REVIEW AND ANALYSIS OF EPA PROPOSAL TO REQUIRE ANALYTICAL MONITORING OF TOTAL SUSPENDED SOLIDS AS PART OF MULTI-SECTOR GENERAL PERMIT

TECHNICAL MEMORANDUM

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The Office of Advocacy, an independent office within the U.S. Small Business Administration, has primary responsibility for government-wide oversight of the Regulatory Flexibility Act of 1980 (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA). The principal goal of the RFA is to identify, and, if possible, lessen the burdens Federal regulations place on small entities. The Office of Advocacy sponsored this report under contract SBAHQ-03C0020. This report was developed under a contract with the Small Business Administration, Office of Advocacy, and contains information and analysis that was reviewed and edited by officials of the Office of Advocacy. However, the final conclusions of the report do not necessarily reflect the views of the Office of Advocacy.

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A. BACKGROUND[1]

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of any pollutant to waters of the United States from any point source is unlawful, except if the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Congress added section 402(p) to the CWA in 1987 to establish a comprehensive framework for addressing stormwater discharges under the NPDES program. Section 402(p)(4) of the CWA clarifies the requirements for the U.S. Environmental Protection Agency (EPA) to issue NPDES permits for stormwater discharges associated with industrial activity. EPA subsequently published regulations which defined the term "stormwater discharge associated with industrial activity" (55 FR 47990, November 16, 1990; as amended at 56 FR 12100, Mar. 21, 1991; 56 FR 56554, Nov. 5, 1991; 57 FR 11412, Apr. 2, 1992; 57 FR 60447, Dec. 18, 1992).

The regulations presented three permit application options for stormwater discharges associated with industrial activity. The first option was to submit an individual application. The second option was to become a participant in a group application. The third option was coverage under a general permit. Group applications were submitted in two parts during 1991-1992. In part 1 of the application, all participants were identified and information on each facility was included, such as industrial activities, significant materials exposed to stormwater, and material management activities. For part 1 of the application, groups also identified sampling subgroups to submit sampling data for part 2. Over 1,200 groups with over 60,000 member facilities submitted part 1 applications. Upon review of the part 1 application, if the EPA determined that the application was an appropriate grouping of facilities with complete information provided on each participant, and a suitable sampling subgroup was proposed, the application was approved.

Part 2 of the application consisted of sampling data from each member of the sampling subgroup identified in part 1 of the application. In drafting the first multi-sector general permit (MSGP), EPA reviewed both parts of the applications and formulated permit language that was promulgated in 1995 (60 FR 50804, 1995). In this 1995 MSGP, authorized NPDES States were provided the data from the group applications. Authorized NPDES States were allowed to propose and finalize either individual permits for each facility included in the application located in the State, or general permits, if the State had general permit authority.

To facilitate the process of developing permit conditions for each of the 1,200 group applications submitted, in 1995 EPA classified groups into 29 industrial sectors where the nature of industrial activity, type of materials handled and material management practices employed were sufficiently similar for the purposes of developing permit conditions. Each of the industrial sectors were represented by one or more groups which participated in the group application

[1] This section has been adapted from a discussion presented in the 1995 MSGP (60 FR 50804, 1995).

process. The EPA also further divided some of the 29 sectors into subsectors in order to establish more specific and appropriate permit conditions, including best management practices and monitoring requirements.

All facilities covered by the MSGP must prepare and implement a stormwater pollution prevention plan (SWPPP). The stormwater permit addresses pollution prevention plan requirements for a number of categories of industries. As noted in the 1995 MSGP:

> *The stormwater pollution prevention plan requirements in the general permit are intended to facilitate a process whereby the operator of the industrial facility thoroughly evaluates potential pollution sources at the site and selects and implements appropriate measures designed to prevent or control the discharge of pollutants in stormwater runoff. The process involves the following four steps: (1) Formation of a team of qualified plant personnel who will be responsible for preparing the plan and assisting the plant manager in its implementation; (2) assessment of potential stormwater pollution sources; (3) selection and implementation of appropriate management practices and controls; and (4) periodic evaluation of the effectiveness of the plan to prevent stormwater contamination and comply with the terms and conditions of this permit* [pp. 50814-5].

The MSGP authorizes stormwater discharges associated with industrial activity for most areas of the United States that are not authorized to administer the NPDES permit program. The initial MSGP was issued on September 29, 1995 (60 FR 50804), and subsequently amended numerous times. In developing the 2000 MSGP, EPA re-evaluated the industry-specific requirements of the MSGP. In a few instances, additional requirements were included based on new information that had been obtained since the 1995 MSGP was promulgated. These changes, which are not the subject of this memorandum, are discussed in detail in the 2000 MSGP (65 FR 64746). The EPA also re-evaluated the stormwater discharge monitoring requirements of the MSGP. However, after review of the comments received from the public, and the monitoring data received during the term of the 1995 MSGP, EPA decided to retain the same monitoring requirements for the reissued MSGP as those incorporated into the 1995 MSGP.

On December 1, 2005, EPA proposed the 2006 MSGP ("Proposed National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Industrial Activities," 70 FR 72116, 2005). The proposed 2006 MSGP contains a number of revisions to the industrial stormwater requirements of the 2000 MSGP. One of the most substantive changes was that benchmark monitoring requirements for total suspended solids (TSS) were added for each sector where they were not otherwise included in the 2000 MSGP. As identified in EPA's 2006 MSGP fact sheet, the following sectors did not have benchmark monitoring requirements under the 2000 MSGP:

I. Oil and Gas Extraction and Refining
P. Land Transportation and Warehousing
R. Ship and Boat Building and Repairing Yards
T. Treatment Works
V. Textile Mills, Apparel, and Other Fabric Product Manufacturing
W. Furniture and Fixtures
X. Printing and Publishing
Y. Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries[2]
Z. Leather and Leather Products
AB. Transportation Equipment, Industrial, or Commercial Machinery
AC. Electronic & Electrical Equipment & Components, Photographic & Optical Goods
AD. Non-classified Facilities.[3]

The EPA explains their rationale for extending TSS monitoring to these sectors as follows: "TSS is a reasonable screen or indicator of stormwater discharge quality since many stormwater pollutants are themselves suspended solids, or enter receiving waters attached to solids. TSS is a relatively inexpensive parameter to measure, and TSS data are not difficult to interpret for the simple purpose of providing operators an indication of whether or not their BMPs need additional attention" (EPA, 2005a at page 33).

B. PURPOSE AND ORGANIZATION

The 2000 MSGP required that all MSGP sectors conduct quarterly visual examinations of stormwater discharges for the purpose of identifying potential concerns with SWPPP effectiveness. Given that EPA evaluations did not previously identify a need for any analytic monitoring for twelve MSGP sectors, and the higher costs associated with such monitoring,[4] some commenters oppose the proposed 2006 MSGP's plan to extend TSS monitoring requirements to these sectors.[5]

[2] It should be noted that the 2000 MSGP lists a requirement for benchmark monitoring of lead for certain subsectors within sector Y (65 FR 64746, 2000 at page 64849).

[3] Although it is not the focus of this memorandum, EPA is also proposing benchmarks for additional pollutants for some of the twelve sectors. For example, ammonia, lead, nickel, zinc and nitrate-nitrite nitrogen monitoring requirements are proposed for Sector I, Oil and Gas Extraction and Refining.

[4] EPA estimates the average annual total monitoring burden to be $490, with a high-end annual cost estimate of $1,758. The cost of visual examination accounts for less than 20 percent of average costs, and approximately 5 percent of high-end costs (EPA, 2005b).

[5] On a related note, EPA is also proposing to extend TSS monitoring requirements to additional industrial sub-sectors for which analytic monitoring of other pollutants is already required (e.g., Wood Preserving Facilities subsector within Sector A, Timber Products Facilities). Because of the much greater incremental cost of requiring TSS monitoring where no current analytic monitoring requirements apply, this memorandum focuses on the merits of expanding the TSS requirement to sectors for which there are no current analytic monitoring requirements.

The Small Business Administration (SBA) Office of Advocacy is concerned that EPA's plan may have negative effects on a large number of small businesses. The twelve MSGP sectors to which EPA proposes to extend TSS monitoring requirements are predominantly small business dominated (e.g., 2004 SBA data indicate that 95 percent of Leather and Leather Products sector firms are small businesses, while 97 percent of Ship and Boat Building and Repairing Yards sector firms are small businesses).

The purpose of this memorandum is to evaluate the merits of EPA's plan to extend TSS monitoring to sectors with no current analytical monitoring requirements, and the appropriate benchmark for those subject to TSS monitoring.[6] Pechan performed this evaluation by reviewing TSS-related information provided in comments submitted to the public docket for the draft 2006 MSGP and monitoring data supplied in part 2 of the group application process (Whitescarver, 2006). The following describes Pechan's evaluation of this information, and Pechan's recommendations related to TSS monitoring under the MSGP.

C. SUMMARY OF TSS MONITORING ISSUES

Comments supplied to the public docket for the proposed 2006 MSGP (OW-2005-0007) described the following concerns with EPA's approach to TSS monitoring in the MSGP:

- One of EPA's primary rationales for TSS benchmark monitoring (that TSS *could be* a conduit for transport of industrial chemicals/metals) is unjustified;
- The extension of TSS benchmark requirements to sectors previously determined as not associated with TSS concerns appears illogical;
- A disconnect exists between the sampling protocol used to collect the data used in setting the TSS benchmark and the protocol used in determining compliance with benchmark;
- The approach of applying a TSS benchmark derived from urban runoff data to industrial sectors, especially sectors with large open area facilities, appears to be unsound; and
- EPA's TSS monitoring cost estimates greatly understate the true costs of these requirements.

In addition to these concerns, the proposed 2006 MSGP does not evaluate the expansion of TSS monitoring requirements with respect to the two criteria that EPA previously used for determining monitoring applicability: (1) do TSS sampling data for these sectors indicate

[6] An earlier Pechan memorandum critiqued other aspects of the MSGP proposal (Pechan, 2006).

median concentrations that are higher than the benchmark level; and (2) whether TSS is directly related to the industrial activities of these twelve sectors?[7]

The following subsections describe each of these concerns and provide Pechan's analysis of the validity of each criticism.

1. TSS Benchmark as Means for Identifying Industrial Chemical/Metal Concerns

The Association of American Railroads (AAR) submitted comments to the 2006 MSGP public docket on EPA's proposed TSS monitoring requirement revisions (AAR, 2006) for the transportation sector.[8] Among the concerns that they highlighted, AAR noted that although EPA asserts that TSS *could be* a conduit for transport of industrial metals or chemicals, the MSGP already incorporates benchmarks for individual metals/chemicals. There are two related questions that are implicit in AAR's comments on this issue:

(1) Is the expense of extending TSS monitoring outweighed by the benefit it provides in identifying potential SWPPP deficiencies that could lead to water quality concerns in receiving waters?

(2) What evidence is there that elevated TSS levels are indicative of elevated levels of industrial metals/chemicals?

With respect to the first question, EPA asserts in the 2006 MSGP fact sheet that "TSS data are not difficult to interpret for the simple purpose of providing operators an indication of whether or not their BMPs need additional attention" (EPA, 2005a at page 33). It is important to emphasize that all MSGP sectors are currently required to conduct periodic visual monitoring of stormwater runoff, and to have SWPPPs that "include stormwater management practices that divert, infiltrate, reuse, or otherwise manage stormwater runoff to reduce contact with pollutants" (Management of Runoff" – part 2.1.5.8). The EPA's proposal implicitly assumes that the current MSGP approach is somehow deficient in identifying water quality problems, and that these problems would be addressed through TSS monitoring. The 2006 MSGP does not provide any evidence of TSS-related SWPPP deficiencies related to the 12 industrial sectors (e.g., Land Transportation and Warehousing sector) for which EPA now proposes to extend TSS monitoring requirements.

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[7] As noted in the 1995 MSGP, "if EPA could not identify a source of a potential pollutant which was associated with the sector/subsector's industrial activity, the permit does not require monitoring for the pollutant in that sector/subsector" (60 FR 50804, 1995 at page 50827).

[8] The AAR is a trade association whose members represent passenger railroads and freight railroads that account for 95 percent total freight revenue of all U.S. railroads, and are potentially subject to the MSGP's requirements for Sector P. Land Transportation and Warehousing.

Furthermore, as part of the 1995 and 2000 MSGPs, EPA analyzed stormwater sampling data to determine the pollutants of concern for each industrial sector. This analysis compared the median of the part 2 group application pollutant concentrations with EPA's identified benchmarks. With respect to TSS, Pechan's review of the 1995 MSGP indicates that EPA always identified a sector for TSS monitoring when the median value of the composite samples for that sector was above the 100 mg/L benchmark, leaving many sectors/subsectors with no TSS monitoring requirement.[9] In these evaluations, EPA determined that TSS was not a pollutant of concern for the 12 major industrial sectors for which EPA is now proposing to extend these analytical monitoring requirements.

Without further data indicating higher TSS levels for these sectors, or actual evidence that TSS grab sampling provides additional information beyond that provided via the combination of visual monitoring and analytic monitoring for individual toxic chemicals/metals, EPA has not provided a satisfactory rationale for extending TSS sampling to these sectors. If visual monitoring and other MSGP requirements were deemed sufficient to protect receiving water quality in previous MSGPs, than EPA should provide evidence to the contrary if they want to justify the added expense of benchmark monitoring. Merely stating that TSS *could be* a conduit for transport of industrial metals or chemicals is not sufficient justification and ignores EPA's previously identified criteria for determining benchmark applicability.[10]

Concerning the second question, Pechan compiled data from the part 2 group application process for the purpose of testing whether elevated TSS levels correlate with elevated toxic chemical/metal levels (and vice versa). Pechan conducted regression analysis on these data for 4 of the 14 major industrial sectors for which EPA is proposing to newly require TSS monitoring. The purpose of this analysis was to determine whether there is a statistical correlation between TSS levels and levels of individual toxic chemicals/metals, and if so, to identify the extent to which observed TSS levels explain the variance in observed levels for each toxic chemical/metal within a given sector.

Table 1 presents a summary of the results of the regression analyses.[11] The shaded pollutants indicate that a statistical correlation was identified between TSS and the listed pollutant at a 95 percent level of confidence. Of the more than fifty individual regression analyses conducted, only one indicated that TSS levels explained more than 50 percent of the variance in one of the

[9] It should be noted that these MSGPs did not provide sufficient information to independently evaluate the application of EPA's other criterion for determining TSS benchmark monitoring applicability -- whether each pollutant is directly related to the industrial activities of a given industrial sector.

[10] The AAR also asserts that EPA's pollutant conduit rationale lacks particular merit for sectors where industrial chemical contact with stormwater is generally absent (e.g., Transportation Sector).

[11] These analyses were only performed for sectors/pollutants for which there were at least 10 concurrent TSS and toxic chemical/metal grab samples.

measured toxic chemicals/metals (see r2 value of 0.79 for iron in the Transportation Equipment, Industrial, or Commercial Machinery Manufacturers sector).[12]

As described earlier, however, EPA concluded in the 1995 and 2000 MSGP that the part 2 data was not indicative of the need for benchmark monitoring for any of the sectors/pollutants in Table 1. Furthermore, it is important to note that the single pollutant for which TSS levels in grab sampling may be able to explain more than 50 percent of observed pollutant concentration levels (iron), is naturally occurring and ubiquitous in soil. As described later in this memorandum, the value of benchmark monitoring of iron and other naturally occurring elements is of limited usefulness in identifying industrial material runoff concerns if there is no procedure to adjust for background pollutant concentrations (i.e., concentrations from site runoff that occurs in the absence of on-site industrial activity).

Table 1. Summary of TSS Correlation Analysis Results

Pollutant	# of Samples	r2	t-Statistic	Significance
Oil and Gas Extraction Facilities (09)				
BOD5	41	0.02	-0.910	0.368
COD	41	0.01	-0.663	0.511
Nitrate Plus Nitrite Nitrogen	41	0.01	0.718	0.477
Total Kjeldahl Nitrogen	41	0.01	-0.663	0.511
Oil and Grease	41	0.01	-0.627	0.534
Total Phosphorus	41	0.00	0.416	0.680
Ship and Boat Building or Repairing Yards (19)				
BOD5	52	0.02	1.092	0.280
COD	52	0.03	-1.144	0.258
Nitrate Plus Nitrite Nitrogen	52	0.00	-0.435	0.665
Total Kjeldahl Nitrogen	52	0.02	0.934	0.355
Oil and Grease	28	0.10	1.667	0.108
Total Phosphorus	52	0.00	-0.440	0.662
Wood and Metal Furniture and Fixture Manufacturing Facilities (25)				
BOD5	25	0.03	-0.903	0.376
COD	25	0.05	1.141	0.266
Nitrate Plus Nitrite Nitrogen	25	0.03	0.808	0.428
Total Kjeldahl Nitrogen	25	0.03	-0.903	0.376
Oil and Grease	25	0.02	0.671	0.509
Total Phosphorus	25	0.03	-0.903	0.376

[12] Note that the analysis was performed using grab sample data because the MSGP requires grab sampling; it is possible that better correlations would have been observed from the composite sample data.

Pollutant	# of Samples	r2	t-Statistic	Significance
Transportation Equipment, Industrial, or Commercial Machinery Manufacturers (30)				
BOD5	200	0.13	5.484	0.000
COD	200	0.03	2.275	0.024
Nitrate Plus Nitrite Nitrogen	200	0.00	-0.396	0.692
Total Kjeldahl Nitrogen	200	0.03	2.638	0.009
Oil and Grease	200	0.03	2.464	0.015
Total Phosphorus	200	0.12	5.212	0.000
1,1,1-Trichloroethane	19	0.30	2.675	0.016
1,1,2-Trichloroethane	14	0.28	2.171	0.051
2,4-Dinitrophenol	11	0.02	-0.452	0.662
2-Chloroethylvinyl Ether	13	0.28	2.057	0.064
Aluminum, Total	28	0.01	-0.430	0.671
Cadmium, Total	52	0.01	-0.479	0.634
Carbon Tetrachloride	14	0.28	2.171	0.051
Chloroethane	14	0.28	2.171	0.051
Chromium, Total	82	0.00	-0.410	0.683
Copper, Total	71	0.00	-0.169	0.866
Cyanide, Total	43	0.01	-0.495	0.623
Ethylbenzene	10	0.07	0.800	0.447
Iron, Total	**47**	**0.79**	**12.920**	**0.000**
Lead, Total	68	0.00	-0.470	0.640
Methylene Chloride	15	0.29	2.280	0.040
Nickel, Total	52	0.22	3.722	0.001
O-Xylene	12	0.03	0.532	0.606
Phenols, Total	28	0.00	-0.341	0.736
P-Xylene	12	0.03	0.532	0.606
Silver, Total	35	0.00	-0.382	0.705
Tin, Total	10	0.11	0.984	0.354
Toluene	32	0.31	3.687	0.001
Trichloroethylene	15	0.29	2.280	0.040
Trichlorofluoromethane	13	0.02	-0.450	0.661
Vinyl Chloride	15	0.29	2.280	0.040
Xylene	10	0.11	1.000	0.347
Zinc, Total	81	0.00	-0.158	0.875
PH	24	0.42	3.977	0.001

2. EPA Procedure for Setting the TSS Benchmark

To determine when analytical monitoring would be required under the MSGP, EPA first established "benchmark" pollutant concentrations. The EPA has described these benchmarks as the pollutant concentrations that, when exceeded, represent a "level of concern," where level of concern is defined as the "...concentration at which a stormwater discharge could potentially impair, or contribute to impairing water quality or affect human health from ingestion of water or

fish" (65 FR 64746, 2000 MSGP at page 64766). Although EPA requires that monitoring results be compared with these benchmarks, such monitoring is not to be used to identify definitively a water quality concern:

> *An exceedance of a benchmark value does not, in and of itself, constitute a violation of the permit. While exceedance of a benchmark value does not automatically indicate that violation of a water quality standard has occurred, it does signal that modifications to the SWPPP may be necessary.* (65 FR 64767, at pg. 64816)
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> *These values are merely levels which EPA has used to determine if a stormwater discharge from any given facility merits further monitoring to insure that the facility has been successful in implementing a stormwater pollution prevention plan. As such these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility.* (65 FR 64746, at page 67467)

The existing benchmark concentrations are often based on water quality standards, although EPA also stated that they sought to identify values that can realistically be measured and achieved by industrial facilities. The primary source of the MSGP benchmarks was EPA's National Water Quality Criteria, published in 1986 (often referred to as the "Gold Book"). For the majority of the benchmarks, EPA chose to use the acute aquatic life, freshwater ambient water quality criteria. These criteria represent maximum pollutant concentration values, which when exceeded, could cause acute effects on aquatic life in a short time period. Where acute aquatic criteria values were not available, EPA used the lowest observed effect level (LOEL) acute freshwater value. The LOEL values represent the lowest concentration of a pollutant that results in an adverse effect over a short period of time. These two acute freshwater values were selected as benchmark concentrations if the value was not below the approved method detection limit as listed in 40 CFR Part 136 and if the value was not substantially above the concentration that EPA believes a facility can attain through SWPPP implementation.

Because acute freshwater criteria did not exist for a number of parameters on which EPA received group permit application data, EPA also selected benchmark values from other sources, including selecting the median concentration from the National Urban Runoff Program as the benchmark for TSS, using the rationale that water quality concerns may result from exceeding the median observed level.

From a review of MSGP background materials, Pechan has determined that the TSS benchmark reflects the median of composite samples of combined urban runoff results from the 1983 National Urban Runoff Program (NURP) study. There are at least three problems with this approach that result in EPA's TSS benchmark level considerably below that which could reasonably be achievable by many industrial sector facilities:

1. The MSGP specifies grab sampling during the *first 30 minutes* of runoff, while the NURP study relied on composite sampling designed to represent the event mean concentration (EMC);

2. The TSS 100 mg/L benchmark represents a *median* value, while the MSGP determines benchmark exceedances based on the *mean* of quarterly measurements; and

3. Although EPA's rationale was not clearly identified, it appears that EPA believes that runoff from industrial sector facilities should have TSS concentrations that are at least as low as urban runoff concentrations as measured in the NURP study. This approach would not take into account the fact that some industrial sectors are associated with facilities that have much larger open/unimproved areas than typical urban areas.

Of the three problems above, the merits of the first two are more easily evaluated. As noted in an earlier memorandum prepared by Pechan: "for most pollutants, the first 30 minutes of discharge will reflect 'worst case' concentration levels due to a 'first flush' phenomenon. As such, analytical monitoring is not representative of the total pollutant load or average pollutant concentration from the sampled storm event" (Pechan, 2006). Furthermore, a study by University of California at Los Angeles researchers analyzed the effect that sampling time had on concentrations of TSS and zinc from highway site discharges (Stenstrom and Lee, 2005). This study concluded that grab sample concentrations taken during the beginning of a storm were higher than the event mean concentration (EMC) and that collecting samples in the early part of the storm overestimates the EMC and total pollutant load. Similarly, EPA guidance explicitly acknowledges that the MSGP approach to sampling will generally result in higher pollutant level estimates than the composite sampling approach used in the NURP study:

> *The grab samples taken during the first 30 minutes of a storm event will generally contain higher concentrations of poIlutants, since they pick up pollutants that have accumulated on drainage surfaces since the last storm event. Composite samples characterize the average quality of the entire stormwater discharge. Flow-weighted composite samples provide for the most accurate determination of mass load.* (EPA, 1992).

As further evidence of the disconnect in sampling protocols between the NURP study and the MSGP, AAR notes that: (1) the average storm duration for the NURP study composite sampling was greater than six hours; and (2) the NURP study data indicate a large difference between median and mean TSS levels. In addition, Pechan estimated an average industrial sector grab sample TSS level that is nearly five times the level of EPA's benchmark. Further discussion of this analysis is provided in Section D of this memorandum.

3. TSS Monitoring Cost Estimates

In the proposed 2006 MSGP, EPA asserts that the cost of TSS monitoring is less than $126 per facility (EPA, 2005a at page 65). Industry asserts that EPA has grossly underestimated the number of samples that facilities would have to collect. AAR notes that some regulated facilities have more than 50 outfalls that would require at least quarterly sampling in the first year of permit coverage (AAR, 2006 at page 6). By under-representing the number of outfalls, EPA would be understating costs both in terms of required analytic sampling, and also in terms of the time required to review SWPPPs and the costs of implementing potential additional mitigation measures.

D. RECOMMENDATIONS FOR 2006 MSGP TSS MONITORING

Without evidence supporting the conclusion that the TSS analytical monitoring requirement provides additional information beyond that supplied via the combination of visual monitoring and benchmark monitoring for individual toxic chemicals/metals, EPA should eliminate the TSS monitoring requirement for all MSGP sectors. In lieu of this action, EPA should at least eliminate the proposed extension of this requirement beyond the current set of industrial sectors. As noted earlier, EPA's proposal to extend TSS monitoring to all MSGP sectors is a particularly burdensome requirement for sectors that have no current analytical monitoring requirements. Until EPA can determine that the current regulatory approach is deficient relative to TSS monitoring, the MSGP should not extend TSS monitoring to every industrial sector, especially when previous analyses have not identified pollutant levels of concern for these sectors. As noted by industry commenters:

> *In fact, many regulated facilities believe that they can learn more from visual observations than from analytical monitoring. One reason is that the results are immediate, and any noticeable problem can be traced back to its source at once. Analytical results may take weeks to receive, and the facility operator may not be able to identify what occurred the day of or leading up to sample collection that caused the results (good or bad)* (Longsworth, 2006).

In addition, if practicable, EPA should consider revising the sampling protocol to require that visual examinations occur during representative storm events, and from either multiple periods during each storm event, or for a single time period that is determined to be more representative of mean pollutant concentrations than the first 30 minutes of discharge.

Furthermore, if EPA decides to retain a TSS monitoring requirement, it should set the TSS benchmark at a more appropriate level. A proper determination of the appropriate TSS level would require a much more comprehensive set of information than EPA currently possesses. This information would include, but not be limited to, background pollutant discharge concentrations in the absence of industrial activities. A full accounting of the information that EPA should plan to develop in setting appropriate and achievable pollutant benchmarks is described in a March 2006 memorandum Pechan prepared for Advocacy (Pechan, 2006).

In the meantime, if EPA were to determine that eliminating the TSS requirement would somehow result in deleterious effects on receiving water quality, EPA should set the TSS benchmark no lower than 530 mg/L given EPA's current MSGP protocol of averaging four quarterly grab samples. This value represents the approximate mean TSS concentration Pechan

calculated from the part 2 group application grab sample data.[13] Table 2 displays additional summary TSS grab sample concentration statistics. Although the 530 mg/L estimate does not properly account for all factors that EPA should consider in setting an analytical benchmark, it does represent an average (rather than median) value, that is computed from grab (as opposed to composite) sample data, which is specific to industrial sector (rather than general urban) land use. Based on this higher interim TSS benchmark, EPA should also reassess the specific industrial sectors for which TSS sampling would be required.

Table 2. Summary of Part 2 Group Application TSS Grab Sample Data

Statistic	Mean	25th Percentile Value	Median	75th Percentile Value
Total Suspended Solids (TSS)*	532	19	79	321

* Values calculated after revising records that reported TSS levels of '1E+16' mg/L to '1E-16' mg/L

E. REFERENCES

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[13] A mean value of 532 mg/L was calculated after Pechan revised part 2 group application records that reported TSS levels of '1E+16' mg/L to '1E-16' mg/L because comments for these records indicate that the TSS concentration was either not detectable or below the detection limit.

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