

Benchmark limits developed by EPA

The "benchmarks" are the pollutant concentrations above which EPA determined represent a level of concern. The level of concern is a concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The "benchmarks" are also viewed by EPA as a level that, if below, a facility presents little potential for water quality concern. As such, the benchmarks also provide an appropriate level to determine whether a facility's storm water pollution prevention measures are successfully implemented. The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels which EPA has used to determine if a storm water discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing SWPPP. As such these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility. Table 3 lists the parameter benchmark values and the sources used for the benchmarks.

Table 3.--Parameter Benchmark Values

Parameter name	Benchmark level	Source
Biochemical Oxygen Demand (5 day).....	30 mg/L.....	4
Chemical Oxygen Demand.....	120 mg/L.....	5
Total Suspended Solids.....	100 mg/L.....	7
Oil and Grease.....	15 mg/L.....	8
Nitrate + Nitrite Nitrogen.....	0.68 mg/L.....	7
Total Phosphorus.....	2.0 mg/L.....	6
pH.....	6.0-9.0 s.u.....	4
Acrylonitrile (c).....	7.55 mg/L.....	2
Aluminum, Total (pH 6.5-9).....	0.75 mg/L.....	1
Ammonia.....	19 mg/L.....	1
Antimony, Total.....	0.636 mg/L.....	9
Arsenic, Total (c).....	0.16854 mg/L.....	9
Benzene.....	0.01 mg/L.....	10
Beryllium, Total (c).....	0.13 mg/L.....	2
Butylbenzyl Phthalate.....	3 mg/L.....	3
Cadmium, Total (H).....	0.0159 mg/L.....	9
Chloride.....	860 mg/L.....	1
Copper, Total (H).....	0.0636 mg/L.....	9
Cyanide, Total.....	0.0636 mg/l.....	9
Dimethyl Phthalate.....	1.0 mg/L.....	11
Ethylbenzene.....	3.1 mg/L.....	3
Fluoranthene.....	0.042 mg/L.....	3
Fluoride.....	1.8 mg/L.....	6
Iron, Total.....	1.0 mg/L.....	12
Lead, Total (H).....	0.0816 mg/L.....	1
Magnesium, Total.....	0.0636 mg/l.....	9
Manganese.....	1.0 mg/L.....	13
Mercury, Total.....	0.0024 mg/L.....	1
Nickel, Total (H).....	1.417 mg/L.....	1
PCB-1016 (c).....	0.000127 mg/L.....	9
PCB-1221 (c).....	0.10 mg/L.....	10
PCB-1232 (c).....	0.000318 mg/L.....	9
PCB-1242 (c).....	0.00020 mg/L.....	10
PCB-1248 (c).....	0.002544 mg/L.....	9
PCB-1254 (c).....	0.10 mg/L.....	10
PCB-1260 (c).....	0.000477 mg/L.....	9
Phenols, Total.....	1.0 mg/L.....	11
Pyrene (PAH,c).....	0.01 mg/L.....	10
Selenium, Total (*).....	0.2385 mg/L.....	9
Silver, Total (H).....	0.0318 mg/L.....	9
Toluene.....	10.0 mg/L.....	3
Trichloroethylene (c).....	0.0027 mg/L.....	3
Zinc, Total (H).....	0.117 mg/L.....	1

Sources:

1. ``EPA Recommended Ambient Water Quality Criteria." Acute Aquatic Life Freshwater.
2. ``EPA Recommended Ambient Water Quality Criteria." LOEL Acute Freshwater.
3. ``EPA Recommended Ambient Water Quality Criteria." Human Health Criteria for Consumption of Water and Organisms.
4. Secondary Treatment Regulations (40 CFR 133).
5. Factor of 4 times BOD5 concentration--North Carolina benchmark.
6. North Carolina storm water benchmark derived from NC Water Quality Standards.
7. National Urban Runoff Program (NURP) median concentration.
8. Median concentration of Storm Water Effluent Limitation Guideline (40 CFR Part 419).
9. Minimum Level (ML) based upon highest Method Detection Limit (MDL) times a factor of 3.18.
10. Laboratory derived Minimum Level (ML).
11. Discharge limitations and compliance data.
12. ``EPA Recommended Ambient Water Quality Criteria." Chronic Aquatic Life Freshwater.
13. Colorado--Chronic Aquatic Life Freshwater--Water Quality Criteria.

Notes:

(*) Limit established for oil and gas exploration and production facilities only.

(c) carcinogen.

(H) hardness dependent.

(PAH) Polynuclear Aromatic Hydrocarbon.

Assumptions:

Receiving water temperature -20 C.

Receiving water pH -7.8.

Receiving water hardness CaCO₃ 100 mg/L.

Receiving water salinity 20 g/kg

Acute to Chronic Ratio (ACR) -10.