

ATTACHMENT 1



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

September 29, 2004

MEMORANDUM

SUBJECT: Request for the IG's Assistance to Improve and Expand OECA's Use of Outcome-Based Performance Measures

FROM: Phyllis P. Harris /s/
Principal Deputy Assistant Administrator

TO: Jeffrey K. Harris
Director, Cross-Media Issues
Office of Program Evaluation

The purpose of this memorandum is to request specific assistance from the Inspector General's (IG) Office regarding two aspects of our efforts to identify, implement, and use outcome-based performance measures. As you begin your evaluation entitled "Performance Measurement and Reporting for Enforcement and Compliance Assurance," (Project Number 2004-000325), I am asking that these two areas – enhancing pollution reduction measures by characterizing hazard and exposure, and applying statistically-valid compliance rate methodologies to larger segments of the regulated universe – become principal areas of focus in your evaluation. The IG evaluation can provide great benefit to OECA's performance measurement efforts if it can help us address challenges associated with these specific areas.

In December of 1997 OECA released the National Performance Measures Strategy (NPMS), which included an enhanced set of performance measures for the program, with a greater focus on outcome measurement. The Strategy identified pounds of pollution reduced as the key outcome measure for the program. OECA developed guidance for calculating pollutant reductions resulting from enforcement activities, and has been using pounds of pollution reduced as a program measure since 1999. Through the PART reviews of the Civil Enforcement Program the Office of Management and Budget (OMB) has expressed their interest in being able to measure the human health impacts of the program. In particular, OMB has urged OECA to extend the current pollutant reduction measure by adding components of hazard and exposure. Though OECA has begun looking at how the pollutant reduction measure might be extended, there are a number of technical, policy, and coordination issues that must be resolved before this enhancement can be implemented.

The National Performance Measures Strategy also identified the need to develop statistically-valid compliance rates. OECA recognized that compliance rates based solely on targeted inspections were biased, and likely not representative of the state of overall compliance in a sector. Representative compliance rates would enhance the Program's ability to analyze the compliance behavior of the regulated community, which would enable us to more efficiently allocate resources, identify emerging compliance issues, and assess the effectiveness of our compliance promotion activities. OMB has also expressed an interest in OECA expanding the use of SVNCRs through their PART recommendations for the Civil Enforcement Program; and in the FY2004 budget passback where they asked OECA to redirect \$1 million to expand the use of statistically-valid noncompliance rates. OECA was unable to meet OMB's request because of other budget shortfalls; and there are a number of other hurdles (e.g., resource, policy, methodological) that must be overcome before SVNCRs can be more widely used.

Given both the internal and external interest in enhancing the pollutant reduction measure and expanding the use of SVNCRs, I am asking the IG's office to use its resources and expertise to provide specific recommendations about how to pursue these enhancements to our performance measures. In particular, we would welcome a review of the work we have done to date, and would greatly benefit from thoughtful recommendations from you for implementing the changes and enhancements described above. We believe that enhancing the pollutant reduction measure will move it farther along the Agency's continuum of outcome measures, making it a more meaningful performance indicator; likewise, calculation of SVNCRs for large and significant segments of the regulated universe can also be a very valuable indicator of performance.

ADDING HAZARD & EXPOSURE INDICATORS TO POLLUTANT REDUCTIONS

Included in the Civil Enforcement Program's FY 2006 PART submission to OMB was a Measure Implementation Plan (MIP) to enhance the current pollutant reduction measure. As stated in the MIP, "the purpose of the plan is to improve the current pollutant reduction measure by adding a characterization of hazard and exposure to the pollutants reduced, treated, or eliminated as a result of concluded enforcement actions." The plan is divided into two components, the first is to look at what can be done in the short-term to identify the population surrounding a facility where pollutant reductions have been achieved, i.e., the potential beneficiaries of pollutant reductions. The other activity was to look at ways to characterize the pollutants that are normally reduced with respect to the hazards they pose to human health. The second component of the MIP focuses on engaging an outside, third-party to provide OECA with advice on how to augment the current pollutant reduction measure with respect to hazard and exposure, for possible implementation in FY 2006.

Identifying the potential beneficiaries of pollutant reductions is difficult, and varies by environmental media and pollutant type. It is easiest to estimate the population of potential beneficiaries for air pollution reductions by identifying the population

surrounding the facility where the reduction was achieved. However, this raises the questions about area around the facility that is appropriate to consider, is it 5 miles, 10 miles, 100 miles? This question touches both on technical issues (e.g., transport and fate of pollutants) and policy considerations. Identifying populations for reductions to water and on land are much more difficult. For water reductions one could consider the population around a water body, but how many stream miles to include, and what distance from the stream to consider raises technical and policy questions as well. For reductions under waste management statutes such as RCRA and CERCLA, the risk of human exposure is potential as opposed to direct, and identifying a benefitting population is not obvious.

OECA has sorted the pollutants typically reduced through compliance assurance activities, and gathered hazard information on these from EPA sources, OSHA, and a number of outside sources. Pollutants reduced can be broken into categories such as known carcinogens, acid rain producing chemicals, acute toxins, green house gases, etc. This characterization is complicated because a number of pollutants fit in multiple categories, and there is a wide variation between the potential impacts that individual pollutants within a category may have.

Under RCRA and CERCLA, chemicals are often considered hazardous for reasons other than human toxicity (e.g., ignitability and volatility), and in many cases there is a mixture of known and unknown substances that have been contained or remediated for which a clear hazard characterization is not possible. Further complicating this characterization is there are many pollutants that are of primary concern because of their ecological impacts (e.g., Biochemical Oxygen Demand, Total Suspended Solids).

OECA's work to date in this area has raised more questions than it has answered. I have listed below some of the questions that we would find it most helpful for the IG to address in their review of OECA's performance measures.

Questions with Regard to Characterizing Pollutant Reductions with Respect to Hazard and Exposure

- < How does one identify the population of potential beneficiaries across the media?
Taking into consideration transport, and how broadly, in a geographic sense, one should define this population.
- < How should pollutants be characterized with respect to human health impacts?
Including what time frame should be considered when characterizing impacts.
- < How should OECA deal with pollutants that have multiple impacts?
- < What are options to capture the ecological benefits of pollutant reductions?
- < Is it reasonable to try and calculate these impacts on an annual basis, or should a longer timefram be considered (e.g., every three years)?

- < Should OECA address these questions alone, or should there be a collective Agency effort? OMB has asked a number of Agency offices to make similar enhancements to their measures and there is the danger that competing methodologies will be developed.
- < Are there countries, federal agencies, states, or other entities that have addressed the issue of characterizing the human health and ecological benefits of pollutant reductions that we could learn from?
- < What are the management benefits of characterizing pollutant reductions with respect to hazard and exposure? Is it worth the cost given that this will likely divert resources from other activities?
- < Are there third parties you would recommend that OECA try to engage to help address these issues?

STATISTICALLY-VALID NONCOMPLIANCE RATES

Over the past several years the Office of Enforcement and Compliance Assurance (OECA) has piloted several methods for calculating statistically-valid noncompliance rates (SVNCR) for sectors and specific segments of regulated populations. We are now at a point where we would like to expand this work to make it a more integral part of our planning and program assessment activities. The remainder of the memo provides more detail on our efforts so far in this area, challenges and obstacles we see to expanding, potential options for addressing these challenges and obstacles, and the questions we would find it most helpful for the IG to address.

Background

In FY 1999 OECA worked with a PhD statistician from George Mason University to develop methodologies for calculating representative (statistically-valid) noncompliance rates. A number of options were considered, including: collection of self-reported survey data, auditing, and on-site inspections. In the end, methodologies for calculating statistically-valid noncompliance rates were developed for data derived from on-site inspections, and self-reported data such as Clean Water Act Discharge Monitoring Reports (DMRs). OECA began piloting these methodologies in FY 2000; the table below shows the sectors covered and methods used from FY 2000 through FY 2004.

Year	Sector and Noncompliance Rate	Method
FY 2000, 2001, 2002	Petroleum Refining: Ammonia, zinc and lead violations with more than 20% over NPDES limit	self-reported DMR data
FY 2000, 2001, 2002	Iron and Steel: Ammonia, zinc and lead violations with more than 20% over NPDES limit	self-reported DMR data
FY 2000, 2001, 2002	Municipalities: BOD and TSS violations with more than 40% over NPDES limit	self-reported DMR data
FY 2001	Organic Chemical Manufacturing: RCRA Small Quantity Generator Compliance	statistically-valid inspections
FY 2001	Iron and Steel and Metal Services: DMR Accuracy Audit	statistically-valid inspections
FY 2002	Ethylene Oxide Manufacturers: MACT Compliance	statistically-valid inspections
FY 2002	Combined Sewer Municipalities: CSO Nine Minimum Control Policy Compliance (baseline)	statistically-valid inspections
FY 2004	Combined Sewer Municipalities: CSO Nine Minimum Control Policy Compliance (reevaluation)	statistically-valid inspections
FY 2004	RCRA Foundries: Compliance with RCRA Regulations	statistically-valid inspections

Though a number of noncompliance rates have been calculated using self-reported DMR data, the majority of work to date has gone into piloting the process for calculating noncompliance rates based on a random set of compliance inspections. A number of factors were used to select populations for statistical non-compliance rate analysis, including: the size of the population, significant environment risks presented by the population, and the ease with which non-compliance could be determined. Following the selection of a sector, the regulatory requirements against which compliance should be measured are identified and instruments to collect the inspection results are developed. In consultation with a PhD statistician, a statistical sample size is identified for each sector, and a prescribed number of random and targeted facilities are identified to be inspected, by region. Written guidance is provided to the regions and the overall effort coordinated as part of the annual work planning process. OECA has been able to provide only limited funds to offset the cost of sampling and inspections.

Examples of SVNCR Results

Rates for Self-Reported Violations

Sector	Petroleum Refining	Iron and Steel	Iron and Steel	Municipal	Municipal
Parameter	Ammonia	Zinc	Lead	BOD	TSS
FY '02 Noncompliance Rate	4.85%	15.52%	1.79%	10.97%	14.43%
FY'01 Noncompliance Rate	6.60%	22.22%	5.0%	12.98%	15.79%
FY '00 Noncompliance Rate	9.35%	13.04%	7.94%	12.2%	15.53%

Noncompliance is defined as >20% over NPDES limit for toxic pollutants and > 40% for BOD and TSS.

Inspection-based rates

Sector	Regulation	Noncompliance Rate ¹
Organic Chemical Manufacturing	RCRA Small Quantity Generator Regulations	34.3% (+/- 8.1%)
Iron and Steel	DMR Data Accuracy	6.25% discrepancy rate
Metal Services	DMR Data Accuracy	44.2% discrepancy rate
Ethylene Oxide Manufacturers	CAA MACT Standards: Sterilizer Vent Regulations and Aeration Room Regulations	46% (sterilizer vent) 33.3% (aeration room) 49.2% (overall)
Combined Sewer Municipalities (2002 Baseline)	CWA Nine Minimum Controls	61.4%

¹Noncompliance rate is defined as having a minimum of one violation with any given requirement examined during the inspection. Margin of error is +/- 5% unless noted.

Challenges and Obstacles to Expanding the Use of SVNCRs

- < Regulated populations are unknown: for many populations of concern there is insufficient information to do accurate sampling and develop a valid noncompliance rate. For example, we do not have information on the overall size of many populations, or complete facility or site information (e.g., unpermitted facilities).
- < National inspection-based rates are expensive: funding for inspector travel and sampling can make inspection-based rates cost prohibitive, especially for larger sample sizes.

- < Trade-offs between random versus targeted inspections: there has been resistance to random inspections because it diminishes the number of targeted inspections that can be conducted. The tradeoff is between targeted inspections, which are more likely to uncover problems and lead to environmental improvements, and random inspections which are less likely to yield the same results.
- < Lack of internal statistical resources: OECA lacks internal expertise to develop sampling plans, identify sample sizes, and analyze results. Coordinating with an outside expert slows the overall process down.
- < Need for ICR complicates working with states: OECA has provided funding to states to conduct some of the random inspections; however, the need to complete an Information Collection Request (ICR) with the Office of Management and Budget can delay the process and make coordination with states more difficult.
- < Coordination of EPA and State work planning schedules: States have planning cycles that differ among them, and from OECA's, which makes it difficult to schedule and complete all of the inspections needed for a national rate within a given year.

Options for Moving Forward

After several years of experience working on SVNCR projects we need to decide how we will use compliance rates in the future, especially in light of the methodology and resources barriers we have encountered in our efforts to date. We would appreciate any suggestions the IG can provide as we consider the following options.

- < Develop regional or state specific noncompliance rates: this reduces the time and expense of developing inspection-based rates with our methodology because it might focus on smaller (i.e., non-national) segments of the regulated universe, and allow the use of processes that are more closely aligned with regional and state work partnerships.
- < Explore options for expanding the use of self-reported data: for larger populations use self-reported survey data to gauge compliance, and use inspections to verify the quality of self-reported data.
- < Partner with EPA program offices: work with program offices to identify mutual areas of interest for developing compliance rates and share the costs of data gathering and analysis.
- < Enlist an outside consultant for advice on developing alternative methods: work with an outside consultant to explore alternative, less resource intensive, methods for developing statistically-valid noncompliance rates.

- < Evaluate efforts of states and other federal agencies to develop representative compliance rates: determine their transferability, and explore the validity of approaches being used by states to use rates not based on representative samples.

Request for the Inspector General's Assistance

Compliance rates should be a fundamental outcome measure of OECA's, and the Agency's success as a whole at achieving its mission of protecting human health and the environment. Representative compliance rates indicate not only the regulated community's level of compliance with environmental laws and regulations, but can be used to identify emerging problems, and gauge our effectiveness at addressing environmental problems and patterns of noncompliance. In order to reap these benefits we must find more efficient and cost-effective ways to develop compliance rates. For these reasons I would ask that the Inspector General's evaluation of our performance measures focus on the following areas:

- 1192292561 An evaluation of OECA's current methodologies for calculating statistically-valid noncompliance rates.
- 1192292562 Recommend and prioritize areas (e.g., identifying emerging problems, evaluating national priority work) where compliance rates could be most effectively used.
- 1192292563 Help us to identify or develop statistically-valid noncompliance rate methodologies that overcome some of the obstacles and challenges identified above.
- 1192292564 In offering recommendations in response to numbers two and three above, please give consideration to the resource constraints facing the national enforcement and compliance assurance program during FY 2005 - FY 2007.

If you require additional background information on the work that OECA has done in these areas please contact Michael Stahl, Director of the Office of Compliance (202-564-2280).

cc: Tom Skinner
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OIG STRATEGIC PLAN, FISCAL 2004 - 2008

Vision

We are **catalysts** for improving the quality of the **Environment** and **Government** through problem prevention and identification, and cooperative solutions

Mission

Add Value by promoting economy, efficiency, and effectiveness within EPA and the delivery of environmental programs. **Inspire Public Confidence** by preventing and detecting fraud, waste, and abuse in agency operations and protecting the integrity of EPA programs.

Goals

1. Contribute to Improved Human Health and Environment

2. Contribute to Improved Agency Business Practices and Accountability

3. Continuously Improve OIG Products and Services

Objectives

- ☼ Influence programmatic and systemic changes and actions that contribute to improved human health and environmental quality.
- ☼ Add to and apply knowledge that contributes to reducing or eliminating environmental and infrastructure security risks and challenges.
- ☼ Identify recommendations, best practices, risks, and opportunities to leverage results in EPA programs and among its partners.

- ☼ Influence actions that improve, operational efficiency, accountability, resolve public concerns and management challenges, and achieve monetary savings.
- ☼ Improve operational integrity and reduce risk of loss by detecting and preventing vulnerabilities to fraud, abuse, or breach of security.
- ☼ Identify recommendations, best practices, risks, weaknesses, opportunities for savings, and operational improvements.

- @ Improve timeliness, responsiveness, and value of our products and services, to our clients and stakeholders.
- @Apply technology, innovation, leadership, skill proficiency for motivated staff and highly regarded products.
- @Align organization plans, performance, measurement, processes, and followup for a cost accountable results culture.
- @Maximize use and diversity of resources.
- @Develop constructive relationships to effectively leverage resources and foster collaborative solutions.

OECA Contributions to Advance the Practice of Performance Measurement for Environmental Compliance and Enforcement Programs

Measurement Tools Website

Measurement Tools website at <http://cfpub.epa.gov/compliance/resources/publications/data/tools/> includes links to over 30 surveys, checklists, pre-tests and post-tests developed to measure outcomes. The page also includes guidance to help users develop tools to meet their own needs.

Publications

"Performance Indicators for Environmental Compliance and Enforcement Programs: The U.S. EPA Experience," in *Measuring What Matters*, Proceedings from the INECE-OECD Workshop on Environmental Compliance and Enforcement Indicators, 3-4 November, 2003, OECD Headquarters, Paris, France.

"Using Indicators to Lead Environmental Compliance and Enforcement Programs," in Zaelke, D., Kaniaru, D., and Kruzikova, E., eds., *Making Law Work: Environmental Compliance and Sustainable Development*, vol. 2, Cameron May, London, 347-360.

U.S. EPA, 2004. Guide for Calculating Environmental Benefits of Enforcement Cases: Case Conclusion Data Sheet Training Booklet. Office of Enforcement and Compliance Assurance, August, 2004.

U.S. EPA, 2002. Guide for Measuring Compliance Assistance Outcomes. Office of Enforcement and Compliance Assurance, EPA300-B-02-011, June 2002.

U.S. EPA, 2002. Using Performance Measurement Data as a Management Tool. Office of Enforcement and Compliance Assurance, Office of Compliance, June 10, 2002.

e-Dialogues

Good Practices for Identifying Environmental Compliance and Enforcement Indicators, August 19-September 8, 2004, an electronic dialogue of practitioners and experts from 21 countries to solicit examples and experiences in identifying indicators specific to compliance and enforcement. See www.inece.org/forumsindicators.html

Good Practices for Implementing and Using Environmental Compliance and Enforcement Indicators, February 15-March 5, 2005, an electronic dialogue of practitioners and experts from over 20 countries See www.inece.org/forumsindicators.html

Workshops

Performance Indicators for Government Programs. Invited presentation to Ministry of Housing, Spatial Planning and the Environment, The Hague, Netherlands, February 4, 2005.

Identifying, Implementing and Using Performance Indicators for Environmental Compliance and Enforcement Programs. Invited presentation to Asian Environmental Compliance and Enforcement Network, Manila, Philippines, August 2-3, 2005.

Performance Indicators for Environmental Compliance and Enforcement Programs. Invited presentation to Chinese national and provincial environmental officials, Beijing, China, March 28-April 1, 2005. Sponsored by WorldBank.

Performance Indicators for Environmental Compliance and Enforcement Programs. Invited presentation to government officials and academic experts in Argentina, September, 2004. Sponsored by U.S. Department of State.

Performance Indicators for Environmental Compliance and Enforcement Programs. Invited presentation to Brazilian government officials, December 2003. Sponsored by WorldBank.

GOAL 5 COMPLIANCE AND ENVIRONMENTAL STEWARDSHIP

Improve environmental performance through compliance with environmental requirements, preventing pollution, and promoting environmental stewardship. Protect human health and the environment by encouraging innovation and providing incentives for governments, businesses, and the public that promote environmental stewardship.

OBJECTIVES

Objective 5.1: Improve Compliance. By 2008, maximize compliance to protect human health and the environment through compliance assistance, compliance incentives, and enforcement by achieving a 5 percent increase in the pounds of pollution reduced, treated, or eliminated¹, and achieving a 5 percent increase in the number of regulated entities making improvements in environmental management practices.²

Sub-objective 5.1.1: Compliance Assistance. By 2008, prevent noncompliance or reduce environmental risks through EPA compliance assistance by achieving: a 5 percentage point increase in the percent of regulated entities that improve their understanding of environmental requirements; a 5 percent increase in the number of regulated entities that improve environmental management practices; and a 5 percentage point increase in the percent of regulated entities that reduce, treat, or eliminate pollution.

FY 2005 Annual Performance Goals:

¹“Pounds of pollutants reduced, treated, or eliminated” is an EPA measure of the quantity of pollutants that will no longer be released to the environment as a result of a noncomplying facility returning to its allowable limits through the successful completion of an enforcement settlement. (Facilities may further reduce pollutants by carrying out voluntary Supplemental Environmental Projects.)

²“Environmental management practices” refers to a specific set of activities EPA tracks to evaluate changes brought about through assistance, incentives, and concluded enforcement actions. Implementing or improving environmental management practices—for example, by changing industrial processes; discharges; or testing, auditing, and reporting—may assist a regulated facility in remaining in compliance with environmental requirements.

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- C Percentage of regulated entities seeking assistance from EPA-sponsored compliance assistance centers and clearinghouse reporting that they increased their understanding of environmental requirements as a result of their use of the centers or the clearinghouse. FY05 target: 75%
- C Percentage of regulated entities seeking assistance from EPA-sponsored compliance assistance centers and clearinghouse reporting that they improved environmental management practices as a result of their use of the centers or the clearinghouse. FY05 target: 60%
- C Percentage of regulated entities seeking assistance from EPA-sponsored compliance assistance centers and clearinghouse reporting that they reduced, treated, or eliminated pollution as a result of their use of the centers or the clearinghouse. FY05 target: 25%
- C Percentage of regulated entities receiving direct compliance assistance from EPA (e.g., training, on-site visits) reporting that they increased their understanding of environmental requirements as a result of EPA assistance. FY05 target: 65%
- C Percentage of regulated entities receiving direct compliance assistance from EPA (e.g., training, on-site visits) reporting that they improved environmental management practices as a result of EPA assistance. FY05 target: 50%
- C Percentage of regulated entities receiving direct assistance from EPA (e.g., training, on-site visits) reporting that they reduced, treated, or eliminated pollution, as a result of EPA assistance. FY05 target: 25%

Sub-objective 5.1.2: Compliance Incentives. By 2008, identify and correct noncompliance and reduce environmental risks through a 5 percentage point increase in the percent of facilities that use EPA incentive policies to conduct environmental audits or other actions that reduce, treat, or eliminate pollution or improve environmental management practices.

FY 2005 Annual Performance Goals:

- C Percentage of audits or other actions that result in the reduction, treatment, or elimination of pollutants; or the protection of populations or ecosystems. FY05 target: 5%
- C Percentage of audits or other actions that result in improvements in environmental management practices. FY05 target: 10%

ATTACHMENT 4

- C Pounds of pollutants reduced, treated, or eliminated, as a result of audit agreements or other actions. FY05 target: 0.25 million pounds
- C
- C Dollars invested in improving environmental management practices as a result of audit agreements or other actions. FY05 target: \$2 million

Sub-objective 5.1.3: Monitoring and Enforcement. By 2008, identify, correct, and deter noncompliance and reduce environmental risks through monitoring and enforcement by achieving: a 5 percent increase in complying actions taken during inspections; a 5 percentage point increase in the percent of enforcement actions requiring that pollutants be reduced, treated, or eliminated; and a 5 percentage point increase in the percent of enforcement actions requiring improvement of environmental management practices.

FY 2005 Annual Performance Goals:

- C Percentage of regulated entities taking complying actions as a result of compliance monitoring. FY05 target: 10%
- C Percentage of concluded enforcement cases (including SEPs) requiring that pollutants be reduced, treated, or eliminated and protection of populations or ecosystems. FY05 target: 30%
- C Percentage of concluded enforcement cases (including SEPs) requiring implementation of improved environmental management practices. FY05 target: 60%.
- C Pounds of pollution estimated to be reduced, treated, or eliminated as a result of concluded enforcement actions. FY05 target: 300 million
- C Dollars invested in improved environmental performance or improved environmental management practices as a result of concluded enforcement actions (i.e., injunctive relief and SEPs). FY05 target: 4 billion
- C Number of inspections, civil investigations, and criminal investigations conducted in areas that: pose risks to human health or the environment; display patterns of non-compliance; or include disproportionately exposed populations or ecosystems. FY05 target: 18,500