The purpose of the recovery of economic benefit for the penalty calculation is to remove any incentive for noncompliance. A penalty, at a minimum, should remove any significant benefits gained because of noncompliance.

Economic benefit does not represent compensation to the enforcement agency as in a typical "damages" calculation for a tort case, but instead is the minimum amount by which the violator must be penalized to return it to the position it would have been in had it complied on time.

**Delayed Costs vs. Avoided Costs**

There are two types of economic benefit from noncompliance:

1. **Delayed Costs** are deferred expenditures because of the violator’s failure to comply with the regulations. These are costs that will be eventually incurred (usually because the State or EPA takes an enforcement action) in order to comply with the regulations but have been delayed. By delaying costs for compliance, the violator has the opportunity to invest funds in projects other than those required to comply with the environmental rule. Delayed costs are usually associated with equipment purchases or one-time non-depreciable costs such as cleanup.
   a. Examples
      i. Failure to install equipment or influence process changes needed to eliminate pollutants from products or waste streams.
      ii. Improper storage and/or disposal, where disposal is still required to achieve compliance.

   **Rule of Thumb Calculations:**
   The benefit portion of the cost calculation for delayed compliance is 3% per year of the delayed one-time capital cost for the period from the date the violation began until the date compliance was or is expected to be achieved.

2. **Avoided Costs** are expenditures that will never be incurred. These costs are avoided completely because of the violator’s noncompliance. These can be reoccurring costs or one-time costs the facility would have incurred if they complied with the environmental rule. These expenses include labor, material, energy, payments, etc. that are directly tied to the operations and maintenance necessary for compliance.
   a. Examples
      i. Cost savings for operation and maintenance of equipment that a violator failed to install.
      ii. Failure to conduct necessary testing.
      iii. Improper disposal, where redisposal or cleanup is not possible.
      iv. Failure to properly operate and maintain existing control equipment.
      v. Failure to establish or follow precautionary methods required by regulation or permit.

   **Rule of Thumb Calculation:**
The benefit portion of the cost calculation for avoided compliance is estimated as the expense avoided until the date compliance is achieved minus any tax savings.

**Guidance:**
For any significant economic benefits, the District staff should request that OGC assist in the development of an appropriate amount by use of EPA’s computer model for calculating economic benefits (BEN) or by use of some other accepted economic method. This is only general guidance, as each enforcement case specifics will need evaluation.

Compliance staff may forgo the inclusion of the benefit component where it appears the amount of the component is likely to be less than the applicable amount shown in the chart below for all alleged violations.

<table>
<thead>
<tr>
<th>When the gravity based and multi day total penalty is:</th>
<th>EBN should be pursued if it totals:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$30,000 or less</td>
<td>At least $3,000</td>
</tr>
<tr>
<td>$30,000 to $49,999</td>
<td>At least 10% of the proposed penalty</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>$5,000 or more</td>
</tr>
</tbody>
</table>

- An economic benefit calculation should be conducted for each violation that is estimated to have an economic benefits penalty of greater than $200 unless it is obvious that the relevant EBN total from the right side of the chart will not be reached. (Refer to the penalty calculation spreadsheet tool for violations that warrant an economic benefit calculation.)
- Any decision not to seek an economic benefit penalty and the rationale for such a decision should be documented on the Penalty Computation Worksheet.

**Guidance Documents:**


**CALCULATING ECONOMIC BENEFIT OF NONCOMPLIANCE**

\[
\text{Penalty Amount} = \text{Gravity-Based Component} + \text{Multi-Day Component} \pm \text{Adjustments} + \text{Economic Benefit Component}
\]

*RCRA Civil Penalty Policy requires the recapture of any significant economic benefit of noncompliance that accrues to a violator*
Key Points: (RCRA Civil Penalty Policy pp. 25-30)

Although shown as the final step on the chart, economic benefit is generally calculated prior to making any adjustments.

HAZARDOUS WASTE COMPLIANCE AND ENFORCEMENT
ECONOMIC BENEFIT CALCULATIONS

\[ EB = AC(1-T) + DC(I) \]

EB = Economic Benefit

AC = Avoided Costs – expenditures nullified by violator’s failure to comply (Operating and Maintenance Costs)

DC = Delayed Costs – expenditures deferred by violator’s failure to comply (Capital Costs)

I = IRS INTEREST RATE (Current rate as of 2014 is 3%)

T = CORPORATE TAX RATE (Current rate as of 2014 is 35%)
CALCULATING ECONOMIC BENEFIT

- With Few Exceptions, Calculating and Recapturing Economic Benefit is Mandatory
- Use the BEN Computer Model to Calculate Economic Benefits from Noncompliance
- Economic Benefits Include Delayed Costs and Avoided Costs
- Capturing Illegal Profits from Noncompliance is Discretionary
- Decisions Regarding Economic Benefit Should Be Documented in the Case File

Key Points: (RCRA Civil Penalty Policy pp. 25-30)

- Recovering any significant economic benefit from noncompliance is mandatory under the RCPP unless:
  - The economic benefit is an insignificant amount (<$2,500).
  - There are compelling public concerns mitigating against taking a case to trial.
  - It is unlikely that EPA will be able to recover the economic benefit in litigation (litigation risk).
  - The company has documented an inability to pay the penalty.
- Economic benefit consists of delayed costs and avoided costs of compliance.
- Economic benefit is cumulative.
- Types of activities producing a significant economic benefit include groundwater monitoring, financial assurance requirements, closure/postclosure, surface impoundment retrofitting, improper land disposal of restricted wastes, cleanup of discharges, Part B submittals, and minimum technology requirements.
CALCULATING ECONOMIC BENEFIT OF DELAYED COSTS

- Delayed Costs are Expenditures Deferred by the Violator’s Failure to Comply (Capital Costs)
- Economic Benefit from Delayed Costs Equals the Amount of Interest on the Unspent Money that the Violator Could Reasonably Have Earned during Noncompliance

Key Points: (RCRA Civil Penalty Policy p. 26)

- Economic benefits from delayed costs are interest earned on expenses deferred by failure to comply. The delayed costs will eventually have to be paid in order to return to compliance. For example:
  - Failure to install groundwater monitoring equipment in a timely manner.
  - Failure to develop a waste analysis plan.
CALCULATING ECONOMIC BENEFIT OF AVOIDED COSTS

- Avoided Costs Are Expenditures Nullified by the Violator’s Failure to Comply (Operating and Maintenance Costs)
- Economic Benefit from Avoided Costs Equals the Cost of Complying with the Requirements, Adjusted to Reflect the Anticipated Rate of Return and Income Tax Effects on the Company

Key Points: (RCRA Civil Penalty Policy p. 27)

- Economic benefits from avoided costs include the cost of complying. These avoided costs will never have to be paid, except as a penalty for noncompliance. For example:
  - Failure to perform annual and semi-annual groundwater monitoring sampling.
  - Failure to perform waste analysis before adding waste to tanks.
  - Failure to install secondary containment around a tank when violator chooses to close the facility.
Total Economic Benefit

Facility:

Economic Benefit Calculated: (Date)

Total Economic Benefit

Violation Economic Benefit

Total $
ECONOMIC BENEFIT CALCULATION

Facility: ________________________________

Rule(s) Violated: 40 CFR 262.11 Hazardous Waste Determinations
At the time of the inspection, xxx waste streams were not analyzed:

- (List Waste Streams)

Current contract price for TCLP waste analyses for unknowns is $1,250 per analysis.

xxx waste streams x $1250/analysis = xxx delayed cost

EB = AC(1-T) + DC(I)

EB = 0 + xxx (.03)

EB =

AC = AVOIDED COST
DC = DELAYED COST
EB = ECONOMIC BENEFIT
I = IRS INTEREST RATE
T = CORPORATE TAX RATE
ECONOMIC BENEFIT CALCULATION

Facility: _______________________________________________________

Rule(s) Violated: 40 CFR 264 Subpart F Ground Water Monitoring

Facility has failed to install required groundwater monitoring well and perform sampling during the past xxx year.

The following are 2007 groundwater monitoring costs.

Delayed Costs:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater Monitoring Plan</td>
<td>$12,000</td>
</tr>
<tr>
<td>Cost of Well Installation</td>
<td>$9,000</td>
</tr>
<tr>
<td>Sampling Costs (Labor)</td>
<td>$1,640</td>
</tr>
<tr>
<td>Analyses Costs</td>
<td>$11,360</td>
</tr>
<tr>
<td>Reporting Costs</td>
<td>$3,200</td>
</tr>
<tr>
<td>Total Delayed Costs</td>
<td>$27,200</td>
</tr>
</tbody>
</table>

Avoided Costs:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of sampling and analysis In subsequent years</td>
<td>$16,200</td>
</tr>
</tbody>
</table>

Total Avoided Costs: $16,200

<table>
<thead>
<tr>
<th>Year</th>
<th>Delayed Costs</th>
<th>Avoided Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxxx</td>
<td>$27,200</td>
<td>$16,200</td>
</tr>
<tr>
<td>xxxx</td>
<td></td>
<td>$16,200</td>
</tr>
</tbody>
</table>

EB = AC(1-T) + DC(I)

xxx EB = 0 + $27,200 (.03) = $816
xxx EB = $16,200 (.65) + $27,200 (.03) = $11,366
xxx EB = $16,200 (.65) + $27,200 (.03) = $11,366

Total EB = $
ECONOMIC BENEFIT CALCULATION

Facility: ______________________________________________________

Rule(s) Violated: FAC 62-730.293 (1)(h) Storage Permit Requirement

Facility failed to apply for a hazardous waste storage permit. Current application fees for a construction and an operating permit is $20,000. (Avoided Cost)

$20,000 (1-.35) = $13,000

AC = AVOIDED COST
DC = DELAYED COST
EB = ECONOMIC BENEFIT
I = IRS INTEREST RATE
T = CORPORATE TAX RATE

Note: Calculating economic benefit for avoided permit costs should be considered when the violation causes actual exposure or a substantial likelihood of exposure to hazardous waste. Factors to consider in your evaluation include waste volume, time period for accumulated waste on-site beyond the applicable exclusion limit and a pattern of past storage violations. In less substantial cases, calculation of delayed costs may be more appropriate.
ECONOMIC BENEFIT CALCULATION

Facility: ____________________________________________________

Rule(s) Violated: FAC 62-730.292(1)(a) Treatment Permit Requirement

Facility failed to apply for a hazardous waste treatment permit. Current application fees for a construction and an operating permit is $32,500. (Avoided Cost)

$$EB = AC (1-T) + DC(I)$$

$$EB = $32,500 \times (1-0.35) = $21,125$$

AC = AVOIDED COST
DC = DELAYED COST
EB = ECONOMIC BENEFIT
I = IRS INTEREST RATE
T = CORPORATE TAX RATE
ECONOMIC BENEFIT CALCULATION

Facility: ____________________________________________________

Rule(s) Violated: 40 CFR 268 Land Disposal

Facility has had an ongoing discharge of (WASTE STREAM) to the ground. It is estimated that, over an xx-year period, xxx gallons of waste were discharged to the ground. According to contracts for waste disposal, the current cost of disposing of (WASTE STREAM) is $xxx per 55-gallon drum (Avoided Cost).

xx gallons/55 gallons = xxx drums

xxx drums x $350 = $xxx (price for stabilization, oxidation cost =$600)

EB + AC(1-T) + DC(I)

EB = $xxx(1-0.35) + 0

EB =

AC = AVOIDED COST
DC = DELAYED COST
EB = ECONOMIC BENEFIT
I = IRS INTEREST RATE
T = CORPORATE TAX RATE
ECONOMIC BENEFIT CALCULATION

Facility: ____________________________________________________

Rules(s) Violated: FAC 62-730.170 Transporter Financial Responsibility

Transporter failed to maintain transporter liability insurance for the past xx years. An average price for insuring vehicles for $1 million of liability insurance the Department requires is $7,000 per vehicle.

$7,000 x (# of vehicles) x (# of years w/o insurance) = $xxx

EB = AC(1-T) + DC(I)

EB =

AC = AVOIDED COST
DC = DELAYED COST
EB = ECONOMIC BENEFIT
I = IRS INTEREST RATE
T = CORPORATE TAX RATE

Rule(s) violated: 40 CFR 264, Subpart F, Ground Water monitoring

Facility has failed to install required groundwater monitoring well and perform sampling during the past xxx years.

Groundwater assessment plan: $3,000
Cost of well installation: $11,861
Sampling costs: $2,000 (4 wells, 4x a year)
Analyses costs: $15,500
Reporting costs/year: $20,000
Total delayed costs: $52,361
### Chemical Treatment (liquid/solid), fuel blending, inorganic, non-reactive corrosives and TCLP toxics.
#### As of July 30, 2008

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemical Treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55 Gal</td>
<td></td>
<td>$175.00</td>
</tr>
<tr>
<td>Fiber Drum 100lb. max</td>
<td></td>
<td>$125.00</td>
</tr>
<tr>
<td><strong>Recycling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorinated solvent 55 Gal</td>
<td></td>
<td>$250.00</td>
</tr>
<tr>
<td>Waste to Energy 55 Gal</td>
<td></td>
<td>$450.00</td>
</tr>
<tr>
<td><strong>Landfill</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55 Gal (Chemical Oxidation)</td>
<td></td>
<td>$600.00</td>
</tr>
<tr>
<td>55 Gal (Stabilization)</td>
<td></td>
<td>$350.00</td>
</tr>
<tr>
<td><strong>Incineration</strong></td>
<td>all RCRA poisons, flammable solids organics, oxidizers and corrosives are typically incinerated.</td>
<td></td>
</tr>
<tr>
<td>Reactive 55 Gal</td>
<td></td>
<td>$400.00</td>
</tr>
<tr>
<td>HW lab pack 55 Gal</td>
<td></td>
<td>$600.00</td>
</tr>
<tr>
<td>PCB ballasts/capacitors 55 Gal</td>
<td></td>
<td>$700.00</td>
</tr>
<tr>
<td>PCB Organics 55 Gal &gt;500ppm/500ppm</td>
<td></td>
<td>$900.00/700.00</td>
</tr>
<tr>
<td><strong>Mercury (elemental – including spill)</strong> Note that HG salts or contaminated media can cost as much as $2,500 per 55 Gal drum.</td>
<td>55 Gal w/debris</td>
<td>$1,300.00</td>
</tr>
<tr>
<td>Mercury Compounds</td>
<td>55 Gal</td>
<td>$460.00</td>
</tr>
<tr>
<td>Mercury Lamps</td>
<td>1 bulb</td>
<td>$3.00</td>
</tr>
<tr>
<td>Waste Water Treatment (&lt;60% acids)</td>
<td>55 Gal</td>
<td>$300.00</td>
</tr>
<tr>
<td>Used Oil</td>
<td>55 Gal</td>
<td>$70.00</td>
</tr>
<tr>
<td>Analytical Services</td>
<td>Metals Test/Full TCLP</td>
<td>$250.00/$1,250.00</td>
</tr>
<tr>
<td>Materials</td>
<td>55 Gal steel drum</td>
<td>$35.00</td>
</tr>
<tr>
<td>Over pack drums</td>
<td></td>
<td>$100.00</td>
</tr>
<tr>
<td><strong>Labor rates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technician</td>
<td></td>
<td>$35.00/hr</td>
</tr>
<tr>
<td>Chemist</td>
<td></td>
<td>$45.00/hr</td>
</tr>
</tbody>
</table>

---

**Note:** The costs provided are approximate and subject to change based on market conditions and location.
<table>
<thead>
<tr>
<th>Item</th>
<th>2007 Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part A Permit (Construction)</td>
<td>Fees are listed in Ch 62-4 FAC</td>
<td></td>
</tr>
<tr>
<td>Part B Permit (Operation)</td>
<td>Fees are listed in Ch 62-4 FAC</td>
<td></td>
</tr>
<tr>
<td>Part B Permit (Land Disposal)</td>
<td>$180,000</td>
<td>EPA estimated cost for preparation</td>
</tr>
<tr>
<td>Part B Permit (Non-Land Disposal)</td>
<td>$120,000</td>
<td>EPA estimated cost for preparation</td>
</tr>
<tr>
<td>Contingency Plan</td>
<td>$2,500</td>
<td></td>
</tr>
<tr>
<td>Emergency Response</td>
<td>$2,500</td>
<td></td>
</tr>
<tr>
<td>Personnel 40 hr Training</td>
<td>$600</td>
<td>Fee Registration p/p</td>
</tr>
<tr>
<td>Personnel 8 hr Training</td>
<td>$300</td>
<td>Fee Registration p/p</td>
</tr>
<tr>
<td>Closure Plan Land Disposal</td>
<td>$6,000 - $24,000</td>
<td>Site Specific</td>
</tr>
<tr>
<td>Closure Plan Storage</td>
<td>$6,000 - $12,000</td>
<td>Site Specific</td>
</tr>
<tr>
<td>Closure Plan Treatment</td>
<td>$6,000 - $12,000</td>
<td>Site Specific</td>
</tr>
<tr>
<td>Ground Water Monitoring Plan</td>
<td>$9,000 - $14,000</td>
<td></td>
</tr>
<tr>
<td>Ground Water Monitoring Well</td>
<td>$45 - $100 per foot</td>
<td>Mobilization/Installation</td>
</tr>
<tr>
<td>Closure Certification</td>
<td>$12,000</td>
<td>Engineering Costs</td>
</tr>
<tr>
<td>Transporter Financial Responsibility</td>
<td>$5,500</td>
<td>Per vehicle, per year</td>
</tr>
</tbody>
</table>