

ATTACHMENT 3

Wage Rates Estimation

A. Overview

Unit labor costs are calculated by adding fringe benefits and overhead to the wage or salary to derive a fully loaded labor cost. The basic method is described in *Wage Rates for Economic Analysis of the Toxics Release Inventory Program* (Rice, 2002).

In March 2004, BLS began using the North American Industry Classification System (NAICS) codes instead of the Standard Industrial Classification (SIC) System, and the Standard Occupational Classification (SOC) system instead of the Occupational Classification System (OCS). The following table shows the crosswalk between old and new occupational titles.

EPAB Reports Labor Category	BLS Old Title (OCS)	BLS New Title (SOC)
Managerial	Executive, administrative, and managerial	Management, business, and financial
Professional/Technical	Professional specialty and technical	Professional and related
Clerical	Administrative support, including clerical	Office and administrative support

Source: *Employer Costs for Employee Compensation: Changes to NAICS and SOC, Table 2.* ECEC Occupational Comparability between SOC and OCS (BLS, 2006a); and Weinstein, 2004.

Costs are calculated for several labor categories: Managerial, Professional/ Technical, Clerical, Production Workers, and EPA staff. The resulting loaded labor rates used in this document are given in the table below.

LABOR CATEGORY	LOADED HOURLY RATE
Government GS-13, Step 1	\$60.86
Industry Managerial	\$65.22
Professional / Technical	\$54.72
Clerical	\$27.00

B. Government

Agency labor costs are calculated based on annual Federal salaries for the Washington-Baltimore area published by the Office of Personnel Management effective January 2007 (OPM, 2007). The average salary for one Full Time Equivalent (FTE) staff is estimated as the salary for a GS-13 Step 1 employee.

Multiplying the annual pay by an assumed loading factor of 1.6 to reflect Federal fringe benefits and overhead, the loaded annual salary of EPA staff was calculated to be \$127,035.

The Agency loading factor is from an EPA guide, *Instructions for Preparing Information Collection Requests (ICRs)* (OPPE, 1992, page 30, footnote 9). The 60 percent assumption was labeled “the benefits multiplication factor” in the EPA Guide, but has been used in many EPA Office of Pollution Prevention and Toxics ICRs to reflect both fringe benefits and overhead for Federal staff. For example, it was used in an August 2000 document supporting ICR No. 1139.06, with the following explanation:

“The annual costs per FTE are derived by multiplying the annual pay rate by 1.6 (the benefits multiplication factor). The multiplication factor used is recommended in EPA's Office of Policy, Planning, and Evaluation's Instructions for Preparing Information Collection Requests (ICRs) (June 1, 1992). An EPA internal phone call between Carol Rawie (OPPT/EETD/RIB) and Carl Koch (OPPE/RMD/IMB) on May 3, 1994, indicated that the 1.6 factor included not only benefits but also overhead.” (ICR No.1139.06)

C. Technical, Managerial, and Clerical Labor

Wages and fringe benefits for managerial, professional/technical, clerical and production labor were taken from the Bureau of Labor Statistics (BLS) *Employer Costs for Employee Compensation* (ECEC) data, for December, for manufacturing industries.¹

The cost of fringe benefits such as paid leave and insurance, specific to each labor category, are taken from the same ECEC series. Fringe benefits as a percent of wages are calculated separately for each labor category. For example, for December 2006, the average wage rate for professional/technical² labor was \$32.38; the average fringe benefit was \$16.77. Fringe benefits as a percent of wages were \$16.77/\$32.38, or approximately 51.8 percent.

An additional loading factor of 17 percent is applied to wages to account for overhead. This approach is used for consistency with Office of Pollution Prevention and Toxics economic analyses for two major rulemakings: *Wage Rates for Economic Analyses of the Toxics Release Inventory Program* (Rice, 2002), and the *Revised Economic Analysis for the Amended Inventory Update Rule: Final Report* (EPAB, 2002). This overhead loading factor is added to the benefits loading factor, and the total is then applied to the base wage to derive the fully loaded wage. For example, the December 2006 fully loaded wage for professional/technical labor is $\$32.38 \times (1+0.5179 + 0.17) = \54.72 .

Fully loaded costs for managerial, clerical, and production labor are calculated in a similar manner, as shown in Table 1.

¹ Past economic analyses, used ECEC data for “All Goods Producing” sectors (manufacturing, mining, and construction). However, the manufacturing sector data seems more relevant since the information collection mainly affects the chemicals industry.

² Past economic analyses have used the term “technical” labor. Here the category is called “professional/technical” labor, to make clear how it relates to BLS categories. In 2004, BLS changed from the Occupational Classification System, OCS, to the Standard Occupational Classification system, SOC. In the process, the “Professional specialty and technical” category became the “Professional and related” category. However, the coverage of the old and new occupational groups is approximately the same. See the BLS article, *Comparing Current and Former Industry and Occupation ECEC Series* (Weinstein, 2004).

Table 1 Derivation of Loaded Wage Rates¹

EPAB Labor Category	Data Sources	Un-inflated wages and fringes / hour			Fringe benefits as % of wage	Over-head as % of wage ²	Fringe + Overhead factor	Loaded Wage Rate before inflation	Inflation factor ³	Loaded Wage Rate (2006 dollars)
		Date	Wages \$	Fringe benefits \$						
		(a)	(b)	(c) = (b)/(a)						
Managerial	BLS ECEC, Private Manufacturing industries , "Mgt, Business, and Financial". [BLS, 2006b]	Dec 2006	\$39.77	\$18.83	47.35%	17%	1.64	65.22	1	\$65.22
Professional/Technical	BLS ECEC, Private Manufacturing industries "Professional and Related." [BLS, 2006b]	Dec-06	\$32.38	\$16.77	51.79%	17%	1.69	54.72	1	\$54.72
Clerical	BLS ECEC, Private Manufacturing industries "Office and Administrative Support." [BLS, 2006b]	Dec 2006	\$16.07	\$8.20	51.03%	17%	1.68	27.0019	1	\$27.00
EPA staff FTE	Annual Federal staff cost: OPM Washington-Baltimore-Northern Virginia, DC-MD-PA-VA-WV area, GS-13 Step 1 pay rates, with 60% overhead. [OPM 2007]	Jan-07	\$79,397 per year \$38.04 per hour	--	[Included in 60% overhead]	60%	1.60	\$127,035 per year \$60.86 per hour	1	\$127,035 per year \$60.86 per hour

Notes:

¹ Wage data are rounded to the nearest cent in this table.

² An overhead rate of 17% was used based on assumption in *Wage Rates for Economic Analyses of the Toxics Release Inventory Program* (Rice, 2002), and the *Revised Economic Analysis for the Amended Inventory Update Rule: Final Report* (EPAB, 2002).

³ An inflation factor of "1" means wage data was not escalated to reflect inflation.

⁴ The Federal salary is the unloaded Federal GS-13 Step 1 salary (\$79,397) for January 2007, from the Office of Personnel Management salary table for Washington-Baltimore-Northern Virginia (OPM, 2007). The 60% fringes-and-overhead rate is from an EPA guide, *Instructions for Preparing Information Collection Requests (ICRs)* (OPPE, 1992, page 30, footnote 9).

D. References

- BLS, 2006a. U.S. Bureau of Labor Statistics, *Employer Costs for Employee Compensation: Changes to NAICS and SOC*, Table 2. ECEC Occupational Comparability between SOC and OCS. Downloaded February 2006 from <http://www.bls.gov/ncs/ect/sp/ecsm0003.htm>.
- BLS, 2006b. U.S. Bureau of Labor Statistics, *Employer Costs for Employee Compensation Supplemental Tables*. Supplementary Table 2. Employer costs per hour for employee compensation and costs as a percent of total compensation: Private industry workers in manufacturing industries, by occupational group, establishment size and bargaining status. December 2006.
- EPAB, 2002. U.S. EPA, Office of Pollution Prevention and Toxics, Economic and Policy Analysis Branch. *Revised Economic Analysis for the Amended Inventory Update Rule: Final Report*. Washington, DC. August 2002.
- OPM, 2007. Office of Personnel Management, *Salary Table 2007-DCB, Washington-Baltimore-Northern Virginia, DC-MD-PA-VA-WV*. accessed from <http://www.opm.gov/oca/06tables/indexGS.asp>.
- OPPE, 1992. U.S. EPA, Office of Policy, Planning, and Evaluation. *Instructions for Preparing Information Collection Requests (ICRs)*. Washington, DC, June 1, 1992.
- Rice, 2002. Cody Rice. *Wage Rates for Economic Analysis of the Toxics Release Inventory Program*. Washington, DC: U.S. EPA, Office of Pollution Prevention and Toxics, Economic and Policy Analysis Branch, June 10, 2002.
- Weinstein, 2004. Harriet G. Weinstein and Mark A. Loewenstein, U.S. Bureau of Labor Statistics. *Comparing Current and Former Industry and Occupation ECEC Series*. Originally posted August 25, 2004 at <http://www.bls.gov/opub/cwc/print/cm20040823ar01p1.htm>.