



## GP Delivers a Combustible Dust Solution

In the October 21, 2009 issue of the Federal Register, the Federal Occupational Safety and Health Administration (OSHA) published their intention to develop a new standard for combustible dust for general industry. Combustible dusts are fine particles of coal, corn and other grains, solid metals, wood, and numerous other materials that can explode under the right conditions. The results of combustible dust explosions can be devastating, including personnel injuries, deaths, and substantial equipment damage. Industries that have had incidents in the past, including **electric power generation**, wood product manufacturing, and chemical manufacturing, are likely to be affected by the new regulations. This is becoming an increasing concern as coal-fired power producers switch to Powder River Basin coal with its fine dust and volatility characteristics. In anticipation of these new requirements, GP is developing a new combustible dust lesson and closely monitoring OSHA's progress in developing new regulations. The purpose of this article is to provide our clients with information on this topic, in anticipation of new training and regulatory requirements.

According to data gathered by the Chemical Safety and Hazard Investigation Board (CSB), an average of ten dust explosions per year occurred in the United States from 1980 through 2005. These events caused 119 fatalities, 718 injuries, and hundreds of millions of dollars in property damage<sup>1</sup>. The results of three in-depth studies by the CSB also indicated that managers and employees were generally unaware of the explosive nature of combustible dusts until after an incident occurred.

Combustible dust explosions are not a new phenomenon; they have been reported since the early part of the 20<sup>th</sup> century<sup>2</sup>. In 1987, OSHA passed the first standard, *Grain Handling Facilities*, 29 CFR 1910.272, specifically designed to protect workers from hazards associated with combustible dusts. Worker protections for other industries are contained in several regulations and consensus standards (e.g. NFPA, ASME), which address some hazards, but not all. Presently, OSHA addresses combustible dust hazards during inspections by enforcing standards for Housekeeping (29 CFR 1910.22(a)), Hazardous (classified) Locations (29 CFR 1910.307), Electric Power Generation, Transmission, and Distribution (29 CFR 1910.269), as well as several other standards. Citations are issued under the General Duty Clause of the Occupational Safety and Health Act (29 U.S.C. 654 Section 5(a)(1)), which requires employers to provide a workplace free of known occupational hazards.

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## Did You Know?

Condenser pressure has the single largest effect on unit performance of any single parameter. For a 500 MW reheat unit (Rankine cycle), a 0.2 inHgA increase in condenser pressure causes a 1 MW decrease in output and almost 20 Btu/kWh increase in heat rate. Assuming a fuel cost of \$1.25 per 1 MMBtu, this increase in condenser pressure results in an annual fuel cost increase of over \$100,000.

<sup>1</sup> U.S. Chemical Safety and Hazard Investigation Board, Investigation Report, *Combustible Dust Hazard Study*, Report No. 2006-H-1, November 2006

<sup>2</sup> Department of Labor, *Combustible Dust; Proposed Rule*, Federal Register, Vol. 74, No. 202, October 21, 2009

A tipping point for the issue of combustible dust appears to have occurred in early 2008, when an explosion at a sugar refinery in Georgia killed 14 workers and seriously injured 36 others. Following this event, government officials were scrutinized by several media outlets, questioning the need for more focused regulations. In October 2009, OSHA announced its intentions to propose new regulations, which could take years to develop and gain approval; the process often results in litigation and further delays. However, hazards associated with combustible dust are present now and making workers aware of the risks is one of the most effective ways to prevent a major event.

As a regulatory compliance-training provider, GP has closely tracked this issue in anticipation of new federal training requirements and to identify opportunities to enhance safety training for our clients. GP is drawing from numerous references to develop a new lesson for combustible dust, focusing on hazard recognition for coal handling personnel, plant operators, material handlers, and other workers in a position to identify and prevent situations that may lead to a catastrophic event such as those discussed above. The new lesson will be incorporated into our suite of safety lessons in GPiLEARN.

In addition to web-based training, GP's power and safety experts are available to conduct site-specific combustible dust training and regulatory audits of existing training and management programs for combustible dust. For more information, please call 800.803.6737 or [email](#) us.

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## Around GP



The American Petroleum Institute is recognized around the world as the leading advocate and premier source of information and standards for the oil and gas industry. To keep up with the growth and changes in the industry, companies look to API for help in providing the training that personnel need to maintain exploration and production rigs, refineries and a variety of other industrial operations.

API-U was created to meet the training challenges of the industrial workforce and GP is proud to be the authorized provider of API-U eLearning. This expanding eLearning program is available 24/7 to give new hires the fundamental knowledge they need, to fill knowledge gaps for experienced workers and to improve efficiencies by cross-training. Over 500 self-paced lessons comprise over 65 certificate courses in the areas of mechanical maintenance, electrical maintenance, and instrumentation & control.



The licensed provider  
of API-U eLearning

Training administration of API-U Learning Management System is handled by the GPiLEARN Learning Management System, which is hosted by General Physics.

For more information, visit [API-U](#).

## Learn with GP

In celebration of our IACET authorized provider certification, **register 2 people for one of our Fall open enrollment courses, and have the 3rd person attend for FREE** (from the same company for the same course.)

**To take advantage of this special offer, register via phone at 866.405.8756 or email us.** Single registrants may **register** online via our website.

### **Operations Knowledge Series 2010 Fall Open Enrollment Courses in Amherst, NY**

#### **Combined Cycle Fundamentals**

September 20 - 24 (4½ days)

\$1,895

**2.9 CEUs; 29 PDHs**

#### **Fossil Plant Chemistry for Operators**

September 28 - 30 (3 days)

\$1,395

#### **Power Plant Fundamentals**

September 13 - 17 (4½ days)

\$1,895

### **Performance Knowledge Series 2010 Spring (in Amherst, NY) & Fall Open Enrollment Courses (in Denver, CO)**

#### **Advanced Performance Analysis and Troubleshooting for Power Plants** (3½ days)

June 14 - 17

September 27 - 30

\$1,750

#### **Advanced Performance Analysis and Troubleshooting for Power Plants** (4½ days)

June 14 - 18

September 27 - October 1

\$1,950

#### **Fundamentals of Power Plant Performance for Utility Engineers** (4½ days)

Date: June 14 - 18

Cost: \$1,500

#### **Heat Rate Awareness** (2½ days)

June 15 - 17

September 28 - 30

\$1,050

#### **Improving Combined Cycle Power Plant Performance** (2½ days)

August 24 - 26

\$1,050

## **GPiLEARN Training**

GP hosts several GPiLEARN webinars and training classes throughout the year to help you become more familiar on how to effectively administer your GPiLEARN branded site.

There is no charge to attend these 1-hour GPiLEARN webinars. Space is limited, [sign up](#) today!

- June 9 - Uploading Site-Specific Content

There is no registration fee for clients to attend our Administrator training classes. Space is limited. To register for a class, send an email to [gpilearn@gpworldwide.com](mailto:gpilearn@gpworldwide.com) noting the class you would like to attend. GP will contact you to confirm your place in the class.

- Station Administrator Training,  
June 24 - 25 - Columbia, MD
- Company Administrator Training,  
July 20 - 21 - Sacramento, CA



General Physics Corporation recently won international contracts to provide EtaPRO™ Performance and Condition Monitoring Systems for 104 electric generating units owned and operated by Eskom Holdings Ltd.; Gas Natural SDG, S.A.; Électricité de France (EDF); and International Power plc. The EtaPRO System provides real-time monitoring and integrated thermodynamic modeling of power plants to improve efficiency and profitability while reducing carbon emissions. These multi-year contract awards, which exceed U.S. \$7.9 million, will add to the more than 700 generating units in the existing EtaPRO installation base.

GP will provide EtaPRO Systems for Eskom's fleet of 86 coal-fired electric power generating units, representing over 37,600 MWe of installed capacity in South Africa. Gas Natural has ordered EtaPRO Systems for an additional 11 combined cycle units in Spain and Mexico, which will raise the number of generating units monitored by EtaPRO for Gas Natural to 31. The additional EtaPRO contracts for EDF (France and UK) and International Power (Australia) apply to combined cycle power plants in their respective locations.

Joe Nasal, GP Senior Vice President, stated, "GP is pleased that these major power companies have selected our technologies. We look forward to our new working relationships with Eskom and EDF, as well as expanding our existing relationships with Gas Natural and International Power. With these awards, our EtaPRO System will now be deployed in 30 countries, improving power plant availability, capacity and efficiency worldwide. We are confident that these companies will benefit financially while also reducing greenhouse gas emissions through the use of our products and associated engineering services."

**GPiLEARN Users Conference**

May 4 - 6 • Austin, TX

Our team is very excited to be hosting our 9th annual GPiLEARN Users Conference from May 4-6, in Austin, Texas. We are joining forces with the 2010 EtaPRO Technology Training Workshop (May 3-7) to present a combined focus on people, processes, and technology.

Want to get the most out of your GPiLEARN investment? Our Users Conference gives clients the opportunity to network with other power plant training professionals and to learn how other companies in the power industry are training their workforce. The GPiLEARN Users Conference will offer a broad range of learning opportunities for all attendees. Pre-conference training sessions (May 4 - 5) include:

- GPiLEARN Boot Camp
- GPiLEARN Company Administrator
- Basic Exams
- Advanced Exams
- Programming Integrated Learnings
- Uploading JPMs and Site-Specific Content
- The ADDIE Model in Action
- Training-The Tools and the Means

Conference sessions (May 6) include:

- Keynote presentation by Doug Jones- designed to help us improve our ability to successfully influence and persuade others by building on a proven sales process within the unique environment of the power industry
- Client presentation- one company's journey of upgrading its skills training and incorporating a fleet-wide LMS into the training structure
- Client presentation- one company's evolution of maintenance training, during many business and personnel challenges, to address the training needs of the current workforce while striving to develop the incoming workforce
- GPiLEARN initiatives (new content and software enhancements)
- Training the next generation
- Blended learning solutions
- And many other topics

We look forward to seeing many of our valued clients in Austin next week!



## Locate GP

### **WUTAB**

June 14 - 17 • Gatlinburg, TN

Visit [WUTAB](#) for more information

### **P2EP Annual Meeting & Vendor Exposition**

June 21-23 • Washington, District of Columbia

Visit [EPRI](#) for more information

### **GP will be presenting Applying the X-Ratio Correction to Calculated Air Heater Efficiency - An Alternate Method at ASME Power 2010**

July 13 - 15 • Chicago, IL

Visit [ASME](#) for more information

General Physics Corporation  
[www.energy.gpworldwide.com](http://www.energy.gpworldwide.com)  
800.803.6737

