UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 30 1999

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

**MEMORANDUM**

SUBJECT: Guidance on Calculating the Economic Benefit of Noncompliance by Federal Agencies

FROM: Steven Herman
Assistant Administrator

TO: Regional Counsels, Regions I-X
Division Directors, Regions I-X

## I. INTRODUCTION

Congress and the President have directed that EPA treat Federal agencies the same as private parties with regard to enforcement. As a result, EPA now has penalty and order authority against Federal agencies under most major environmental statutes. Penalties assessed against Federal agencies further the goals of deterring non-compliance and help create a level playing field among the regulated community. The Federal Government should be held to the same standards for compliance with all environmental requirements to which it subjects others. As with private facilities and state and local governments, Federal agency civil penalties should recapture the economic benefit of noncompliance (BEN).[1] In the case of Federal agencies, we will characterize this as *cost savings* rather than *economic benefit*.

## II. COST SAVINGS AND THE PENALTY CALCULATION

Recapturing the cost savings associated with noncompliance is but one component of the overall purpose of a penalty. The main purpose of the penalty, and enforcement in general, is to achieve deterrence. The Agency is seeking to persuade the violator to take steps to avoid falling into noncompliance again as well as dissuade others from violating the law. The penalty amount must place the violator in a worse position than those who complied in a timely fashion.

One of the primary goals of recapturing economic benefit or cost savings is removal of cost savings associated with delayed or avoided pollution control expenditures. For this reason,

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[1]If we do not recapture the cost savings of noncompliance from a Federal agency, the anomalous result might be that U.S. EPA does not recapture the cost savings from a Federal agency enforcement action, but a state agency recaptures the cost savings in a parallel state enforcement action. The civil penalty should not vary in a fundamental way depending upon the entity bringing the suit.

the minimum penalty is the amount of cost savings plus a non-trivial gravity component. EPA's BEN computer model should be used to calculate the cost savings of noncompliance except for Clean Air Act Section 120 actions, which require the use of a Section 120-specific computer model.

The civil penalty calculation consists of three components:

- First, the *cost savings:* includes the savings from delayed and avoided pollution control costs.
- Second, the *gravity component:* consists of actual or possible harm the violations caused, the importance to regulatory scheme of the requirements violated, and for Clean Air Act violators; the size of the violator.
- Third, the *adjustment factors:* considers factors such as the degree of willfulness and/or negligence, the history of noncompliance, and cooperativeness of the facility.

## III. HOW THE CONCEPT OF BEN APPLIES TO FEDERAL AGENCIES

There is no policy reason to treat Federal agencies differently from any other entity with respect to the application of penalties for delayed or avoidance of compliance with environmental requirements. By delaying and/or avoiding environmental expenditures, Federal agencies achieve cost savings, and those cost savings are essentially the violating facility's economic benefit. In rare circumstances, Federal agencies may even achieve an illegal competitive advantage. That subject is discussed below in the section entitled "The Federal Agency as a Business Competitor."

A Federal agency has four possible noncompliance scenarios involving cost savings: 1) the facility fails to request adequate funds to address a compliance requirement because of the cost of compliance; 2) the facility fails to request adequate funds to address a compliance requirement because of ignorance of requirements; 3) Congress fails to appropriate sufficient funds for compliance; and 4) the facility has sufficient funds for full compliance, but decides not to comply. In scenarios one through four, the Federal Government derives a savings by not having to make pollution control expenditures on time. Regardless of their intent or extent of understanding of the requirements, the benefit is achieved.[2] In such situations, the BEN computer model is an appropriate tool to use to calculate the violator's cost savings.

## IV. THE FEDERAL AGENCY AS A BUSINESS COMPETITOR

A federal violator that delays installation of pollution control equipment saves money. These savings can come from delaying purchase of equipment, avoiding annually recurring costs

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[2]Just as in the private sector, the concept of economic benefit is no-fault in nature. Thus, whether a person or entity intends to avoid or delay compliance is irrelevant to the analysis done to determine cost savings or economic benefit.

of operating and maintaining equipment over the period of noncompliance, and in some cases, avoiding the purchase of equipment altogether.

There also can be a competitive advantage to a Federal agency. Just as with private violators, when an agency fails to comply on time, the government obtains a cost savings from the delay and a competitive advantage where there are private parties competing to provide the same services the government provides.

In cases where the government competes in the open market with private companies, the issue of unfair competitive advantage may be a factor. For example, there are private corporations which contract with the government to house Federal prisoners. Thus, the Bureau of Prisons is a competitor in the open market in providing the service of housing prisoners and obtains an unfair competitive advantage if it fails to comply or delays compliance. Some Federal installations operate their own water treatment plants, sewage treatment plants, and/or produce their own electricity. A Federal installation may operate its own Resource Conservation and Recovery Act (RCRA) storage facility using government employees, or it may contract with a private company to provide this service. These are all functions in which Federal agencies compete, actually or potentially, with private companies. While a violating Federal facility in these situations would not be making a true profit, it very clearly would be obtaining a significant competitive advantage over private companies providing similar services.

## V. COST SAVINGS ASSOCIATED WITH NONCOMPLIANCE

EPA recaptures cost savings in an attempt to treat all parties equitably, as well as to ensure that a noncompliant company, state, local, or Federal agency enjoys no advantage over compliant facilities due to its delay in committing resources to comply with requirements. The calculation of cost savings also provides incentive for the facility to return to compliance as quickly as possible rather than further delay. The cost savings associated with noncompliance have three major components: (1) the savings from *delaying* pollution control costs; (2) the savings from *avoiding* pollution control costs; and (3) the benefit from obtaining an illegal competitive advantage.

Federal agencies and installations are similar to private sites in the types of violations which involve a benefit due to a delayed or avoided cost. Some examples of avoided or delayed costs from which Federal agencies could have benefitted include:

- Failing to perform proper maintenance on a water system, e.g., not flushing water supply lines and failure to inspect holding tanks and related equipment. This failure to perform proper maintenance can allow bacteria levels to increase to excessive levels in violation of the Safe Drinking Water Act (SDWA).

- Violations of the Underground Storage Tank (UST) program may involve a failure to properly close or upgrade a tank in violation of UST regulations. Avoided costs include expenses involved in excavating, removing, and proper disposal of the tank, cost of leak detection equipment, and the cost of engineering certifications related to tank removal.

- Under the Clean Air Act, the failure to install equipment such as bag houses and scrubbers required to meet emissions standards can involve substantial cost delays or cost avoidance.

The costs avoided or delayed by a violating entity may be broken down into three main categories. The savings may be associated with the actual cost of the equipment (capital investments), one-time nondepreciable expenditures such as the cost of setting up a reporting system or acquiring land, and the annually recurring costs such as operating and maintaining the equipment.

## VI. CALCULATING COST AVOIDANCE/DELAY ASSOCIATED WITH NONCOMPLIANCE

Penalties are critical to level the playing field among all regulated entities, including Federal agencies, and convince them that it is in their best interest to pay the cost of compliance *on-time* rather than delay compliance and pay the cost of compliance *plus* the cost of the penalty. For the regulated community, including Federal agencies, understand this, *it must cost more in real dollars to delay compliance than to comply on time.* Including the calculation of economic benefit in the penalty calculation is critical to achieving deterrence.

One of the main sources of economic benefit is that the government's delay in funding compliance will allow it to borrow less money than it would have if it had complied in a timely manner.[3] For example, the Federal Treasury note interest rate is essentially the Federal Government's cost of capital, or discount rate. If a Federal agency delays for two years the installation of required pollution control equipment, worth $100 million, then the benefit from that delay is based on the discount rate (i.e., roughly, five percent). Thus, the benefit from that two-year delay would be around $10 million (i.e., 5% of $100 million, for 2 years equals $10 million).[4]

## VII. CONCLUSION

FFEO is issuing this guidance to clarify procedures for calculating penalties against Federal facilities. Should you have any concerns or questions, please have you staff call Mary Kay Lynch at (202) 564-2574 or David Levenstein at (202) 564-2591.

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[3]In theory, the federal government could also obtain a benefit by lowering the tax rate, but this is highly unlikely given the amount of funds needed and the size of the tax base.

[4]When using the BEN model the default setting should *not* be used, instead the appropriate T-Bill rate should be used. The appropriate T-Bill rate is available by calling 1-888-ECON-SPT (326-6778) or sending an e-mail to "benable@indecon.com."

## VIII. NOTICE

This guidance and any internal procedures adopted for its implementation are intended solely as guidance for employees of the U.S. Environmental Protection Agency. Such guidance and procedures do not constitute rule making by the Agency and may not be relied upon to create a right or benefit, substantive or procedural, enforceable at law or equity, by any person. The Agency may take action at variance with this guidance and its internal implementation.

Attachment

cc: Federal Facility Coordinators, Regions I-X

## APPENDIX OF EXAMPLES

CAA Scenario

A Federal facility is in violation of the State SIP for opacity because its pollution control equipment has worn out and needs complete replacement. To achieve compliance, the facility must purchase $750,000 in new pollution control equipment. The facility has been out of compliance since June of 1998. It will not be in compliance until May of 2000. We anticipate that it will pay its penalty in April of 2000.

Assuming standard values for inflation and a 5% interest rate on Treasury notes over the period of violation, the BEN model calculates the economic benefit of noncompliance as $68,139.

RCRA Scenario

A Federal facility produces hazardous waste as part of its normal operations. The staff responsible for handling the waste incorrectly classify it as "nonhazardous waste", and send it to a disposal facility not permitted for hazardous waste disposal, a violation of RCRA Subtitle C. The cost of proper disposal should have been $500 per barrel. Their actual cost was only $50 per barrel. You determine that the facility avoided spending $50,000 per year from the first day of noncompliance (February 1, 1996) to the day the violations ceased (January 31, 1999). The facility agrees to pay the penalty in March 2000.

Assuming standard values for inflation and a 5% interest rate on Treasury notes over the period of violation, the BEN model calculates the economic benefit of noncompliance as $166,153.

SDWA Scenario

A military base provides drinking water to the base residents. It is out of compliance with the drinking water regulation because it has failed to perform routine maintenance at $20,000 per year. The violation started in June 1997, and the base was in compliance in march of 1999. We anticipate that the penalty will be paid in December of 1999.

Assuming standard values for inflation and a 5% interest rate on Treasury notes over the period of violation, the BEN model calculates the economic benefit of noncompliance as $37,375.

*The following Clean Air Act example provides a more detailed explanation of the analysis performed by the BEN model.*

This example — with some modification — is adapted from the January 1999 *BEN Training Materials*. (The BEN computer program performs all the calculations for you.)

- A Federal agency should have installed smoke-stack scrubbers, at a cost of $1.0 million in August 1997, but did not do so until January 1999, and will not pay a penalty until January 2000. What is the economic benefit this Federal agency has gained?

☞ To answer this, we need to compare what should have happened for on-time compliance with what actually happened for delayed compliance.

☞ Our first step is to adjust for inflation: the cost of complying on-time (in August 1997) is $1 million (assuming the cost estimate is already expressed in 1997 dollars); the cost of complying late (in January 1999) is $1.028 million. This increase is calculated from an assumed inflation rate of 2% (i.e., $1 million times 1.02 raised to the power 17/12 — reflecting the 17-month period — which equals approximately 1.028), or alternatively from cost index values (i.e., $1 million divided by the August 1997 cost index value of — for example — 230.0, multiplied by the January 1999 value of 236.5).

☞ Inflation increases the nominal cost of complying late. If inflation were the only factor, complying on-time would make more sense for the violator, since it would be less expensive than complying late. Instead, we also need to account for the violator's time value of money, and therefore adjust the separate costs from on-time and delay scenarios to common present value, as of a common date (i.e., the August 1997 noncompliance date).

☞ The on-time scenario cost of $1 million is already expressed as of August 1997, but we need to discount the delay scenario cost of $1.028 million back to August 1997 (from January 1999). With a five-percent rate (approximately reflecting the average annual return on Treasury notes over this period), the present value of the delay scenario is only $961,000 (i.e., $1.028 million divided by 1.05 raised to the 17/12 power — reflecting the 17-month period — which equals approximately 1.07).

☞ The initial cost savings as of August 1997 is the difference between the on-time and delay scenario present values: $1,000,000 minus $961,000, which equals $39,000.

☞ But the agency will pay a penalty in January 2000, not August 1997. Therefore, we need to compound the initial savings of $39,000 forward from August 1997 to January 2000, which equals $44,000 (i.e., $39,000 times 1.05 raised to the 29/12 power — reflecting the 29-month period — which equals approximately 1.13).