

# Coal Combustion Products Partnership (C<sup>2</sup>P<sup>2</sup>)

Fly ash concrete was used to construct this bridge section connecting I-15 and I-80 in Salt Lake City, Utah. Over 40,000 tons of coal combustion products were used in the reconstruction of I-15, the largest design/build highway project in history.



## What are coal combustion products?

Coal combustion products (CCPs) are the by-products generated from burning coal in coal-fired power plants. These by-products include fly ash, bottom ash, boiler slag and flue gas desulfurization gypsum.

## What are the benefits of using CCPs and why is the Environmental Protection Agency (EPA) creating the Coal Combustion Products Partnership?

There are numerous environmental, economic, and performance benefits from using CCPs which is why EPA has formed the C<sup>2</sup>P<sup>2</sup> program to further their beneficial use.

**Environmental benefits** can include reduced greenhouse gas emissions, reduced land disposal requirements, and reduced utilization of virgin resources.

**Economic benefits** can include reduced costs associated with coal ash and slag disposal, increased revenue from the sale of ash, and savings from using CCPs in place of other, more costly materials.

**Performance benefits** may result from the physical and chemical characteristics of

CCPs and include greater resistance to chemical attack, increased strength, and improved workability when fly ash is used to replace or supplement Portland cement in concrete. High performance concrete, which can contain fly ash and/or other recycled materials, is being used to double the life of conventional pavements and is also used in bridge applications that are being designed to last up to 100 years.

## What is the C<sup>2</sup>P<sup>2</sup> Program?

The Coal Combustion Products Partnership program is a cooperative effort between EPA and the American Coal Ash Association (ACAA), Utility Solid Waste

*Note: Specific benefits may vary depending on the properties of CCPs and the applications for their use.*



USWAG



Activities Group (USWAG), and Department of Energy (DOE) to promote the beneficial use of CCPs and the environmental benefits that result from their use. The initiative includes three primary activities:

- A Challenge Program
- Barrier breaking activities
- Development of CCP-utilization workshops

### The C<sup>2</sup>P<sup>2</sup> Challenge Program

Like EPA's WasteWise Program, which promotes and recognizes participants for voluntary waste reduction activities, the C<sup>2</sup>P<sup>2</sup> Challenge Program focuses on the beneficial use of CCPs. This voluntary program encourages organizations to participate as **Champions** and **Leaders**.

**Champions** include generators and users of coal combustion products who, in joining the program, will work to increase their use or marketing of CCPs.

**Leaders** include federal agencies, professional groups, trade associations, and universities who, in joining the program, will work with their affiliated organizations to promote greater use and marketing of CCPs.

**Champions** and **Leaders** will be eligible for awards recognizing their activities including, documented increases in CCP use and success stories in CCP promotion and utilization.

A central part of the Challenge Program is the development of informational booklets detailing the environmental effects and benefits from the use of CCPs in highway and building applications.

EPA is developing a comprehensive Web site to support the C<sup>2</sup>P<sup>2</sup> Challenge Program. This site includes information on CCPs and a calendar of program-related events, in addition to recognizing C<sup>2</sup>P<sup>2</sup> Program participants. The C<sup>2</sup>P<sup>2</sup> Web site is located at: <http://www.epa.gov/epaoswer/osw/conserves/c2p2/>.

C<sup>2</sup>P<sup>2</sup> Program Registration Forms are available from EPA, ACAA, and USWAG, or can be downloaded from the C<sup>2</sup>P<sup>2</sup> Web site.

### Barrier Breaking Activities

- Developing additional booklets outlining the environmental effects and benefits from the use of coal fly ash and other CCPs.
- Publishing case studies identifying barriers to CCP utilization.
- Co-sponsoring an update of the Fly Ash Facts for Highway Engineers booklet with the Federal Highway Administration (FHWA) and ACAA.
- Developing a federal interagency policy statement in support of industrial by-product utilization.
- Developing a pilot state and regional review process whereby interdisciplinary teams will be brought together to examine CCP utilization practices.

### Workshops

EPA, FHWA, DOE, ACAA, and USWAG will support future workshops for users of CCPs such as highway departments and builders. The workshops will present the structural advantages of using coal combustion products and the environmental benefits that result from their use.

This project is part of EPA's Resource Conservation Challenge.

For more information about the C<sup>2</sup>P<sup>2</sup> program, call the C<sup>2</sup>P<sup>2</sup> Information Center at 800 EPA-WISE, or visit the C<sup>2</sup>P<sup>2</sup> Web site at <http://www.epa.gov/epaoswer/osw/conserves/c2p2/>.

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*Fly ash cement was used to construct the external walls and foundation of the Ronald Reagan Building in Washington, DC—home of EPA's national headquarters.*

