significant materials from fabricators will affect water quality. Specifically, the use of indoor operations as opposed to outdoor storage facilities; discharges to Publicly Owned Treatment Works (POTWs); recycling programs; product choice in the various operations; and the number of operations that take place at a given facility based on customer needs; and use of storm water controls.

This section does not cover any discharge subject to process wastewater effluent limitation guidelines.

## 2. Industrial Profile

There are two major subcategories of facilities covered by this sector: fabricated metal products excluding coating and fabricated metal coating and engraving. These facilities are engaged in the manufacturing of a variety of products that are constructed primarily by using metals. The operations performed usually begin with materials in the form of raw rods, bars, sheet, castings, forgings, and other related materials and can progress to the most sophisticated surface finishing

operations. There are typically several operations that take place at a fabrication facility: machining operations, grinding, cleaning and stripping, surface treatment and plating, painting, and assembly. The machining operation involves turning, drilling, milling, reaming, threading, broaching, grinding, polishing, cutting and shaping, and planing. Grinding is the process using abrasive grains such as aluminum oxide, silicon carbide, and diamond to remove stock from a workpiece. Cleaning and stripping is a preparatory process involving solvents for the removal of oil, grease and dirt. Both alkaline and acid cleaning are employed. Surface treatment and plating is a major component that involves batching operations to increase corrosion or abrasion resistance. This is generally in the form of galvanizing. Painting is generally practiced at most facilities to provide decoration and protection to the product or item. Assembly is the fitting together of previously manufactured parts into a complete unit or structure.

Industrial activities and storm water management practices vary among the fabricating industry, mostly in the type of chemicals used in the processes and the final product. Some industries involve only dry operations and others include wet operations. Examples of products being fabricated in this industry include: aircraft engines, screws, nuts, bolts, automotive parts (drive shafts, struts, gears, rods), tanks, hand tools, doors, and bridge grates.

Many of the operations in this industry take place indoors. The major activities evaluated for purposes of storm water contamination and control measures include: waste storage, outside product storage, use of pickling acids, storage of cutoff scrap metal, aluminum scraps, hazardous materials, galvanized steel components, solvent storage, waste paper storage, machinery storage, used absorbent materials, wood materials dunnage/pallets, and maintenance of existing Best Management Practices (BMPs). The table below lists the most likely wastes to be generated at a steel fabricating facility.

TABLE AA-1.—WASTES GENERATED FROM FABRICATED METALS INDUSTRIES

Activity	Pollutant source	Pollutant
Tool workpiece interface/shaving, chipping Parts/tools cleaning, sand blasting, metal surface cleaning, removal of applied chemicals.	Used metal working fluid with fine metal dust . Solvent cleaners abrasive cleaners, alkaline cleaners, acid cleaners, rinse waters.	TSS, COD, oil and grease. Spent solvents, TSS, acid/alkaline waste, oil.
Making structural components	Cuttings, scraps, turnings, finesPaint and paint thinner spills, sanding, spray	Metals. Paints, spent solvents, heavy metals, TSS.
Cleanup of spills and drips  Transportation or storage of materials	painting. Used absorbent materials Wood dunnage/pallets	TSS, spilled material. BOD, TSS.

## 3. Storm Water Sampling Results

Based on the wide variety of industrial activities and significant materials at the facilities included in this sector, EPA believes it is appropriate to divide the fabricated

metal industry into subsectors to properly analyze sampling data and determine monitoring requirements. As a result, this sector has been divided into the following subsectors: fabricated metal products except coating and fabricated metal coating and engraving. Tables AA–2 and AA–3 below include data for the eight pollutants that all facilities were required to monitor for under Form 2F. The tables also list those parameters that EPA has determined merit further monitoring.

TABLE AA-2.—STATISTICS FOR SELECTED POLLUTANTS REPORTED BY CUTLERY, HANDTOOLS, AND GENERAL HARDWARE, FABRICATED STRUCTURAL METAL PRODUCTS, SCREW MACHINE PRODUCTS, AND BOLTS, NUTS, SCREWS, RIVETS, AND WASHERS, METAL FORGINGS AND STAMPINGS, ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING, MISCELLANEOUS FABRICATED METAL PRODUCTS, JEWELRY, SILVERWARE, AND PLATED WARE MANUFACTURING FACILITIES SUBMITTING PART II SAMPLING DATA<sup>1</sup> (mg/L)

Pollutant Sample type	No. of facilities		No. of samples		Mean		Minimum		Maximum		Median		95th percentile		99th percentile	
	Grab	Compii	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp	Grab	Comp
BOD 5	51	49	70	69	19.6	11.6	0.0	0.0	380.0	57.0	8.4	8.0	53.5	32.6	106.2	55.8
COD	51	48	70	68	143.2	115.2	0.0	0.0	1380.0	962.0	63.0	63.0	435.4	358.5	885.1	713.7
Nitrate + Nitrate Nitrogen	51	49	70	69	1.66	1.31	0.00	0.0	14.90	9.17	0.94	0.87	5.85	4.58	12.74	9.22
Total Kjeldahl Nitrogen	51	49	70	69	3.24	2.05	0.00	0.0	29.30	9.12	1.76	1.40	9.77	5.99	19.16	10.52
Oil & Grease	50	N/A	69	N/A	9.2	N/A	0.0	N/A	86.0	N/A	6.0	N/A	31.3	N/A	62.1	N/A
pH	45	N/A	63	N/A	N/A	N/A	3.3	N/A	9.0	N/A	7.1	N/A	9.4	N/1	10.7	N/A
Total Phosphorus	50	49	69	69	1.13	1.03	0.00	0.0	10.50	10.8	0.22	0.2	3.39	3.36	8.96	9.12
Total Suspended Solids	51	49	70	69	214	169	0	0	2340	3235	104	53	1014	650	2832	1801
Aluminum, Total	15	15	16	16	89.68	10.37	0.00	0.00	1400.0	130.00	0.96	0.92	74.83	24.71	365.47	80.82
Iron, Total	25	23	32	29	4.9	3.1	0.0	0.0	25.1	26.0	1.5	0.9	28.3	13.2	92.2	35.5
Zinc, Total	27	25	38	35	6.407	3.451	0.000	0.007	157.00	22.80	0.72	0.44	18.234	20.001	64.196	79.412

<sup>&</sup>lt;sup>1</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.

assumed to be 0.
"Composite samples.