dried or sized materials from a manufacturer. Upholstered furniture manufacturers will transport, handle, store, and process natural and synthetic fibers used for the upholstery. After the wood component of an upholstered piece of furniture is assembled, the upholstery materials are cut, sized, stretched, and then attached to the frame. After the final inspection of a furniture piece, the unit is packaged and either stored temporarily onsite or immediately shipped to an offsite location.

*(2) Significant Materials.* The significant materials identified, in part 1 of the group applications, as exposed to storm water at wood furniture and fixture manufacturing facilities include: raw wood; sawdust; coal; kiln ash; solvent-based finishing materials and waste products; used rags; raw glue and waste materials; and petroleum-based products. While most of the raw wood material is stored outside, more valuable wood products (e.g., sheets of veneer, mahogany, etc.) and some composite wood products (e.g., particle board) may be stored inside or under cover.

*b. Manufacturing of Metal Furniture and Fixtures.* Many furniture and fixture manufacturing facilities build their furniture with metal as the primary raw material. However, some manufacturers combine wood and upholstered materials with a metal frame. Metal furniture manufacturing facilities may purchase wood pieces ready for assembly or they may have all the industrial activities of wood manufacturing facilities in addition to the metal manufacturing facilities. The industrial activities at metal furniture manufacturing facilities will be site-specific and depend upon the level of work necessary to shape and treat the delivered metal into a furniture piece.

*(1) Industrial Activities.* Facilities that manufacture metal household furniture conduct operations that include: machining and assembly, finishing, and temporary storage of finished products within an enclosed building. Cold roll steel is initially received and

temporarily stored within the manufacturing building. However, steel may be stored outside prior to use. The steel is cut to size, bent, and welded to design specifications to fabricate raw metal household furniture. Final grinding, sanding, finishing, spot welding, and painting are then completed. After the final inspection of a furniture piece, the unit is packaged and either stored temporarily onsite or immediately shipped to an offsite location.

(2) *Significant Materials.* The significant materials identified as exposed to storm water, in part 1 of the group applications, at metal furniture and fixture facilities include: metals; sawdust; solvent-based finishing materials and waste products; electroplating solutions and sludges; used rags; raw glue and waste materials; and petroleum-based products. Prior to manufacturing rolls of steel may be

stored outdoors but will be brought indoors for manufacturing.

3. Pollutants in Storm Water Discharges Associated with Furniture and Fixtures Manufacturing Facilities

Few pollutants are expected in storm water discharges from the manufacturing of wood and metal furniture and fixtures because the majority of the industrial activities occur indoors. Pollutants may be present in storm water as a result of outdoor activities associated with the manufacturing of wood and metal furniture and fixture such as: material handling operations; waste disposal; raw material storage; and deposition of airborne particulate matter. In addition, sources of pollutants other than storm water, such as illicit connections, spills, and other improperly dumped materials, may increase the pollutant

loadings discharged into waters of the United States.

Many of the part 2 group application data submittals did not identify individual site characteristics or sources of storm water pollutants which may be responsible for pollutant loadings.

Based on the similarities of the facilities included in this sector in terms of industrial activities and significant materials, EPA believes it is appropriate to discuss the potential pollutants at Wood and Metal Furniture and Fixture Manufacturing facilities as a whole and not subdivide this sector. Therefore, Table W-2 lists data for selected parameters from facilities in the Wood and Metal Furniture and Fixture Manufacturing sector. These data include the eight pollutants that all facilities were required to monitor for under Form 2F, as well as the pollutants that EPA has determined may merit further monitoring.

TABLE W-2.—STATISTICS FOR SELECTED POLLUTANTS REPORTED BY FURNITURE AND FIXTURES FACILITIES SUBMITTING PART II SAMPLING DATA<sup>i</sup> (mg/L)

Pollutant sample type	No. of Facilities		No. of Samples		Mean		Minimum		Maximum		Median		95th Percentile		99th Percentile	
	Grab	Comp <sup>ii</sup>	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp
BOD <sub>5</sub> .....	16	15	25	24	12.2	8.80	0.0	0.0	46.0	32.0	9.0	5.95	38.8	27.0	72.2	47.0
COD .....	16	15	25	24	96.0	76.3	0.0	0.0	300.0	240.0	83.0	72.5	231.9	187.6	358.4	288.0
Nitrate + Nitrite Nitrogen	16	15	25	24	1.73	1.51	0.00	0.0	12.00	10.0	0.90	0.68	6.11	5.1	12.97	11.1
Total Kjeldahl Nitrogen	16	15	25	24	4.37	4.40	0.00	0.60	46.00	55.0	1.70	1.35	10.70	9.57	20.39	18.88
Oil & Grease .....	16	N/A	25	N/A	3.8	N/A	0.0	N/A	33.0	N/A	0.0	N/A	19.1	N/A	45.0	N/A
pH .....	15	N/A	23	N/A	N/A	N/A	4.2	N/A	9.3	N/A	7.5	N/A	9.7	N/A	10.8	N/A
Total Phosphorus .....	16	15	25	24	0.27	0.26	0.00	0.0	1.10	1.30	0.20	0.19	0.76	0.76	1.30	1.35
Total Suspended Solids	16	15	25	24	188	143	3	2	891	900	130	91	1008	791	2740	2290
Zinc, Total .....	3	3	4	4	2.973	0.594	0.340	0.074	10.000	1.500	0.78	0.40	14.907	3.056	44.006	7.758

<sup>i</sup> Applications that did not report the units of measurement for the reported values of pollutants were not included in these statistics. Values reported as non-detect or below detection limit were assumed to be 0.  
<sup>ii</sup> Composite samples.

4. Options for Controlling Storm Water Pollutants.

Certain BMPs are implemented to prevent and/or minimize exposure of pollutants from industrial activities to storm water discharges. EPA believes the most effective BMPs for reducing pollutants in storm water discharges are exposure minimization practices. Exposure minimization practices lessen the potential for storm water to come into contact with pollutants. Good housekeeping practices ensure that facilities are sensitive to routine and nonroutine activities which may increase pollutants in storm water discharges. The BMPs which address good housekeeping and exposure minimization are easily implemented,

and require little, if any, maintenance. BMP expenses may include construction of roofs for storage areas or other forms of permanent cover and the installation of berms/dikes. Other BMPs such as detention/retention ponds and filtering devices may be needed at these facilities because of the contaminant level in the storm water discharges.

Part 1 group application data indicate that few BMPs have been implemented at wood and metal furniture and fixture manufacturing facilities. The only BMPs identified in the part 1 applications include: closed tanks, drums, and metal boxes; and partial covering. The part 1 data submissions did not indicate the presence of any traditional BMPs, such

as sedimentation and retention ponds, or diversion dikes. However, the group application process did not require a description, or identification, of traditional BMPs, only the identification of material management practices that limit the contact between storm water and significant materials.

Because BMPs described in the part 1 data are limited, EPA is providing an overview of supplementary BMPs for use at furniture and fixture manufacturing facilities. However, inclusion of a BMP cited does not preclude the use of other viable BMP options. Table W-3 summarizes BMP options as they apply to wood and metal furniture and fixture manufacturing facilities.

TABLE W-3.—STORM WATER BMPs FOR FURNITURE AND FIXTURE MANUFACTURING FACILITIES

Activity	Best management practices (BMPs)
Outdoor Unloading and Loading .....	<ul style="list-style-type: none"> <li>Confine loading/unloading activities to a designated area.</li> <li>Perform all loading/unloading activities in a covered or enclosed area.</li> <li>Close storm drains during loading/unloading activities in surrounding areas.</li> </ul>

TABLE W-3.—STORM WATER BMPs FOR FURNITURE AND FIXTURE MANUFACTURING FACILITIES—Continued

Activity	Best management practices (BMPs)
Outdoor Material Storage (including waste and particulate emission management).	<p>Avoid loading/unloading materials in the rain.            Inspect all containers prior to loading/unloading of any raw or spent materials.            Berm, curb, or dike loading/unloading areas.            Use dry clean-up methods instead of washing the areas down.            Train employees on proper loading/unloading techniques.            Confine storage of raw materials, parts, and equipment to designated areas.</p> <p>Train employees on proper waste control and disposal.            Berm, curb, or dike any areas around tanks.            Ensure that all containers are properly sealed and valves closed.            Inventory all raw and spent materials.            Inspect air emission control systems regularly, and repair or replace when necessary.            Store wastes in covered, leak proof containers (e.g., dumpsters, drums).            Store wastes in enclosed and/or covered areas.            Ensure hazardous and solid waste disposal practices are performed in accordance with applicable Federal, State, and local requirements.            Ship all wastes to offsite landfills or treatment facilities.</p>

Sources: NPDES Storm Water Group Applications—Part 1. Received by EPA, March 18, 1991, through December 31, 1992, and EPA, Office of Water, September 1992. "Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices." EPA 832-R-92-006.

Many of the BMPs identified in Table W-3 are reminders of good or preferred operating procedures that are intended to limit the exposure of significant materials and industrial activities to storm water. Facility operators should review their current operations and consider implementing these BMPs if they are applicable to the site in order to reduce storm water contamination.

Since none of the facilities within the wood and metal furniture and fixture manufacturing sector indicated the presence of traditional storm water management practices, EPA is requiring the participants in this sector to consider the implementation of storm water diversions and sediment control and collection structures.

Discharge diversions provide the first line of defense in preventing the contamination of discharges, and subsequent contamination of receiving waters of the United States. Discharge diversions are temporary or permanent structures installed to divert flow, store flow, or limit storm water runoff and runoff.

These diversion practices have several objectives. First, diversion structures can be designed to prevent otherwise uncontaminated (or less contaminated) water from crossing disturbed areas or areas containing significant amounts of contaminated materials, where contact may occur between runoff and significant materials. These source reduction measures may be particularly effective for preventing uncontaminated discharges from contacting exposed materials and/or reduce the flow across disturbed areas, thereby lessening the potential for erosion. Second, diversion structures can be used to collect or

divert waters for later treatment, if necessary. The usefulness of these control measures are limited by such factors as the size of the area to be controlled and the type and nature of materials exposed and precipitation events.

Diversion dikes, curbs, and berms are temporary or permanent diversion structures that prevent runoff from passing beyond a certain point, and divert runoff away from its intended path. Dikes, curbs or berms may be used to surround and isolate areas of concern at wood and metal furniture manufacturing facilities, and divert flow around piles of significant materials in order to minimize or limit offsite discharges of contaminated storm water.

Sediment control and collection limits movement and retains sediments from being transported offsite. Several structural collection devices have been developed to remove sediment from runoff before it leaves the site. Several methods of removing sediment from site runoff involve diversion mechanisms previously discussed, supplemented by a trapping or storage device. Structural practices typically involve filtering diffuse storm water flows through temporary structures such as straw bale dikes, silt fences, brush barriers or vegetated areas.

However, structural practices require periodic removal of sediment to remain functional, for both temporary and permanent structures. As such, they serve as more active-type practices which may not be appropriate for permanent use at inactive mines. However, these practices may be effectively used as temporary measures during active operation and/or prior to

the final implementation of permanent measures. Temporary structures include: plastic matting, plastic netting, and erosion control blankets; mulch-straw or wood chips; and compaction. Permanent sediment control and collection structures include: sediment/settling ponds; sediment traps or catch basins; and vegetated buffer strips.

#### 5. Storm Water Pollution Prevention Plan Requirements

All facilities subject to this section must prepare and implement a storm water pollution prevention plan. The establishment of a pollution prevention plan requirement reflects EPA's decision to allow operators of furniture and fixture manufacturing facilities to utilize BMPs as the BAT/BCT level of control for the storm water discharges covered by this section. The requirements included in pollution prevention plans provide a flexible framework for the development and implementation of site-specific controls to minimize pollutants in storm water discharges. EPA believes that pollution prevention is the most effective approach for controlling contaminated storm water discharges from furniture and fixture manufacturing facilities. Pollution prevention plans allow the operator of a facility to select BMPs based on site-specific considerations such as: facility size; climate; geographic location; hydrogeology; the environmental setting of each facility; volume and type of discharge generated, and current BMPs. This flexibility is necessary because each facility will be unique in that the source, type, and volume of contaminated surface water discharges will differ from site to site.

There are two major objectives to a pollution prevention plan: (1) To identify sources of pollution potentially affecting the quality of storm water discharges associated with an industrial activity from a facility; and (2) to describe and ensure implementation of practices to minimize and control pollutants in storm water discharges associated with industrial activity. Specific requirements for a pollution prevention plan for furniture and fixture manufacturing facilities are described below. These requirements must be implemented in addition to the pollution prevention plan provisions discussed previously, or any other industry-specific requirements to which the facility is subject. For example, facilities with coal piles must comply with the provisions for coal pile runoff, as well as the pollution prevention requirements for the furniture and fixture manufacturing industry.

*a. Description of Potential Pollution Sources.* Under the drainage requirements, the site map must show areas where the following activities take place, if applicable: fueling; vehicle and equipment maintenance and/or cleaning; loading and unloading; material storage (including tanks or other vessels used for liquid or waste storage); outdoor material processing; waste treatment, storage, or disposal; haul roads; access roads; and rail spurs. The site map must also indicate the outfall locations and the types of discharges contained in the drainage areas of the outfalls (e.g. storm water and air conditioner condensate). In order to increase the readability of the map, the inventory of the types of discharges contained in each outfall may be kept as an attachment to the site map.

*b. Measures and Controls.* Following completion of the source identification and assessment phase, the permittee must evaluate, select, and describe the pollution prevention measures, BMPs, and other controls that will be implemented at the facility. The permittee must assess the applicability of the following categories of BMPs for their site: discharge diversions, drainage/storm water conveyance systems, runoff dispersions, and good housekeeping measures. In addition, BMPs include processes, procedures, schedules of activities, prohibitions on practices, and other management practices that prevent or reduce the discharge of pollutants in storm water runoff.

The pollution prevention plan must discuss the reasons each selected structural control or BMP is appropriate for the facility and how each will

address the potential sources of storm water pollution. The plan also must include a schedule specifying the time or times during which each control or practice will be implemented. In addition, the plan should discuss ways in which the controls and practices relate to one another and, when taken as a whole, produce an integrated and consistent approach for preventing or controlling potential storm water contamination problems.

Permittees are also required to develop a preventive maintenance program that includes regular inspections and maintenance of storm water BMPs. The maintenance program requires periodic removal of debris from discharge diversions and conveyance systems. These activities should be conducted particularly during wet seasons. Permittees already controlling their storm water runoff with impoundments or sedimentation ponds must include the maintenance schedules for these ponds in the pollution prevention plan.

Under the inspection requirements of the pollution prevention plan, operators of furniture and fixture manufacturing facilities are required to conduct quarterly inspections. The inspections shall include: (1) An assessment of the integrity of storm water discharge diversions, conveyance systems, sediment control and collection systems, and containment structures; (2) visual inspections of vegetative BMPs to determine if soil erosion has occurred; and (3) visual inspections of material handling and storage areas and other potential sources of pollution for evidence of actual or potential pollutant discharges of contaminated storm water.

EPA believes that this quick and simple description will allow the permittee to assess the effectiveness of his/her plan on a regular basis at very little cost. The inspection will provide meaningful results upon which the facility may act quickly. The frequency of this inspection will also allow for timely adjustments to be made to the pollution prevention plan. If a BMP is found to be ineffective, corrective action must be implemented. A set of tracking or follow-up procedures must be used to ensure that appropriate actions are taken in response to the inspections. The inspection is intended to be performed by facility staff. This hands on inspection will also enhance the staff's understanding of the storm water problems on that site and effects on the management practices that are included in the plan.

Under employee training, the permit does not specify the frequency, however, EPA recommends that

facilities conduct training annually at a minimum. However, more frequent training may be necessary at facilities with high turnover of employees or where employee participation is essential to the storm water pollution prevention plan.

Under the recordkeeping and internal reporting procedures of the pollution prevention plan, the permittee must describe procedures for developing and retaining records on the status and effectiveness of plan implementation. The plan must address spills, monitoring (if applicable), and BMP inspection and maintenance activities. Ineffective BMPs must be recorded and the date of their corrective action noted. According to the pollution prevention plan requirements, the permittee must evaluate the appropriateness of each storm water BMP that diverts, infiltrates, reuses, or otherwise reduces the discharge of contaminated storm water. In addition, the permittee must describe the storm water pollutant source area or activity (i.e., loading and unloading operations, raw material storage piles etc.) to be controlled by each storm water management practice.

## 6. Monitoring and Reporting Requirements

*a. Monitoring Requirements.* The regulatory modifications at 40 *CFR* 122.44 (i)(2) established on April 2, 1992, grant permit writers the flexibility to reduce monitoring requirements in storm water discharge permits. EPA has determined that the potential for storm water discharges to contain pollutants above benchmark levels, because of the industrial activities and materials exposed to precipitation, does not support sampling at facilities covered by this section of today's permit. Under the Storm Water Regulations at 40 *CFR* 122.26(b)(14), EPA defined "storm water discharge associated with industrial activity". The focus of today's permit is to address the presence of pollutants that are associated with the industrial activities identified in this definition and that might be found in storm water discharges. Under the methodology for determining analytical monitoring requirements, described in section VI.E.1 of this fact sheet, nitrate plus nitrite nitrogen and zinc are above the bench mark concentrations for the furniture and fixtures sector. After a review of the nature of industrial activities and the significant materials exposed to storm water described by facilities in this sector, EPA has determined that the higher concentrations of nitrate plus nitrite nitrogen and zinc are not likely to be caused by the industrial activity, but

may be primarily due to non-industrial activities on-site. Today's permit does not require furniture and fixtures facilities to conduct analytical monitoring for these parameters.

Based on a consideration of the nature of BMPs typically used at these facilities, and generally low pollutant values from the application data, EPA believes that the pollution prevention plan with visual examinations of storm water discharges (see below) will help to ensure storm water contamination is minimized. Because permittees are not required to conduct analytical monitoring, they will be able to focus their resources on developing and implementing the pollution prevention plan.

*b. Quarterly Visual Examination of Storm Water Quality*. Wood and metal furniture and fixture manufacturing facilities shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted under paragraph (3) below. The examination(s) must be made at least once in each of the following 3-month periods: January through March, April through June, July through September, and October through December. The examination shall be made during daylight hours unless there is insufficient rainfall or snow melt to produce a runoff event.

(1) Examinations shall be made of grab samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. The examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Where practicable, the same individual should carry out the collection and examination of discharges for entire permit term.

(2) Visual examination reports must be maintained onsite in the pollution prevention plan. The report shall include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids,

settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.

(3) When a facility has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the observation data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area [e.g., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)] shall be provided in the plan.

(4) When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic conditions, the discharger must document the reason for not performing the visual examination and retain this documentation onsite with the records of the visual examinations. Adverse weather conditions that may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

(5) EPA realizes that if a facility is inactive and unstaffed it may be difficult to collect storm water discharge samples when a qualifying event occurs. Today's final permit has been revised so that inactive, unstaffed facilities can exercise a waiver of the requirement to conduct quarterly visual examination.

EPA believes that this quick and simple assessment will help the permittee to determine the effectiveness of his/her plan on a regular basis at very little cost. Although the visual examination cannot assess the chemical properties of the storm water discharged from the site, the examination will provide meaningful results upon which the facility may act quickly. The frequency of this visual examination will also allow for timely adjustments to

be made to the plan. If BMPs are performing ineffectively, corrective action must be implemented. A set of tracking or follow-up procedures must be used to ensure that appropriate actions are taken in response to the examinations. The visual examination is intended to be performed by members of the pollution prevention team. This hands on examination will enhance the staff's understanding of the storm water problems on that site and effects of the management practices that are included in the plan.

As discussed above, EPA does not believe that analytical monitoring is necessary for wood and metal furniture and fixture manufacturing facilities. EPA believes that between quarterly visual examinations and site compliance evaluations potential sources of contaminants can be recognized, addressed and then controlled with BMPs. In determining the monitoring requirements, EPA considered the nature of the industrial activities and significant materials exposed at these sites, and performed a review of data provided in Part 2 group applications.

## **Sector W**

# **Wood and Metal Furniture and Fixture Manufacturing Facilities Permit Language**

The Permit Language section contains sector-specific requirements for each industrial sector, including:

- Discharges covered under the sector;
- Special Conditions
- Storm Water Pollution Prevention Plan Requirements;
- Numeric Effluent Limitations, if any; and
- Monitoring and Reporting Requirements.

Further guidance and discussion can be found in the Fact Sheet associated with this sector.

*W. Storm Water Discharges Associated With Industrial Activity From Wood and Metal Furniture and Fixture Manufacturing Facilities*

1. Discharges Covered Under This Section.

The requirements listed under this section shall apply to storm water discharges associated with industrial activities from facilities involved in the manufacturing of: wood kitchen cabinets (generally described by SIC code 2434); household furniture (generally described by SIC code 251); office furniture (generally described by SIC code 252); public buildings and related furniture (generally described by SIC code 253); partitions, shelving, lockers, and office and store fixtures (generally described by SIC code 254); and miscellaneous furniture and fixtures (generally described by SIC code 259).

When an industrial facility, described by the above coverage provisions of this section, has industrial activities being conducted onsite that meet the description(s) of industrial activities in another section(s), that industrial facility shall comply with any and all applicable monitoring and pollution prevention plan requirements of the other section(s) in addition to all applicable requirements in this section. The monitoring and pollution prevention plan terms and conditions of this multi-sector permit are additive for industrial activities being conducted at the same industrial facility (co-located industrial activities). The operator of the facility shall determine which other monitoring and pollution prevention plan section(s) of this permit (if any) are applicable to the facility.

## 2. Special Conditions

*a. Prohibition of Non-storm Water Discharges.* This section does not cover any discharge subject to process wastewater effluent limitation guidelines, including storm water that combines with process wastewater.

## 3. Storm Water Pollution Prevention Plan Requirements

*a. Contents of Plan.* The plan shall include, at a minimum, the following items:

(1) *Pollution Prevention Team.* Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team that are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.

(2) *Description of Potential Pollutant Sources.* Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials which may potentially be significant pollutant sources. Each plan shall include, at a minimum:

*(a) Drainage.*

(i) A site map indicating an outline of the portions of the drainage area of each storm water outfall that are within the facility boundaries, each existing

structural control measure to reduce pollutants in storm water runoff, surface water bodies, locations where significant materials are exposed to precipitation, locations where major spills or leaks identified under Part XI.W.3.a.(2)(c) (Spills and Leaks) of this permit have occurred, and the locations of the following activities where such activities are exposed to precipitation: fueling stations; vehicle and equipment maintenance and/or cleaning areas; loading and unloading areas; material storage (including tanks or other vessels used for liquid or waste storage) areas; outdoor material processing areas; areas where wastes are treated, stored, or disposed; access roads; and rail spurs. The map must indicate the outfall locations and the types of discharges contained in the drainage areas of the outfalls.

(ii) For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow, and an identification of the types of pollutants which are likely to be present in storm water discharges associated with industrial activity. Factors to consider include the toxicity of the chemical; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified.

(b) *Inventory of Exposed Materials*—An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of 3 years prior to the date of the submission of a Notice of Intent (NOI) to be covered under this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of 3 years prior to the date of the submission of a Notice of Intent (NOI) to be covered under this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.

(c) *Spills and Leaks*—A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to

precipitation or that otherwise drain to a storm water conveyance at the facility after the date of 3 years prior to the date of the submission of a Notice of Intent (NOI) to be covered under this permit. Such list shall be updated as appropriate during the term of the permit.

(d) *Sampling Data*—A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.

(e) *Risk Identification and Summary of Potential Pollutant Sources*—A narrative description of the potential pollutant sources from the following activities: loading and unloading operations; outdoor storage activities; outdoor manufacturing or processing activities; significant dust or particulate generating processes; and onsite waste treatment, storage, or disposal practices. The description shall specifically list any significant potential source of pollutants at the site and for each potential source, any pollutant or pollutant parameter (e.g., biochemical oxygen demand, etc.) of concern shall be identified.

(3) *Measures and Controls.* Each facility covered by this permit shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:

(a) *Good Housekeeping*—Good housekeeping requires the maintenance of areas which may contribute pollutants to storm water discharges in a clean, orderly manner.

(b) *Preventive Maintenance*—A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g., cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.

(c) *Spill Prevention and Response Procedures*—Areas where potential spills which can contribute pollutants to storm water discharges can occur, and their accompanying drainage points shall be identified clearly in the storm

water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a clean up should be available to personnel.

(d) *Inspections*—In addition to the comprehensive site compliance evaluation required under Part XI.W.3.a.(4), of this permit, qualified facility personnel shall be identified to inspect the following on a quarterly basis: the integrity of storm water discharge diversions, conveyance systems, sediment control and collection systems, and containment structures; vegetative BMPs to determine if soil erosion has occurred; and material handling and storage areas and other potential sources of pollution for evidence of actual or potential pollutant discharges of contaminated storm water. Information must be maintained onsite and include the inspection date and time and the name of personnel conducting the visual inspection. The pollution prevention plan must be updated based on the results of each inspection. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. The use of a checklist developed by the facility is encouraged.

(e) *Employee Training*—Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify periodic dates for such training.

(f) *Recordkeeping and Internal Reporting Procedures*—A description of incidents (such as spills, or other discharges), BMP inspection and maintenance activities, along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan. Ineffective BMPs must be reported and the date of their corrective action noted.

(g) *Non-storm Water Discharges.*

(i) The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with Part VII.G. of this permit. Such certification may not be feasible if the facility operating the storm water discharge associated with industrial activity does not have access to an outfall, manhole, or other point of access to the ultimate conduit which receives the discharge. In such cases, the source identification section of the storm water pollution prevention plan shall indicate why the certification required by this part was not feasible, along with the identification of potential significant sources of non-storm water at the site. A discharger that is unable to provide the certification required by this paragraph must notify the Director in accordance with paragraph XI.W.3.a.(3)(g)(iii) (below).

(ii) Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2. (Prohibition of Non-storm Water Discharges) of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

(iii) *Failure to Certify*—Any facility that is unable to provide the certification required (testing for non-storm water discharges), must notify the Director by [Insert date 270 days after permit issuance] or, for facilities which begin to discharge storm water associated with industrial activity after [Insert date 270 days after permit issuance], 180 days after submitting an NOI to be covered by this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-storm water discharges to

waters of the United States which are not authorized by an NPDES permit are unlawful, and must be terminated.

(h) *Sediment and Erosion Control*—The plan shall identify areas which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

(i) *Management of Runoff*—The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity [see paragraph XI.W.3.a.(2) of this section (Description of Potential Pollutant Sources)] shall be considered when determining reasonable and appropriate measures. Appropriate measures or other equivalent measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, and wet detention/retention devices.

(4) *Comprehensive Site Compliance Evaluation.* Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but, in no case less than once a year. Such evaluations shall provide:

(a) Areas contributing to a storm water discharge associated with industrial activity including, but not limited to, coal piles, ash disposal areas, loading/unloading operations, and waste treatment, storage, or disposal locations shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual

inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.

(b) Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with paragraph XI.W.3.a.(2) of this section (Description of Potential Pollutant Sources) and pollution prevention measures and controls identified in the plan in accordance with paragraph XI.W.3.a.(3) of this section (Measures and Controls) shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than 12 weeks after the evaluation.

(c) A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph XI.W.a.(4)(b) (above) of the permit shall be made and retained as part of the storm water pollution prevention plan for at least 3 years from the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with Part VII.G. (Signatory Requirements) of this permit.

(d) Where compliance evaluation schedules overlap with inspections required under XI.W.3.a.(3)(d), the compliance evaluation may be conducted in place of one such inspection.

#### 4. Numeric Effluent Limitations

There are no additional numeric effluent limitations beyond those described in Part V.B of this permit.

#### 5. Monitoring and Reporting Requirements

##### *a. Monitoring Requirements.*

(1) *Quarterly Visual Examination of Storm Water Quality.* Facilities shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. The examination must be made at least once in each designated period (described in (a), below) during daylight hours unless there is insufficient rainfall or snow melt to produce a runoff event.

(a) Examinations shall be conducted in each of the following periods for the

purposes of visually inspecting storm water quality associated with storm water runoff or snow melt: January through March; April through June; July through September; and October through December.

(b) Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed one hour) of when the runoff or snowmelt begins discharging. The examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Whenever practicable the same individual will carry out the collection and examination of discharges for the life of the permit.

(c) When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic conditions, the discharger must document the reason for not performing the visual examination and retain this documentation onsite with the records of the visual examination. Adverse weather conditions which may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricanes, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

(d) When a discharger is unable to conduct visual storm water examinations at an inactive and unstaffed site, the operator of the facility may exercise a waiver of the monitoring requirement as long as the facility remains inactive and unstaffed. The facility must maintain a certification with the pollution prevention plan stating that the site is inactive and unstaffed so that performing visual examinations during a qualifying event is not feasible.

(e) Visual examination reports must be maintained onsite in the pollution prevention plan. The report shall include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of

color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.

(f) When a facility has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the observation data also applies to the substantially identical outfalls provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explaining in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area (e.g., low (under 40 percent), medium (40 to 65 percent) or high (above 65 percent)) shall be provided in the plan.

(g) When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic conditions, the discharger must document the reason for not performing the visual examination. Adverse weather conditions which may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).