



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY


WASHINGTON, D.C. 20460

JUL 9 2014

OFFICE OF WATER

MEMORANDUM

SUBJECT: EPA Guidance for Adjusting Plugging and Abandonment Cost Estimates

FROM: Ronald Bergman, Acting Director 
Drinking Water Protection Division, Office of Ground Water and Drinking Water

TO: Water Division Directors Regions I - X

I. Overview

EPA regulations at 40 CFR 144.62(b) require owners or operators of Class I Hazardous Waste Injection wells to annually adjust the plugging and abandonment cost estimates used for financial responsibility demonstrations for inflation (i.e., the growth in costs). The rule further specifies that the owner or operator must use an inflation factor derived from the annual Oil and Gas Lease Field Equipment Cost Index (OGL Index).¹ However, the U.S. Energy Information Administration discontinued this inflation factor in 2010.² Consequently, Underground Injection Control (UIC) Program Directors must identify an alternative method for owners and operators to adjust plugging and abandonment costs to comply with the regulations under 40 CFR 144.62(b). Accurate cost estimates for plugging and abandonment activities are important to ensure that project costs fall within the coverage provided by the financial responsibility instrument.

This guidance provides the flexibility to owner or operators of Class I Hazardous Waste Injection wells to use an alternate cost index as approved by the UIC Program Director, to fulfill the requirements of the regulation at 40 CFR 144.62(b). Furthermore this guidance identifies important items for UIC Program Directors to consider when selecting an adequate alternative method for adjusting cost estimates for well plugging and abandonment activities. This guidance also provides a brief summary of a selection of available cost indices that may be used in place of the OGL Index, if approved by the UIC Program Director.

If you need additional information or have questions pertaining to any aspect of this guidance, please call me or have your staff contact Joe Tiago at 202-564-0340.

¹ [40 CFR 144.62](#)

² Oil and Gas Lease Equipment and Operating Costs 1994 Through 2009, U.S. Energy Information Administration. Available online:

http://www.eia.gov/pub/oil_gas/natural_gas/data_publications/cost_indices_equipment_production/current/coststudy.html

II. Adjusting Cost Estimates for Plugging and Abandonment

When selecting an alternative method to adjust costs for inflation, the UIC Program Director should consider whether the method will accurately reflect the current costs of plugging and abandonment activities. The most straightforward alternative for adjusting costs is to use a substitute cost index to inflate the cost estimates. However, UIC Program Directors may identify an alternative method for adjusting costs other than the use of an inflation index. EPA does not discourage alternative methods, but EPA recommends that any alternative method provide an equally accurate or more accurate estimate of current costs than the available cost indices, as determined by the UIC Program.

Note that the use of a cost index to adjust costs is most appropriate when inflating costs over a small number of years and in an industry with stable costs. Cost indices may not capture the true changes in cost that occur due to new technologies, economies of scale, etc. As an industry-specific cost index, the OGL Index approximated inflation as well as shifts in costs in the industry (i.e., relative to other industries). There is no currently available cost index that approximates cost changes in the oil and gas industry as comprehensively as the OGL Index. Significant shifts in costs in this industry may result in a situation in which an alternative method for adjusting costs for inflation would be appropriate.

III. Overview of Available Cost Indices

The term inflation is typically used by economists to mean the rise over time in the price levels aggregated across all goods and services in the economy. The term inflation is used in UIC regulations to mean the rise over time in the cost of well-plugging and abandonment aggregated across all inputs. Some of the rise will be due to economy-wide inflation, but some will be due to changes in the relative cost within specific industries. Hence, cost indices provide reasonable measures for tracking the inflation with which the UIC regulation is concerned. Generally, a cost index tracks the aggregate changes in the prices of input goods and services for a particular sector (or for many sectors) to provide an inflating factor that represents the aggregate movement of the sector(s) prices over time. When selecting an appropriate cost index, the specific types of costs (e.g., labor, capital, operations and maintenance, etc.) to be incurred will dictate the type of inflating factor that should be used.

The activities to plug and abandon UIC wells require specialized equipment and labor; therefore, it is most accurate to use a cost index that incorporates the goods and services in this specific sector, if possible. It may also be appropriate to use multiple cost indices to inflate different costs (e.g., labor and capital). The OGL Index was the closest fit for well-plugging activities, as it was developed using costs from the oil and gas industry. Possible substitutes for inflating different types of costs are available from the Engineering News-Record (ENR) and the U.S. Bureau of Labor Statistics (BLS), which include:

- Construction Cost Index (ENR)
- Building Cost Index (ENR)
- Employment Cost Index (BLS)
- Consumer Price Index (BLS)
- Producer Price Index (BLS)

A brief overview of these available cost indices is provided below for the consideration of UIC Program Directors. This is not a comprehensive list of available cost indices, and the UIC Program Director may choose another. EPA does not recommend a specific cost index to replace the OGL Index.

Engineering News-Record Cost Indices

ENR maintains two indices that apply to general construction costs and that measure the cost of purchasing a hypothetical bundle of goods compared to what that cost was in a base year. The bundle of goods includes steel, cement, lumber, and labor.³ ENR indices track inflation in the construction industry based on the change in the aggregate cost of this bundle of goods.

The Construction Cost Index (CCI)⁴ and Building Cost Index (BCI)⁵ are very similar as they assume the same capital and material costs (i.e., steel, cement, and lumber). The CCI uses a higher proportion of labor hours than the BCI and is preferred in cases where labor costs are a high proportion of total costs. The BCI is based on skilled labor rates (i.e., bricklayers, carpenters and structural ironworkers rates) whereas the CCI is based on common labor rates. The BCI is therefore more applicable for structures. Neither index, however, is formulated to apply specifically to the oil and gas industry or well plugging activities. Furthermore, neither index accounts for differentials between cities in labor productivity, building codes, or costs of lumber and cement. Rather, ENR computes the indices based on prices in 20 U.S. cities. Finally, access to ENR indices is available only to paying subscribers (see ENR website for current subscription costs).

Bureau of Labor Statistics Cost Indices

The BLS cost indices differ by the specific costs they measure and industries they cover. All BLS indices are available at no cost and are updated regularly (as frequently as monthly or quarterly), though they do not provide comprehensive inflation factors specific to the oil and gas industry.

Employment Cost Index (ECI)

The ECI⁶ measures inflation in labor costs through the change in the cost of labor on a quarterly basis. The ECI provides indices for changes in total compensation, wages and salaries, and benefit costs. Separate ECI indices are also available for different occupational groups, industries, regions, and 15 large metropolitan areas. Though none of the available industries match specifically the oil and gas industry, the ECI includes an index that measures inflation of labor for general construction and extraction occupations. The ECI also provides indices for seasonally adjusted and unadjusted data.

Consumer Price Index (CPI)

The CPI⁷ measures monthly changes in prices paid by consumers for all goods and services purchased for consumption by urban households. The BLS collects data from 87 urban areas throughout the country and from about 23,000 retail and service establishments to develop the CPI. The CPI includes user fees (such as water and sewer service) and sales and excise taxes paid by the consumer. Specific CPI indices are available for the four Census regions, by the size of city, and for 26 local areas. Indices are also available for major groups of consumer expenditures (e.g., food, housing, apparel, transportation, etc.). However, the focus of the CPI is on household consumption, and none of these expenditure groups include construction in the oil and gas industry or

³ More information about using ENR cost indices online at <http://enr.construction.com/economics/FAQ.asp>

⁴ ENR Construction Cost Index online at

<https://enr.construction.com/engineering/subscription/LoginSubscribe.aspx?cid=17796>

⁵ ENR Building Cost Index online at <https://enr.construction.com/engineering/subscription/LoginSubscribe.aspx?cid=17793>

⁶ BLS Employment Cost Index available online at <ftp://ftp.bls.gov/pub/suppl/eci.echistrynaics.txt>

⁷ BLS Consumer Price Index available online at <http://www.bls.gov/cpi/#tables>

construction in general. Consequently, the CPI is best used as an economic indicator or a general measure of economy-wide inflation rather than an index to track changes in the oil and gas sector specifically.

Producer Price Index (PPI)

The PPI⁸ is a family of indices that measure the average change over time in the prices received by domestic producers of goods and services. The PPI does not capture all costs paid by the consumer of those goods and services (such as distribution costs, sales and excise taxes, and government subsidies) and may be a less accurate index for adjusting the costs to plug and abandon UIC wells in cases where an independent third party is paid to complete the work.

The PPI has separate indices according to “commodities” and “net output.” Indices under “commodities” track the costs of goods and services grouped by similarity of material composition or end use. Indices under “net output” track the costs of the net output of industries and their products (grouped according to the North American Industry Classification Codes). Hence, the PPI includes a variety of indices for the mining industry and machinery and equipment commodities. These indices are even further broken down to indices that individually track changes in the cost of equipment and services in the oil and gas industry. These indices can be used to adjust cost estimates for the specific activities or equipment they measure; however, caution should be exercised to ensure that the index measures the specific sort of costs that are incurred in well plugging and abandonment.

⁸ BLS Producer Price Index available online at <http://www.bls.gov/ppi/ppidr201201.pdf>