

CoPS

SH&E Report

Council on Practices & Standards (CoPS)

Volume 2, Number 2

ANSI/ASSE Z359 Fall Protection Code Available for Purchase

Employers can now better protect workers at height from falls—one of the leading causes of occupational injuries and fatalities—thanks to the newly released ANSI/ASSE Z359 Fall Protection Code.



The ANSI/ASSE Z359 Fall Protection Code includes the following standards:

ANSI/ASSE Z359.0-2007: Definitions & Nomenclature Used for Fall Protection & Fall Arrest

Establishes the definitions and nomenclature used for the Z359 Fall Protection Code.

ANSI/ASSE Z359.1-2007: Safety Requirements for Personal Fall Arrest Systems, Subsystems & Components

Establishes requirements for the performance, design, marking, qualification, instruction, training, inspection, use, maintenance and removal from service of personal fall arrest systems.

ANSI/ASSE Z359.2-2007: Minimum Requirements for a Comprehensive Managed Fall Protection Program

Establishes guidelines and requirements for an employer's managed fall protection program, including policies, duties and training, fall protection procedures, hazard survey, eliminating and controlling fall hazards including requirements for fall protection systems, design considerations for new buildings and facilities, rescue procedures, incident investigations and evaluating program effectiveness.

ANSI/ASSE Z359.3-2007: Safety Requirements for Positioning & Travel Restraint Systems

Establishes requirements for the performance, design, marking, qualification, test methods and instructions of lanyards and harnesses comprising personal positioning and travel restraint systems.

ANSI/ASSE Z359.4-2007: Safety Requirements for Assisted-Rescue & Self-Rescue Systems, Subsystems & Components

Establishes requirements for the performance, design, marking, qualification, instruction, training, use, maintenance and removal from service of connectors, harnesses, lanyards, anchorage connectors, winches/hoists, descent control devices, rope tackle blocks and self-retracting lanyards with integral rescue capability comprising rescue systems used in preplanned self-rescue and assisted-rescue applications.

ANSI/ASSE Z359.1-1992 (R1999): Safety Requirements for Personal Fall Arrest Systems, Subsystems & Components

Included as a historical document.

To purchase the ANSI/ASSE Z359 Fall Protection Code, visit:

<https://www.asse.org/shoponline/products/Z359-PKG.php>

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ASSE Transportation Fleet Safety Symposium a Success

In September 2007, occupational safety and health professionals, law enforcement officials and academia from 27 states, Canada and Switzerland attended ASSE's "Improving Fleet Safety" symposium held at UPS headquarters in Atlanta, GA.

This symposium gave safety, health and environmental professionals an opportunity to discuss new ways to prevent injuries and fatalities within the transportation industry.

Topics covered at the two-day conference included pilot programs aimed at understanding driver behavior and the lone-worker environment. Presentations addressed large trucks, personal vehicles used for work, vans and utility vehicles.

Conference participants and attendees indicated that seatbelts and company programs intended to reduce aggressive and distracted driving can help improve fleet safety, as can in-vehicle cameras, vehicle and cargo tracking systems and active management of employee performance.

Practice Specialty Fee to Increase

The Council on Practices and Standards (CoPS) would like to inform you that effective January 2008, the cost to join a practice specialty will increase from \$15 to \$20 (per practice specialty).

In the nearly 14 years since the last price increase, ASSE and CoPS have worked hard to keep practice specialty membership fees affordable, even during several postage rate hikes and increasing printing and publication costs. The minor \$5 increase will be used to address rising printing and postage costs as well as the additional labor and personnel needed to publish each of the 13 different technical publications and to provide our current high-caliber products and services. It will also position the practice specialties for future growth and improvement.

Thanks to practice specialty members' article contributions, we are pleased to see that the technical publications have increased in quality and page length. Most of the technical publications now average between 16 and 24 pages of content, compared to the average length of four to six pages in 1995. And, since it is CoPS' mission to give practice specialty members only the best product possible, the small change in price will allow us to continue to offer you the superior resources you depend on and deserve. We appreciate your support and understanding. ■

2007 Technical Audio Conference Call Schedule

October 17, 2007

Title: Powerful Presentations to CEOs

Speaker: Mark Hansen

October 31, 2007

Title: Aging Workforce

Speaker: Joel Haight

November 14, 2007

Title: Nanotechnology: From Uncertainty to Practice

Speaker: Robert Adams

December 12, 2007

Title: Influenza: Threat vs. Preparedness

Speaker: Scott Mugno

For more information or to register, contact ASSE's Customer Service Department at (847) 699-2929.

An In-Depth Look at U.S. TAG Operations

Joseph Feldstein has served as Chair of the U.S. Technical Advisory Group to ISOTC94/SC4 for Fall Protection since 1999. In this interview, Feldstein explains how the U.S. TAG operates, its achievements thus far and its goals for the following year.

Please provide a brief description of your professional occupation and of your position within the U.S. TAG to ISOTC94/SC4 for Fall Protection.

I work for Mine Safety Appliances Company (MSA), a manufacturer of personal safety equipment. My title is Manager of Technical Services, and I have 17 years of product design and standards development experience in fall protection.

My role as Chair of the U.S. TAG is to bring U.S. interests into the ISO international standards-making process. I also carry the information gathered while working with international representatives back to the U.S. to advise U.S. interests of activities and trends in fall protection originating outside our country. Interested U.S. parties include standards development organizations, manufacturers, employers, government researchers, labor groups and trade associations.

The U.S. TAG is one of 23 voting members in ISOTC94/SC4. What procedures must the U.S. TAG follow to effectively participate in this international standards development process? How does this process differ from that of American standards development?

While the U.S. may be a global economic and technological leader, we have only one vote in the International Standards Organization (ISO), just as every other country represented in the Subcommittee on Fall Protection. U.S. interests are therefore in a distinct minority, especially because the European Union (EU) member states tend to vote as a bloc in favor of the European CEN standards. The U.S. TAG has formed various alliances with other national TAGs to serve as a counterbalance to the majority status of the European states. Our U.S. TAG follows the American National Standards Institute's (ANSI) guidelines for the conduct of all U.S. TAGs that participate in ISO.

The process of developing standards within the ISO framework is similar to that of U.S. national consensus standards bodies under ANSI. This is a process of voluntary consensus-building among the various participants, each

Joseph Feldstein

Joseph Feldstein is Manager of Technical Services for Mine Safety Appliances (MSA) Company in Pittsburgh, PA. In this position, he works in marketing with responsibility for technical support in engineering and sales in North America and internationally.



Feldstein, who has 17 years of experience in fall protection product design and standards development, holds the following affiliations:

- Member, American Society of Safety Engineers' Engineering Practice Specialty
- Professional Member of Executive Committee, ANSI Z359 Accredited Standards Committee for Fall Protection in General Industry
- Member, ANSI A10.32 Accredited Standards Committee for Fall Protection in Construction Industry
- Member, Canadian Standards Association, CSA Technical Advisory Committee for Fall Protection
- Chair, International Safety Equipment Association, Fall Protection Group
- Chair, U.S. Technical Advisory Group to the International Standards Organization, ISO TC94/SC4 for Fall Protection
- Member, Board of Directors, International Society for Fall Protection
- Chair, Scaffold Industry Association, Fall Protection Safety Council

He has published articles in *Occupational Hazards*, *ISEA Journal*, *Roads & Bridges* and *American Lift & Handler Magazine* and has presented at numerous conferences and symposia.

He also holds a patent for a full-body harness for fall arrest and is a 2006 recipient of the National Institute for Occupational Safety and Health's (NIOSH) Bullard-Sherwood Award.

Feldstein holds a bachelor of science degree in physical sciences from Colorado State University.

representing their national interests. The U.S., like our European counterparts, is signatory to the ISO charter and abides by similar rules in our national standards organizations. The process depends on mutual agreement, with a democratic procedure that ensures majority rule but minority rights. So the process of standards development is familiar to U.S. delegates attending ISO meetings because the rules are similar to those we follow in our U.S. ANSI committee for fall protection.

ISOTC94/SC4 has developed a set of six approved ISO standards that represent a compromise between North American and European standards. However, these standards have not been adopted for use in North America or Europe because they are a hybrid set of requirements.

What do these standards encompass, and what is their current status?

The initial suite of ISO fall protection standards was issued as a series from 2000 to 2002. They include the following personal fall arrest systems components:

- ISO 10333-1 Full-Body Harnesses
- ISO 10333-2 Lanyards and Energy Absorbers
- ISO 10333-3 Self-Retracting Lifelines
- ISO 10333-4 Vertical Rails and Vertical Lifelines
- ISO 10333-5 Connectors
- ISO 10333-6 System Performance Tests

The compromise involved the attempt to square the circle between U.S. and European fall protection equipment standards. In the U.S., our fall protection protective equipment must meet certain minimum requirements, such as a minimum breaking strength of 5,000 lbs, which are mandated in U.S. Occupational Safety and Health Administration (OSHA) regulations and ANSI voluntary consensus standards.

In Europe, the requirements for the same equipment are different. For example, CEN standards for minimum strength are set at 15 kN (3,372 lbf). The Europeans would not agree to increase their requirements to meet U.S. standards, and the U.S. could not lower our requirements to coincide with those of the Europeans. The resulting set of product standards reflects this impasse, a hybrid between North American and European criteria.

Consequently, the ISO 10333 series of fall protection standards could not be adopted by any of the ISO member states. Europe, Canada and the U.S. continued to promote their own national standards in developing countries where their products were sold.

Since the ISO 10333 series were published, they have not been adopted by any national standards organization. Last year, ISO TC94/SC4 committee members were faced with updating these standards according to the schedule for periodic review under ISO rules. The member delegates were no closer to reaching agreement on key issues in 2006 than they were when the standards were written. We agreed to administratively withdraw the ISO 10333 standards until

further progress is made in harmonizing the competing national standards.

Australia has served as Secretariat of ISOTC94/SC4 since 2003. During the last four years, ISOTC94/SC4 has:

- ***Created an international consensus on Rope Access***
- ***Passed a new international standard for Descender Devices (ISO22159)***
- ***Started work on an international guidance document for the selection and use of fall protection equipment titled Fundamentals of Fall Protection***

What role did the USTAG play in each of these projects, and what are the group's goals for the following year?

Under the Australia Secretariat, the ISO TC94/SC4 has taken a different track in developing international standards for fall protection. The approach taken since 2003 has been to develop standards, which (a) do not conflict with existing national standards and (b) cover new topics not currently addressed by national standards. The U.S. TAG was instrumental in convincing other members to take this approach, and subsequent events proved the value of this change in direction.

Interested U.S. parties were active in the creation of a *Fundamental Principles of Rope Access* document led by the Society of Rope Access Technicians (SPRAT). The SPRAT President was also charged with drafting the next rope access document, *Codes of Practice for Rope Access*, which covers training, certification, equipment and job planning requirements. The success of these efforts was based on cooperative effort in sharing best practices from all ISO members. Since no national regulations exist for rope access, members were free to agree on the highest and best level of protection. The ISO TC94/SC4 committee avoided the pitfall of setting quantitative values on key requirements and instead left the decision on these values with the national regulatory authority in the states where the standard is adopted.

The U.S. TAG also participated in the ISO Working Group for Descender Devices. U.S. interested parties provided input on the classification scheme, design requirements and test procedures. The published standard incorporates all criteria recommended by interested U.S. parties and serves as a model document for U.S. standards.

Next year, the U.S. TAG will work on *Fundamentals of Fall Protection*, which is intended to be a guidance document on the proper selection and use of fall protection equipment.

The U.S. TAG will play a prominent role in providing example language taken from U.S. national standards. The U.S. TAG has established America as a key partner in the development of international standards for fall protection. We anticipate building on our recent successes in crafting international standards that can truly be used worldwide.

You serve as a primary representative on the ANSI Z359 Accredited Standard Committee (ASC) for Fall Protection. How has this experience helped you in your work with the U.S. TAG?

As a member of the Executive Committee for the ANSI Z359 ASC, I have the opportunity to work with U.S. standards writers for fall protection. The ANSI Z359 subcommittee discussions on standards writing help me understand the reasons behind the requirements. This inside knowledge can be very useful in advocating and defending the rationale of U.S. policies to those outside the U.S.

The U.S. TAG has historically drawn from members of the ANSI Z359 ASC to serve as members and delegates on the U.S. TAG. The U.S. TAG was also instrumental in directing recent changes to the Z359 standards in a manner consistent with the eventual harmonization of U.S. and European fall protection standards.

The U.S. TAG has recommended that the ISO Rope Access document and Descender Devices standard be adopted as U.S. national standards by ANSI. The ANSI Z359 ASC for Fall Protection is currently considering this recommendation.

Does it appear as though these standards will be submitted to ANSI soon?

Yes, the ISO Rope Access document and Descender Devices standard have both been placed on the agenda for possible adoption by the ANSI Z359 ASC. At the last meeting this year, U.S. TAG delegate and SPRAT member, Louie Clem, was appointed as head of the ANSI Z359 Subcommittee for Rope Access. Clem proposes to adopt the ISO standard she helped draft as the U.S. national standard. The Executive Committee will take up the Descender Devices standard later this year, and it is my hope that we will agree to adopt it also as an ANSI/ISO document for the U.S.

The U.S. TAG was recently named ISO TC94/SC4 liaison to the CEN Technical Committee for Fall Protection. What will be the U.S. TAG's responsibilities as liaison?

The U.S. TAG is honored to serve as liaison to the CEN TC160 Technical Committee for Fall Protection. This is the European equivalent of the ANSI Z359 ASC but with an important difference. The standards CEN TC160 publishes will become the national standards for 22 European member states, with the force in effect of law. The U.S. TAG will lay the groundwork next year for making Europeans comfortable with fall protection practices and technologies of countries outside of Europe, especially the U.S.

To facilitate understanding and cooperation among fall protection experts from Europe, the U.S. and other countries, the U.S. TAG will set up a workshop in 2008 under the auspices of the International Society for Fall Protection. Our U.S. TAG will invite expert speakers from both sides of the Atlantic to present their views on topics of common interest to standards writers in Europe and the U.S. Our goal is to open dialogue with fall protection specialists from the EU nations to better understand their concerns and to offer our views on best solutions in fall protection as currently practiced in the U.S. market. I believe there is general agreement that the time and effort spent by each of the national standards bodies in developing duplicative fall protection standards could be significantly improved by cooperative effort through participation in an ISO international process.

The U.S. TAG is committed to the goal of a unified set of fall protection standards under the ISO framework, with a common set of requirements under ANSI/ISO in the U.S. and ANSI/CEN in Europe. We recognize that this goal may be years away from achievement. I find it encouraging that members of the U.S. TAG also realize that the knowledge gained through exchanging views with our international partners in the process is as valuable as the goal itself. ■

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A10.46 Standard Receives Positive Response from Industry

Since the standard, "Hearing Loss Prevention in Construction and Demolition Workers" (ANSI/ASSE A10.46-2007), received final ANSI approval on March 5, 2007, employers nationwide have successfully incorporated the standard into their safety practices to better protect workers from noise exposures at worksites.

The A10.46 standard applies to all construction and demolition workers with potential noise exposures (continuous, intermittent and impulse) of 85 dBA and above.

It also offers criteria for:

- Hazardous exposure identification
- Hazard control
- Hearing protection devices
- Audiometry
- Training
- Recordkeeping
- Evaluation

Richard King, Chair of the A10 Accredited Standards Committee (ASC), Walter Jones, Co-Chair of the A10.46 subgroup, and Scott Schneider, a Primary Representative on the A10 ASC, all credit the A10.46 standard's success to the fact that it uses task-based exposure monitoring to identify tasks requiring hearing protection.

"A task-based standard like A10.46 works because it eliminates the need to conduct monitoring to determine hazards," says Jones.

King notes that "OSHA relies on an eight-hour time-weighted average (TWA) of 85 decibels to trigger hearing protection; the A10.46 standard requires protection for anything over 85 decibels."

"Contractors and workers will find it much easier to comply with the A10.46 standard's format," adds Schneider.

King, Jones and Schneider are pleased with the positive response the A10.46 standard has received since its approval and release, and each predicts that with continued and consistent use, the standard will reduce hearing loss compensations claims significantly over the next several years.

"As with most public health initiatives, awareness often leads to a spike before we see a reduction. But hopefully, it will not be long before we reduce the prevalence of noise-induced hearing loss from working in construction," says Jones.

According to King, voluntary compliance with the A10.46 standard depends on industry education. "Employer associations must distribute information on the standard to contractor organizations that represent construction and contractors in the United States," King emphasizes.

"The efforts of contractors and labor unions will also determine implementation of and voluntary compliance with the A10.46 standard," he adds.

During the next year, A10 ASC will raise further awareness and recognition of the A10.46 standard, and ASSE will continue to work with ANSI to promote the standard at the state and federal levels and within the private sector.

For more information or to purchase the A10.46 standard, visit <https://www.asse.org/shoponline/products/A10-46-2007.php>.

Special Issue of *ByDesign* Posted on CoPS Website

The Engineering Practice Specialty has developed a special issue of *ByDesign* to highlight the importance of designing out or minimizing hazards and risks early in the design and redesign processes to prevent and control occupational injuries, illnesses and fatalities.

Fred A. Manuele, P.E., CSP, president of Hazards Limited, has authored the issue's featured article, "Prevention through Design: Addressing Occupational Risks in the Design and Redesign Processes."

To view this special issue, visit:

http://www.asse.org/practicespecialties/engineering/docs/ByDesign_PtDSpecial_Fall2007.pdf

News You Can Use

ASTM Committee Developing Two Proposed Standards

ASTM International Committee F23 on Protective Clothing is developing two proposed new standards that will each contribute to the safety of protective clothing. Interested parties may participate in the development of both proposed standards, which are WK14247, “Specification for Air-Fed Protective Ensembles” and WK14442, “Antimicrobial Activity of Textiles Following Multiple Launderings with Bleach.”

WK14247 would establish design, performance, documentation, labeling and certification requirements for protective ensembles that rely on a principal air supply to the wearer via an air line or air filtered directly into the ensemble.

Air-fed protective ensembles include clothing and equipment items needed for dermal and respiratory protection, including protective suits, gloves, footwear and eye/face protection. However, unlike other protective ensembles, air-fed ensembles do not use respiratory protective devices such as self-contained breathing apparatus, air-purifying respirators and supplied air respirators.

Despite their use in a variety of applications, performance criteria and specifications for air-fed protective ensembles do not currently exist. The objective of WK14247 is to develop specifications for air-fed protective ensembles that address both inhalation and dermal performance criteria. The proposed specification will combine National Institute for Occupational Safety and Health (NIOSH) certification criteria for respirators with separate criteria for suit, glove, footwear and eye/face protection items, materials and components. WK14247 will also provide detailed labeling and certification requirements.

Antimicrobial treatments are often applied to textiles to impart durable efficacy, thus reducing the survival and growth of microorganisms on the textile. WK14442 would ensure that these antimicrobial agents continue to work throughout a garment’s life span.

Development of more durable antimicrobials, as well as those that are compatible with high pH conditions and small amounts of caustic chlorine bleach, has created a need to show effective performance of the life of a product under

conditions that are typical in actual use. WK14442 would propose testing antimicrobial efficacy after 25, 50 and 75 standard washes. There would be two types of wash standards, one for industrial use and one for home use, and both would incorporate the use of bleach as an option to simulate the treatment that is typically found in most industrial laundries.

Performance textile suppliers, industrial laundries, security and emergency personnel, trade organizations, consumer groups and other end users are among those who would be able to use WK14442 to assure that the products they manufacture, distribute and use are effective for durable protection against microbial growth on their textile products.

—Adapted from *ASTM International news release, “ASTM Committee on Protective Clothing Developing Two Proposed Standards,” June 2007.*

ASTM Releases New International Protective Equipment Standard

ASTM International’s new standard, F 2621, “Practice for Determining Response Characteristics and Design Integrity of Arc-Related Finished Products in an Electric Arc Exposure,” is the latest in a series of standards that Subcommittee F18.65 on Wearing Apparel has developed to reduce the number of fatalities and injuries caused by electric arcs. ASTM Practice F 2621 provides procedural guidelines for conducting arc testing on finished products intended for use as thermal protection by workers who may be exposed to electric arcs. Subcommittee F18.65 is under the jurisdiction of ASTM International Committee F18 on Electrical Protective Equipment for Workers.

F 2621 was developed because of a need within the protective equipment industry to determine the qualitative arc exposure performance of arc resistant garments and other personal protective equipment (PPE).

Manufacturers, large end users of PPE and companies that have had arc flash accidents and want to recreate the exposure conditions for analysis will use F 2621. The standard will be used to improve protective clothing design, address problems related to closures, labels and sewing

thread in protective clothing and help assess overlap areas when more than one protective garment is worn.

Other standards developed by Subcommittee F18.65 to protect electrical workers include:

- F 1506, Specification for Flame-Resistant Textile Materials for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards
- F 1959/F 1959M, Test Method for Determining the Arc Rating of Materials for Clothing
- F 1891, Specification for Arc and Flame-Resistant Rainwear
- F 2178, Test Method for Determining the Arc Rating and Standard Specification for Face Protective Products

—Adapted from ASTM International news release, “New ASTM International Protective Equipment Standard to Measure Electric Arc Exposure,” June 2007.

CSB Issues Case Study on Fatal Partridge-Raleigh Oilfield Explosion

In a case study report released on a fatal explosion and fire last year at a Smith County oilfield, the **U.S. Chemical Safety Board (CSB)** found that unsafe work practices were the cause of the accident and recommended increased U.S. Occupational Safety and Health Administration (OSHA) inspections of the region’s oil and gas production facilities.

The report also called for the Mississippi Oil and Gas Board to identify and refer to OSHA potentially unsafe health and

safety conditions observed during field inspections of well sites and drilling operations.

At around 8:30 a.m. on Monday, June 5, 2006, loud explosions and a fire were reported at the Partridge-Raleigh oilfield in Raleigh, MS. Three contractors died, and one contractor suffered serious injuries. The contractors, all employees of Stringer’s Oilfield Services, were completing piping connections between tanks when welding sparks ignited flammable vapor venting from one of the tanks.

Partridge-Raleigh earlier contracted with Stringer’s Oilfield Services to relocate three oil production tanks located on the Partridge property. Four tanks were arranged in a straight line approximately four feet apart where the workers were to perform the tank connection. The tanks ranged from 15 to 20 feet tall and 12.5 feet in diameter. The tank contents included flammable hydrocarbons, ethyl benzene, xylene, toluene and naphthalene fumes.

On the day of the accident, two Stringer’s workers and a foreman had climbed on top of the tanks and placed a ladder between two tanks to serve as a makeshift scaffold. A welder attached his safety harness to the top of one of the tanks and positioned himself on a ladder. To connect the piping to the two tanks, the welder needed to weld a pipefitting onto the side of one tank before attaching a short length of pipe to the fitting and to a nearby open-ended pipe on an adjacent tank.

Almost immediately after the welder began to weld, flammable hydrocarbon vapor venting from the open-ended

CoPS Wants to Know...

What was the most successful SH&E training event you conducted or participated in?

What made this training so effective?

E-mail your responses to jcappello@asse.org by **November 16, 2007**.

Responses will be published in the next issue of *CoPS SH&E Report*.

pipe ignited. Welding sparks ignited flammable vapor escaping from the open-ended pipe about four feet from the contractors' welding activity.

The fire flashed back into the tank on which the two workers were holding the ladder and also quickly flashed back into the third tank. The pressure from the burning vapor inside the two tanks caused the tops to blow off. The force of the explosion threw the workers, who suffered blunt force trauma and fatal injuries as a result. The welder suffered a broken ankle and hip but survived since he was wearing a safety harness that prevented him from falling to the ground.

The investigation found that unsafe work practices directly contributed to the severity of this accident. The ladder placed between the tanks should not have been used as a makeshift work platform, and the open pipe on the adjacent tank was not capped or otherwise isolated with a closed valve to prevent flammable vapor from accumulating near the area where the welding was to be done.

Additionally, while not a cause of the accident, the welder inserted a lit oxyacetylene welding torch into the tank's hatch and then into an open nozzle on the opposite side of the tank to verify that all flammable vapor was removed from the tank instead of using a flammable gas detector.

The fatality rate of the oil and gas extraction industry is over eight and a half times higher than the average for all industries in the U.S.

CSB found that Stringer's lacked hot work safety procedures and did not implement available guidelines from the American Petroleum Institute (API) 2009 standard, "Safe Welding, Cutting, and Hot Work Practices in the Petroleum and Petrochemical Industries" in preparing and conducting the welding operation on the day of the incident. In addition, Stringer's and Partridge Raleigh did not adhere to OSHA requirements addressing safe welding practices.

CSB recommended that Stringer's Oilfield Services management develop and implement written procedures to ensure safe work practices during hot work, tank cleaning and work from elevated locations. CSB also recommended that Partridge-Raleigh management establish written health and safety performance standards and performance metrics such as those found in the API Recommended Practice for Occupational Safety for Onshore Oil and Gas Production Operations (API RP-74).

CSB recommended that the Mississippi State Oil and Gas Board (MSOGB) establish a program to identify and refer to

the federal OSHA potentially unsafe health and safety conditions observed during CSB field inspections of well sites and drilling operations. The program should include a written referral procedure and the training of field inspectors. MSOGB has the primary task to enforce compliance with its rules related to spill control and containment, housekeeping and access to and egress from tanks.

CSB also recommended that OSHA Jackson, MS Area Office implement a Local Emphasis Program to inspect companies in the oil and gas production and extraction sector.

OSHA had not inspected Partridge-Raleigh or Stringer's in the three years prior to the explosion or conducted a planned inspection at any of the nearly 6,000 oil fields in Mississippi in the preceding five years. Inspections were conducted resulting from employee complaints or accidents. Following the explosion, OSHA cited Stringer's for 13 serious safety violations.

—Adapted from CSB news release, "CSB Issues Case Study on Fatal Partridge-Raleigh Oilfield Explosion in Mississippi; Recommends OSHA Program to Inspect Oil and Gas Production Facilities," June 12, 2007.

Final CSB Report on Synthron Explosion Finds Inadequate Safety Controls

In a final report released on last year's fatal explosion at the Synthron chemical manufacturing facility in Morganton, NC, CSB concluded that the company's management of reactive chemical hazards was inadequate and that the facility was unprepared for a chemical process emergency. CSB also found that ineffective corporate oversight by French parent company Protex International contributed to the likelihood and severity of the accident.

The explosion occurred on January 31, 2006 as the result of a runaway chemical reaction in a 1,500-gallon process vessel inside the Synthron production building. One worker was fatally burned and fourteen others were injured, two seriously. The blast destroyed the facility and broke windows up to one-third of a mile away. Two churches and a home were damaged and were later condemned. Synthron filed for bankruptcy following the accident, and the facility has not been rebuilt.

CSB released a two-minute computer-animated video depicting the sequence of events that led to the Synthron explosion. This computer animation is part of a new 20-minute CSB safety video on reactive chemical hazards. The video will be distributed worldwide in an effort to draw

increased attention to the dangers from uncontrolled chemical reactions.

Synthron manufactured acrylic polymers for use as paint and coating additives. The polymers were typically produced inside a batch reactor by chemically reacting a blend of acrylic monomers in a mixture of flammable solvents. The polymerization reaction produced significant heat, which was removed by condensing the solvent vapor in an overhead, water-cooled condenser. The cooled, condensed solvent then flowed back into the reactor, keeping the temperature and the reaction under control.

The accident occurred when plant managers attempted to fulfill an order for acrylic polymer that exceeded the normal batch size for this product. Instead of making two smaller batches to fill the order, managers decided to make a single, larger batch. Managers decided to add all of the extra acrylic monomer during the first stage of the reaction process, which was a critical mistake. Subsequent laboratory testing by CSB showed that increasing the batch size in this manner raised the maximum heat output from the reaction by a factor of at least 2.3. The heat output exceeded the cooling capacity of the condenser, and the reaction accelerated out of control or “ran away.”

After initiating the reaction on January 31, 2006, operators observed solvent vapor leaking from a hatchway on top of the reactor as the process overheated and pressure built up inside the reactor. Operators fled the production building and gathered just outside a doorway. A flammable vapor cloud formed inside the building, and a short time later it

ignited and exploded, destroying the production facility and fatally burning a maintenance supervisor who had remained inside. Personnel who gathered just outside the building were among the injured.

CSB later found that the surface of the cooling water side of the condenser on the reactor was fouled with scale, rust and sediment, which likely degraded the condenser’s cooling capability by at least 25%.

CSB estimated that the flammable release occurred when the reactor reached a pressure of 23 lbs per square-inch gauge (psig), which was well below the reactor’s maximum working pressure of 75 psig. Further, Synthron had a longstanding practice of improperly securing the reactor hatch, using only four of the 18 metal clamps recommended by the manufacturer. Once the condenser cooling capacity was exceeded during the runaway reaction, the failure to fully clamp down the hatchway compromised the performance of the hatchway gasket, which allowed flammable solvent vapors to be released into the building.

The CSB investigation determined that Synthron had gathered only minimal safety information on its polymer-producing processes, and personnel, including managers, were poorly prepared to recognize the dangers from an uncontrolled chemical reaction.

CSB found that Synthron had not performed a systematic safety review of the reactor, also known as a process hazard analysis. The facility also failed to install safeguards to automatically detect, prevent or mitigate a runaway reaction.

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- Do you know someone who would make a compelling interview candidate? Is that someone *you*?

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For information on submitting editorial content to any of the CoPS publications, e-mail Jolinda Cappello at jcappello@asse.org.

CSB concluded that Synthron was not prepared for an emergency. Operating procedures did not instruct employees on what to do in the event of a chemical release or loss of chemical reactor control. Evacuation drills had not been conducted, and the facility was not equipped with an emergency alarm system. Investigators concluded there was adequate time available to have evacuated all personnel to a safe location after vapor escaped from the reactor hatchway. Such an evacuation would likely have prevented the death and injuries.

Synthron LLC was owned by a French company, Protex International, which has operations in Europe, Asia, North America, and South America. Protex has chemical facilities in Massachusetts, New Jersey and Florida. The investigation found that Protex had testing equipment at its European facilities to measure chemical reaction hazards, but it did not use this equipment to determine the safety of Synthron's processes or to provide adequate technical support to Synthron.

CSB recommended that Protex International establish a program to follow good industry safety practices for managing reactive hazards at all its remaining U.S. facilities.

—Adapted from CSB news release, “Final CSB Report on Synthron Explosion Finds Inadequate Safety Controls for Chemical Reaction Hazards,” July 31, 2007.

New ISO Standard to Protect Machinery Users

The new **International Organization for Standardization's (ISO) 14121-1** standard on risk assessment for machinery will help designers and manufacturers reduce associated safety hazards.

The standard, “ISO 14121-1:2007, Safety of Machinery—Risk Assessment—Part 1: Principles,” helps manufacturers identify risks during the design stage of production to prevent future accidents. The risk assessment guidelines provided in the standard are presented as a series of logical steps. These will help designers to systematically determine the limits of the machinery, identify risks of hazards like radiation, burning or electrocution and estimate potential dangers ranging from machine failure to human error.

The information obtained through this process will allow producers to determine whether or not a machine is safe. If the machine is not found to be adequately safe, the information would be used during the subsequent risk reduction stage. The process would then be repeated until the machine is established as adequately safe for use.

Moreover, many national safety legislations oblige manufacturers to comply with a variety of diverging requirements. The widespread adoption of this international standard based on consensus could facilitate international trade while improving occupational health and safety.

ISO 14121-1 will also encourage further standards development. The second part of ISO 14121 is currently under preparation, “ISO/PRF TR 14121-2, Safety of Machinery—Risk Assessment—Part 2: Practical Guidance and Examples of Methods.”

—Adapted from ISO news release, “ISO Safety Standard to Protect Users of All Types of Machinery,” September 14, 2007.

MSHA Proposes New Standards for Underground Coal Mine Rescue Teams

The **U.S. Mine Safety and Health Administration (MSHA)** published a proposed rule enhancing the availability and effectiveness of mine rescue teams for underground coal mines. MSHA also announced four public hearings to be held on this proposed rule as well as another proposed rule MSHA published regarding mine rescue team equipment.

MSHA's proposed rules on mine rescue teams:

- Require coal mine operators to make available two certified mine rescue teams.
- Include criteria for certifying the qualifications of mine rescue teams.
- Require mine rescue team members to be available at the mine within one hour from the mine rescue station.
- Increase training for coal mine rescue team members from 40 to 64 hours annually.
- Require coal mine rescue team members to have practical experience as an underground coal miner or member of a mine rescue team.
- Require mine rescue team members to participate in training at each mine serviced by the team and have knowledge of the operations and ventilation at the mine.
- Require mine rescue team members to participate annually in two local mine rescue contests.
- Include criteria for local mine rescue contests to improve rescue skills.

MSHA also published a proposed rule on mine rescue team equipment that applies to underground coal and metal and nonmetal mines, requiring two additional hours of breathable air from their self-contained breathing apparatuses and gas detectors to measure potentially dangerous gasses they could encounter during rescue operations.

—Adapted from U.S. Department of Labor news release, “MSHA Proposes New Standards for Underground Coal Mine Rescue Teams,” September 6, 2007.

OSHA Implements NEP to Eliminate Hazardous Chemicals in Petrochemical Industry

The U.S. Occupational Safety and Health Administration (OSHA) has published a directive implementing a National Emphasis Program (NEP) to help eliminate workplace hazards associated with the release of highly hazardous chemicals at petroleum refineries.

Under this program, OSHA will conduct 81 inspections over the next two years. However, the program is just one of multiple significant enforcement projects in the oil, gas and refining industries on which OSHA is working.

OSHA also has two Regional Emphasis Programs operating in Louisiana, Arkansas, Oklahoma, Texas and New Mexico that focus on reducing workplace injuries and fatalities in the oil and gas well drilling and petrochemical industries. This NEP will provide guidance to OSHA national, regional and area offices as well as to states that choose to implement similar programs.

The directive is available online at www.osha.gov/OshDoc/Directive_pdf/CPL_03-00-004.pdf.

—Adapted from U.S. Department of Labor news release, “OSHA Implements National Emphasis Program to Eliminate Highly Hazardous Chemicals in the Petrochemical Industry,” June 12, 2007.

U.S. Department of Labor Awards Funding to Train Alaskan Workers

U.S. Secretary of Labor Elaine L. Chao announced an award of \$7.5 million to Alaska to prepare and enhance the skills of 2,550 workers involved in the state’s many pipeline maintenance and construction activities.

Skills-based training programs funded through the grant will be phased in over a five-year period. Skilled construction workers will be involved in ongoing modernization efforts on existing pipelines. In addition, a new natural gas pipeline is anticipated, for which construction will take place from November to March of each year to minimize potential environmental effects. While earning certification in arctic weather construction techniques, workers will participate in intensive, hands-on team training and some will take part in distance learning class work as well. Occupational training will make use of apprenticeship programs and focus on

heavy equipment operators, pipe welders, surveyors and truck drivers.

—Adapted from U.S. Department of Labor news release, “U.S. Department of Labor Awards Funding to Train Alaskan Workers,” June 29, 2007.

OSHA Conducts Lookback Review of Methylene Chloride Standard

OSHA has announced that it is accepting public comments on the review of its Methylene Chloride (MC) Standard 29 CFR §1910.1052 (62 FR 1494). In 1997, OSHA promulgated the standard to protect employees from occupational exposure to MC. OSHA seeks suggestions on how the standard’s applicability or requirements could be changed or tailored to reduce the burden on employers while maintaining employee protection.

OSHA’s Directorate of Evaluation and Analysis conducts retrospective reviews of final standards in accordance with the regulatory review provisions of Section 610 of the Regulatory Flexibility Act (5 U.S.C. 601 et seq.) and Section 5 of Executive Order 12866 on Regulatory Planning and Review (58 FR 51735, 51739, October 4, 1993). These retrospective reviews are more commonly referred to as “lookback” or Section 610 reviews.

MC is used in metal degreasing, aircraft paint removal, chemical manufacture and other applications.

—Adapted from OSHA news release, “OSHA Conducts Lookback Review of Methylene Chloride Standard,” July 17, 2007.

Assistant Secretary of Labor Comments on New Workplace Fatality Data

Assistant Secretary of Labor for Occupational Safety and Health Edwin G. Foulke Jr. has issued a statement regarding the Bureau of Labor Statistics’ (BLS) Census of Fatal Occupational Injuries in 2006. The fatality rate declined to its lowest level since BLS began collecting data in 1992. The rate last year was 3.9 fatalities per 100,000 employees, down from 4.0 in 2005.

The number of fatal work injuries among employees younger than 25 years of age decreased by 9%, from 568 in 2005 to 516 in 2006. In addition, the fatality rate among Hispanic employees declined slightly, from 4.9 fatalities per 100,000 employees in 2005 to 4.7 fatalities per 100,000 in 2006.

“We are pleased to see both the rate and number of fatal work injuries continue to decline. More working men and

women are returning to their loved ones at the end of the work day,” says Foulke. “While these figures demonstrate progress, we still have a long way to go.

“We believe our initiatives are working. However, even one fatality is one too many. To end fatalities, injuries and illnesses on the job, nothing is more effective than prevention. We remain committed to helping all employers protect their most valuable resource—their employees.”

For more information on BLS’ statistics, visit <http://www.bls.gov/news.release/pdf/cfoi.pdf>.

—Adapted from U.S. Department of Labor news release, “Statement by Assistant Secretary of Labor for OSHA Edwin G. Foulke Jr. on New Workplace Fatality Data,” August 9, 2007.

OSHA Issues Draft Ergonomics Guidelines on Preventing Musculoskeletal Injuries in Shipyards

OSHA’s new draft guideline, “Ergonomics for the Prevention of Musculoskeletal Disorders: Guidelines for Shipyards,” could help employers and their employees in the shipyard industry prevent musculoskeletal injuries. The public is invited to submit comments to the draft guidelines until November 13, 2007.

BLS information indicates that in 2005, the injury and illness rate for the shipyard industry was 10.9 per 100 employees, compared to an injury and illness rate of 4.6 per 100 employees for all private industry. In 2005, 31% of injuries and illnesses that resulted in days away from work for shipyard employees involved musculoskeletal disorders.

When finalized, the new guidelines will provide practical recommendations for employers to reduce the number and severity of workplace injuries in their facilities by identifying, evaluating and controlling hazards and using best practices that have been successful in shipyards.

In April 2002, Secretary of Labor Elaine L. Chao announced a comprehensive plan to reduce ergonomics-related injuries through a combination of industry or task-specific guidelines, enforcement, outreach and assistance and research. The new guidelines will be the fourth in a series.

—Adapted from OSHA news release, “OSHA Issues Draft Ergonomics Guidelines on Preventing Musculoskeletal Injuries in Shipyards,” September 11, 2007.

OSHA Announces Three Actions to Protect Workers Exposed to Butter Flavorings

OSHA has announced that it will take the following three actions to address concerns regarding diacetyl exposure in the workplace:

1. Initiate a rulemaking under Section 6(b) of the Occupational Safety and Health Act.
2. Issue a Safety and Health Information Bulletin (SHIB).
3. Provide Hazard Communication Guidance.

These actions build upon the National Emphasis Program that OSHA announced in April 2007 to focus on the health hazards of microwave popcorn butter flavoring containing diacetyl.

SHIB provides information on health effects for workers exposed to butter flavorings in microwave popcorn processing plants, information on exposure controls that may be used to reduce exposures to butter flavorings and information on applicable OSHA standards.

The Hazard Communication Guidance alerts employers, workers, manufacturers and importers about new information related to the health hazards associated with diacetyl and food flavorings containing diacetyl and provides guidance on how to develop material safety data sheets and hazard warning labels to be in compliance with OSHA’s Hazard Communication Standard.

—Adapted from U.S. Department of Labor news release, “OSHA Announces Three Actions to Protect Workers Exposed to Butter Flavorings,” September 24, 2007.

OSHA Lookback Review Concludes Lead in Construction Standard Still Necessary

OSHA has announced the outcome of its Lead in Construction Standard lookback review.

OSHA’s Directorate of Evaluation and Analysis conducts retrospective reviews of final standards and regulations in accordance with the regulatory review provisions of Section 610 of the Regulatory Flexibility Act (5 U.S.C. 601 et seq.) and Section 5 of Executive Order 12866 on Regulatory Planning and Review (58 FR 51735, 51739, October 4, 1993). These retrospective reviews are more commonly referred to as “lookback” or Section 610 reviews.

The goal of the Lead in Construction Standard is to protect construction employees from lead-related health effects. OSHA estimates that in 2003, 649,000 employees were exposed to lead at levels that may trigger application of the

standard. OSHA regularly enforces the lead standard (29 CFR 1926.62) in the construction industry. Between 1993 and 2003, federal OSHA and State-Plan states conducted 4,834 inspections and issued 12,556 citations.

—Adapted from OSHA news release, “OSHA Lookback Review Concludes Lead in Construction Standard is Still Needed,” September 27, 2007. ■

Links

ASTM Committee Developing Two Proposed Standards

<http://69.7.224.88/viewnews.aspx?newsID=1126>

ASTM Releases New International Protective Equipment Standard

<http://69.7.224.88/viewnews.aspx?newsID=1126>

CSB Issues Case Study on Fatal Partridge-Raleigh Oilfield Explosion

http://www.csb.gov/index.cfm?folder=news_releases&page=news&NEWS_ID=378

Final CSB Report on Synthron Explosion Finds Inadequate Safety Controls

http://www.csb.gov/index.cfm?folder=news_releases&page=news&NEWS_ID=390

New ISO Standard to Protect Machinery Users

<http://www.iso.org/iso/pressrelease.htm?refid=Ref1074>

MSHA Proposes New Standards for Underground Coal Mine Rescue Teams

<http://www.dol.gov/opa/media/press/msha/msha20071371.htm>

OSHA Implements NEP to Eliminate Hazardous Chemicals in Petrochemical Industry

<http://www.dol.gov/opa/media/press/osha/osha20070850.htm>

U.S. Department of Labor Awards Funding to Train Alaskan Workers

<http://www.dol.gov/opa/media/press/eta/ETA20070984.htm>

OSHA Conducts Lookback Review of Methylene Chloride Standard

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=14317

Assistant Secretary of Labor Comments on New Workplace Fatality Data

<http://www.dol.gov/opa/media/press/osha/osha20071229.htm>

OSHA Issues Draft Ergonomics Guidelines on Preventing Musculoskeletal Injuries in Shipyards

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=14470

OSHA Announces Three Actions to Protect Workers Exposed to Butter Flavorings

<http://www.dol.gov/opa/media/press/osha/osha20071229.htm>

OSHA Lookback Review Concludes Lead in Construction Standard Still Necessary

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=14516

Standards Update

Acoustical Society of America (ASA)

ASA Standards Reaffirmed

ASA's standard, "Guidelines for the Specification of Noise of New Machinery" (BSR S12.16-1992 (R200x)), has been reaffirmed. This standard provides guidelines for obtaining noise level data from stationary equipment manufacturers. It references existing American National Standards Institute, trade and professional association measurement standards and techniques for requesting manufacturer noise level data. Appendices offer guidance for interpretation of the data received from the manufacturer.

ASA's standard, "Methods for Measurement of Sound Emitted by Machinery and Equipment at Workstations and Other Specified Positions" (BSR S12.43-1997 (R200x)), has been reaffirmed. This standard specifies three methods for measuring sound pressure levels from machinery and equipment, at a workstation and at other specified positions nearby, differentiated primarily by the acoustical environment in which they are made.

Measurements are made by:

- **Method A:** In an essentially free field over a reflecting plane
- **Method B:** In any environment that meets certain specified qualification requirements
- **Method C:** In a semi-reverberant field for which the accuracy implied by measurements under Method A or B is not required

ASA's standard, "Methods for Calculation of Sound Emitted by Machinery and Equipment at Workstations and Other Specified Positions from Sound Power Level" (BSR S12.44-1997 (R200x)), has been reaffirmed. This standard provides a method for determining the emission sound pressure levels from the sound power level produced by all types of machinery and equipment at workstations and at other specified locations. These sound pressure levels are, in general, less than those that would be measured when the machinery or equipment is operating in its normal surroundings where the environment may influence the measurement of an emission sound pressure level.

ASA's standard, "Acoustics—Determination of Sound Power Levels of Noise Sources—Guidelines for the Use of

Basic Standards" (BSR S12.50-2002/ISO 3704-2000 (R200x)), has been reaffirmed. This standard gives guidance for the use of a series of nine international standards describing various methods for determining sound power levels from all types of machinery and equipment. It provides brief summaries of these basic international standards and guidance on the selection of one or more of these standards, and it applies only to airborne sound.

American Industrial Hygiene Association (AIHA)

New AIHA Standards Now Available

AIHA's new standard, "Portable Ventilation Systems" (BSR/AIHA Z9.9-200x), is now available. This standard discusses portable ventilation equipment and systems used for the reduction, control or prevention of exposure to hazardous atmospheres or to airborne substances in the occupational environment and for provision of comfort to employees.

AIHA's new standard, "Fundamentals Governing the Design and Operation of Dilution Ventilation Systems in Industrial Occupancies" (BSR/AIHA Z9.10-200x), is also now available. This standard establishes minimum requirements for the commissioning, design, specification, construction, installation, management, operation, maintenance and testing of dilution ventilation systems (including demand dilution ventilation) used for the reduction, prevention and control of employee exposure to harmful airborne substances in the industrial environment. The standard establishes minimum requirements to provide safe and healthful working conditions in industrial employee occupancies.

American Ladder Institute (ALI)

ALI Standards Under Revision

ALI's standard, "Ladders—Wood Safety Requirements" (BSR A14.1-200x), is under revision. This standard prescribes rules and establishes minimum requirements for the construction, testing, care and use of the common types of portable wood ladders to ensure safety under normal usage conditions. It does not cover stepstools (furniture-type) except for ladder-type stepstools.

ALI's standard, "Ladders—Portable Metal—Safety Requirements" (BSR A14.2-200x), is also under revision. This standard prescribes rules governing the safe construction, design, testing, care and use of portable metal ladders of various types and styles. Ladders styles include ladder-type

stepstools and portable extension, step, trestle, sectional, combination, single, platform and articulating ladders but exclude:

- Ladders in and on mines
- Ladders used for fire services
- Mobile equipment
- Hoisting equipment
- Work platforms
- Antenna communications towers
- Transmission towers
- Utility poles
- Chimneys

It also does not cover special-purpose ladders that do not meet the general requirements of this standard

In addition, ALI's standard, "Ladders—Portable Reinforced Plastic—Safety Requirements" (BSR A14.5-200x), is under revision. This standard prescribes rules governing the safe construction, design, testing, care and use of portable reinforced plastic ladders of various types and styles. Ladders styles include ladder-type stepstools and portable extension, step, trestle, sectional, combination, single, platform and articulating ladders but exclude:

- Ladders in and on mines
- Ladders used for fire services
- Mobile equipment
- Hoisting equipment
- Work platforms
- Antenna communications towers
- Transmission towers
- Utility poles
- Chimneys

American Welding Society (AWS)

AWS Standard Under Revision

AWS's standard, "Safe Practices for the Preparation of Containers and Piping for Welding and Cutting" (BSR/AWS F4.1-200x), is under revision. This standard outlines the necessary safe practices to be followed in the cleaning and preparation of containers and piping for welding or cutting. It describes various methods for cleaning, including water, steam, hot chemical and mechanical, and techniques to be used for their proper preparation, such as inerting.

ASME

New ASME Standard Proposed

ASME's proposed new standard, "Self-Erect, Fast-Erect Tower Cranes" (BSR/ASME B30.29-200x), includes provisions that apply to the construction, operation, inspection, testing and maintenance of self-erect and fast-erect tower cranes, powered by electric motors or other means, which adjust operating radius by means of a trolley traversing a jib. These may be horizontal, elevated, articulating or telescoping and used for vertical lifting and lowering of freely suspended, unguided loads that consist of equipment and materials.

At its January 2007 meeting, the B30 Standards Committee unanimously approved to establish this standard.

Association for Manufacturing Technology (AMT)

AMT Standard to Be Revised

AMT plans to revise its standard, "Performance Criteria for Safeguarding" (BSR B11.19-200x), to incorporate updates in safeguarding theory and technology. This standard provides performance requirements for the design, construction, installation, operation and maintenance of the safeguarding when applied to machines.

AMT Standards Reaffirmed

AMT's standard, "Machine Tools—Safety Requirements for Turning Centers and Automatic Numerically Controlled Turning Machines" (BSR B11.22-2001 (R200x)), has been reaffirmed. This standard specifies the safety requirements for the design, construction, operation and maintenance (including installation, dismantling and transport) of turning centers and automatic, numerically controlled turning machines.

AMT's standard, "Machine Tools—Safety Requirements for Machining Centers and Automatic Numerically Controlled Milling, Drilling and Boring Machines" (BSR B11.23-2001 (R200x)), has also been reaffirmed. This standard specifies the safety requirements for the design, construction, operation and maintenance (including installation, dismantling and transport) of machining centers and automatic numerically controlled milling, drilling and boring machines.

In addition, AMT's standard, "Machine Tools—Safety Requirements for Transfer Machines" (BSR B11.24-2001

(R200x)), has been reaffirmed. This standard specifies the safety requirements for the design, construction, operation and maintenance (including installation, dismantling and transport) of transfer machines.

International Safety Equipment Association (ISEA)

New ISEA Standard Available

ISEA's new standard, "Classification and Performance Requirements for Chemical Protective Clothing" (BSR/ISEA 103-200x), is now available. This standard establishes minimum performance classification and labeling requirements for protective clothing designed to provide protection against chemical hazards. Protective clothing items covered by the standard include, but may not be limited to:

- Aprons
- Coveralls
- Hoods
- Jackets
- Pants
- Shoe and boot covers
- Sleeves
- Smocks
- Splash suits
- Totally encapsulating suits

To assist users of products covered by the standard, the standard provides descriptions of referenced test methods, guidelines for conducting hazard and risk assessments and suggested performance levels for certain applications.

Laser Institute of America (LIA)

New LIA Standard Available

LIA's new standard, "Testing and Labeling of Laser Protective Equipment" (BSR Z136.7-200x), is now available. This standard provides recommendations for the testing requirements and labeling of protective equipment (devices) designed for use with lasers and laser systems that operate at wavelengths between 180 nm and 1 mm.

National Electrical Contractors Association (NECA)

NECA Standard to Be Revised

NECA plans to revise its "Standard for Installing and Maintaining Temporary Electrical Power at Construction Sites" (BSR/NECA 200-200x) to reflect changes in the 2008 National Electrical Code.

This standard describes installation procedures at construction sites for temporary power operating at 600 volts or less. It addresses the planning, installation, expansion, maintenance, cutover and removal of the temporary power system and seeks to ensure a safe, adequate, functional and reliable temporary electrical power distribution system for all trades on site.

National Fire Protection Association (NFPA)

NFPA Standards Under Revision

NFPA's "Standard for the Production, Storage and Handling of Liquefied Natural Gas (LNG)" (BSR/NFPA 59A-200x) is under revision.

This standard applies to:

1. Design.
2. Location.
3. Construction.
4. Operation.
5. Maintenance of facilities at any location for the liquefaction of natural gas and the storage, vaporization, transfer, handling and truck transport of liquefied natural gas (LNG), including personnel training.

NFPA's "Standard for Electrical Safety in the Workplace" (BSR/NFPA 70E-200x) is under revision.

This standard addresses those electrical safety requirements for employee workplaces that are necessary for the practical safeguarding of employees in their pursuit of gainful employment. It covers the installation of electric conductors, electric equipment, signaling and communications conductors and equipment, and raceways for the following:

1. Public and private premises, including buildings, structures, mobile homes, recreational vehicles and floating buildings.

2. Yards, lots, parking lots, carnivals and industrial substations.
3. Installations of conductors and equipment that connect to the electricity supply.
4. Installations used by the electric utility, such as office buildings, warehouses, garages, machine shops, and recreational buildings, that are not an integral part of a generating plant, substation or control center.

NFPA's Life Safety Code® (BSR/NFPA 101-200x) is under revision. NFPA 101®, Life Safety Code®, shall be known as the Life Safety Code®, is cited as such and shall be referred to as “this Code” or “the Code.” The Code addresses those construction, protection and occupancy features necessary to minimize danger to life from fire, including smoke, fumes or panic.

NFPA's “Standard for the Control of Gas Hazards on Vessels” (BSR/NFPA 306-200x) is under revision. This standard applies to vessels that carry or burn flammable or combustible liquids as fuel. It also applies to vessels that carry or have carried flammable compressed gases, chemicals in bulk or other products capable of creating a hazardous condition. This standard describes the conditions required before a space can be entered or work can be started and continued or be started and continued on any vessel under construction, alteration or repair or on any vessel awaiting shipbreaking.

NFPA's “Building Construction and Safety Code®” (BSR/NFPA 5000-200x) is under revision. This code addresses those construction, protection and occupancy features necessary to minimize danger to life and property.

NFPA's “Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection” (BSR/NFPA 1989-200x) is under revision. This standard specifies the minimum requirements for breathing air quality for fire and emergency services organizations that use atmosphere-supplying respirators. It shall specify the requirements for the breathing air quality component of the respiratory protection program required by “Standard on Fire Department Occupational Safety and Health Program” (NFPA 1500).

NFPA's “Standard on Protective Clothing for Emergency Medical Operations” (BSR/NFPA 1999-200x) is under revision. This standard specifies the minimum documentation, design, performance, testing and certification requirements for new single-use and new multiple-use emergency medical protective clothing, including garments, gloves, footwear and face protection

devices used by fire and emergency services personnel during emergency medical operations.

Robotics Industries Association (RIA)

RIA Standard Nationally Adopted

RIA's standard, “Robots for Industrial Environments—Safety Requirements—Part 1: Robot” (BSR/RIA/ISO 10218-1-200x), has been nationally adopted. This standard provides guidelines for manufacturers of industrial robots in the safety design of such robots. This guidance is similar to but different from the current guidance in ANSI/RIA R15.06-1999 and supplements the current guidance in the American National Standard.

Society of Automotive Engineers (SAE)

SAE Standards Proposed

SAE's proposed standard, “Earth Moving Machinery—Safety Signs—General Principles” (BSR/SAE ISO 9244-200x), establishes general principles for the design and application of safety signs permanently affixed to earth-moving machinery as defined in ISO 6165.

This international standard:

- Outlines safety sign objectives
- Describes the basic safety sign formats
- Specifies colors for safety signs
- Provides guidance on developing the various panels that together constitute a safety sign

SAE's proposed new standard, “Personnel Protection—Skid Steer Loaders” (BSR/SAE J1388-200x), provides personnel protection guidelines for skid steer loaders. This document is intended as a guide for standards practice, but it may be subject to frequent change to keep up with experience and technical advances. It also provides performance criteria for newly manufactured loaders, and it is not intended for in-service machines.

—All adapted from *ANSI Standards Action, Volume 38, Numbers 16-18, 21-27, 29 and 31-35.*

Outcome of May 2007 ASTM Committee E56 Meeting

ASTM Committee E56 on Nanotechnology met from May 21-23, 2007 in Norfolk, VA. In the report below, Robert E. McClay, CSP provides a brief history of the committee and outlines the projects discussed during the May meeting.

Background

ASTM Committee E56 on Nanotechnology was formed in 2005 to develop standards and guidance related to nanotechnology and nanotech materials.

Initially, six subcommittees were formed:

- 56.01 Terminology and Nomenclature
- 56.02 Characterization
- 56.03 Environmental, Health and Safety
- 56.04 International Law and Intellectual Property
- 56.05 Liaison and International Cooperation
- 56.06 Standards of Care/Product Stewardship

Subcommittee 56.06 has merged into Subcommittee 56.03, leaving five subcommittees each working on the development of one or more standards.

May Meeting

Several subcommittees have drafts in progress where balloting has taken place. They are now trying to resolve the negative votes received.

ASTM procedures call for decision by consensus, which means that a unanimous vote of all voting members must be achieved for a new standard to be approved. Only if a majority of the subcommittee votes to hold the rationale for a negative vote as “Non-Persuasive” can an individual negative vote be overridden. All subcommittees discussed the balloting they had completed and attempted to resolve all negative votes.

Subcommittee E56.01: Terminology & Nomenclature

Initial balloting has been completed on dozens of nano-related terms, and all were approved except for a few. An electronic reballoting was held earlier this year after these few terms were amended. Nine of the terms that received negative votes in the reballoting were discussed at the subcommittee meeting.

The following terms generated a divided opinion on what constitutes a “nanomaterial”:

- Engineered Nanoparticle
- Nanoparticle
- Incidental Nanoparticle
- Dispersed Nanoparticle

After considerable discussion among those voting “no,” compromises were reached on wording of the definitions, and another reballoting will be held.

Subcommittee E56.02: Characterization

A report of working group WK 8705, “Measurement of Particle Size Distribution of Nanomaterials in Suspension by Photo Correlation Spectroscopy (PCS),” was reviewed. All negative votes on the last reballoting were discussed in detail and either postponed until a later date or determined to be “Non-Persuasive.” Some of this subcommittee’s work depends on Subcommittee E56.01. With respect to the preparation of reference materials, NIST is ready to standardize gold citrate colloid as a reference material by having several independent laboratories study candidate materials.

Subcommittee E56.03: Environmental, Health & Safety

Some subcommittee people could not attend this meeting, but through creative conference calling, a few were able to participate.

The discussion centered on working group WK8985, whose “Guide for Handling Unbound Engineered Nanoparticles in Occupational Settings” has progressed through an initial balloting. An attempt was made to resolve the few negative votes received on this initial balloting, but some subcommittee members felt that internal inconsistencies existed in the document. The authors agreed to revise the guide and to submit it for another balloting. Additional discussion about what size “agglomerates” the guide should cover was held.

The next ASTM Committee E56 meeting is scheduled for November 12-14, 2007 in Tampa, FL. ■

NFPA 70E:

How Much Do You Know About Electrical Safety?

By Dennis K. Neitzel, CPE

How much do you know about electrical safety? Are you knowledgeable of the electrical hazards of shock or electrocution, arc flash and arc blast? Numerous OSHA regulations and consensus standards address these hazards and the work practices and personal protective equipment (PPE) required for the protection of employees.

Over the last 10 to 15 years, significant revisions and additions have been made to electrical safety standards and regulations to increase the knowledge and understanding of the electrical hazards. The, “Standard for Electrical Safety in the Workplace” (NFPA 70E) is one such standard and requires that an electrical hazard analysis be performed prior to working on or near exposed energized electrical conductors and circuit parts operating at 50 volts or more.

NFPA 70E introduced new terms that relate to the electrical hazards that a hazard analysis will identify. These terms include “Limited,” “Restricted” and “Prohibited Approach Boundary” for shock protection. The standard also identifies the “Flash Protection Boundary” that must be established to protect employees from arc flash hazards.

NFPA 70E, Section 110.8(B)(1) identifies these protection boundaries. This section along with Sections 130.2 and 130.3 provide the requirements for performing the “Electrical Hazard Analysis” with emphasis on the “Shock Hazard Analysis” and the “Flash Hazard Analysis.” To further emphasize the requirements for a hazards analysis, the following OSHA requirements are quoted:

OSHA 29 CFR 1910.132(d)(1) states: “The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of PPE.”

OSHA 29 CFR 1910.335(a)(2)(ii) states: “Protective shields, protective barriers or insulating materials shall be used to protect each employee from shock, burns or other electrically related injuries while that employee is working near exposed energized parts, which might be accidentally contacted or where dangerous electric heating or arcing might occur.”

NFPA 70E provides the direction for determining the level of the electrical hazards and the means to protect employees from them. NFPA 70E states that if circuits operating at 50 volts or more are not deenergized (placed in an electrically safe work condition), then other electrical safety-related work practices must be used. These work practices must protect the employee from an arc flash as well as from

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inadvertent contact with live parts operating at 50 volts or more. Each analysis must be performed before an employee approaches exposed live parts within the Limited Approach Boundary. NFPA 70E, Paragraph 130.2(B) FPN provides a reminder that the Flash Protection Boundary may be a greater distance from the exposed live parts than the Limited Approach Boundary in some instances.

The Shock Hazard Analysis is performed to 1) determine the voltage to which a person would be exposed, 2) establish shock protection boundaries and 3) identify PPE requirements. To appropriately assess the electrical shock hazard associated with any type of maintenance or repair work, it is necessary to evaluate the procedures or work practices that will be involved. These practices should be evaluated against both regulatory and consensus standards requirements as well as against recognized good practice within the industry.

The Flash Hazard Analysis is performed to protect personnel from the possibility of injury by an arc flash. The analysis also determines the Flash Protection Boundary and the PPE that personnel working within this boundary must use.

Performing the Electrical Hazards Analysis is vital to the safety of personnel who are or may be exposed to live parts operating at 50 volts or more that are not placed in an electrically safe work condition. The analysis not only identifies the level of the hazards, but also safety-related work practices that must be used to protect employees who might be exposed to the electrical hazards involved. Such work practices are required to protect each employee from arc flash and from contact with live parts operating at 50 volts or more either directly with any part of the body or indirectly through some other conductive objects.

Work practices used must be suitable for conditions under which the work is to be performed and for the voltage level of the live parts. Appropriate safety-related work practices must be determined before any electrical work is performed. ■

Rules & Regulations

Mine Safety & Health Administration (MSHA)

30 CFR Part 75
RIN 1219-AB52

MSHA Issues Emergency Temporary Standard

MSHA has issued an emergency temporary standard (ETS) under Section 101(b) of the Federal Mine Safety and Health Act of 1977 in response to the grave danger that miners face when underground seals separating abandoned areas from active workings fail.

MSHA has concluded from its investigations of mine explosions that occurred and other recent reports that additional immediate action is necessary to protect miners. This ETS includes requirements to strengthen the design, construction, maintenance and repair of seals as well as requirements for sampling and controlling atmospheres behind seals. It also increases the level of overpressure for new seals, thus implementing the requirements of the Mine Improvement and New Emergency Response (MINER) Act of 2006.

This emergency temporary standard took effect on May 22, 2007.

30 CFR Parts 49 & 75

MSHA Proposes Rules for Mine Rescue Teams & Equipment

MSHA has proposed a rule that would revise the agency's existing standards for mine rescue teams for underground coal mines. It would strengthen training requirements and address composition, availability and certification requirements for coal mine rescue teams. This proposed rule would implement the provisions of the Mine Improvement and New Emergency Response Act of 2006 (MINER Act) to improve mine rescue service, emergency response time and rescue team effectiveness and to increase the quantity and quality of mine rescue team training.

Occupational Safety & Health Administration (OSHA)

29 CFR Parts 1910, 1915, 1917 & 1918
[Docket No. OSHA-2007-0044]
RIN 1218-AC08

OSHA to Hold Public Hearing on Updating PPE Design Standards

On December 4, 2007, OSHA will hold an informal public hearing on the agency's proposed rule to update its personal protective equipment design standards, which were published on May 17, 2007. The hearing will take place in Washington, DC.

29 CFR Parts 1910, 1915, 1917 & 1918
[Docket No. OSHA-2007-0044]
RIN 1218-AC08

OSHA Proposes to Revise PPE Sections of Standards

OSHA proposes to revise the personal protective equipment (PPE) sections of its general industry, shipyard employment, longshoring and marine terminals standards regarding the use of eye and face protective devices, head protection and foot protection. OSHA proposes to replace the existing references to specific consensus standards with performance language requiring PPE to be constructed in accordance with good design standards. The proposed revision includes guidance for determining what is a good design standard. In addition, OSHA proposes to add non-mandatory appendices that list standards, which constitute good design standards as used in the requirement.

OSHA also proposes to delete a paragraph in its ventilation standard that requires safety shoes to comply with a specific ANSI standard and another paragraph in its welding, cutting and brazing standard that requires filter lenses and plates in eye protective equipment to meet a test for transmission of radiant energy prescribed in another specific ANSI standard.

In proposing to delete these paragraphs, OSHA intends for this safety equipment to comply with the applicable PPE design provisions in Subpart I of the general industry standards.

OSHA Seeks Comment on Emergency Response & Preparedness

OSHA regulates elements of emergency responder safety and health primarily under the:

- Bloodborne pathogens standard
- Fire brigade standard
- Hazardous Waste Operations and Emergency Response Standard
- Permit-required confined space standard
- Personal protective equipment general requirements standard
- Respiratory protection standard

Some of these standards were promulgated decades ago, and none was designed as a comprehensive emergency response standard. They do not address the full range of hazards or concerns currently facing emergency responders, nor do they reflect major changes in performance specifications for protective clothing and equipment.

Current OSHA standards also do not reflect all major improvements in safety and health practices that have already been accepted by the emergency response community and incorporated into industry consensus standards.

OSHA requests information and comments from the public to evaluate what action, if any, OSHA should take to further address emergency response and preparedness. OSHA will consider emergency response and preparedness at common and large-scale.

OSHA's areas of interest are:

- Medical evaluation and health monitoring
- Personal protective equipment
- Safety management
- Training and qualifications

OSHA will also evaluate the types of personnel who would constitute either emergency responders or skilled support employees at such events as well as the range of activities that might constitute emergency response and preparedness.

29 CFR Part 1910
[Docket No. OSHA-2007-0003]
RIN 1218-AC22

OSHA Seeks Comment on Mechanical Power Presses Standard

Mechanical power press safety is regulated under OSHA's mechanical power presses standard. OSHA adopted the standard in 1971 and based it on the 1971 edition of American National Standards Institute (ANSI) B11.1, the industry consensus standard for mechanical power presses. This ANSI standard has been updated many times since OSHA adopted the 1971 version. The most recent edition was issued in 2001.

The original standard did not address the use of presence-sensing-device initiation (PSDI) systems, and OSHA's current standard does not cover hydraulic and pneumatic power presses. When a press is equipped with PSDI, the press cycle will not initiate until the PSDI system senses that the danger zone is clear.

OSHA updated the mechanical power presses standard on March 14, 1988 (53 FR 8353) to permit the use of PSDI systems. However, it requires an OSHA-approved third party to validate the PSDI system at installation and annually thereafter. Since the adoption of this provision, no third party has sought OSHA's approval. Consequently, PSDI systems are not being used with mechanical power presses.

OSHA seeks comments on whether and how the mechanical power presses standard should be amended, including whether the requirements pertaining to the use of PSDI systems should be revised and whether the scope of the standard should be expanded to cover other types of presses. ■

Links

MSHA Issues Emergency Temporary Standard

<http://frwebgate3.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=02930222055+6+0+0&WAISaction=retrieve>

MSHA Proposes Rules for Mine Rescue Teams & Equipment

<http://a257.g.akamaitech.net/7/257/2422/01jan20071800/edocket.access.gpo.gov/2007/07-4317.htm>

OSHA to Hold Public Hearing on Updating PPE Design Standards

<http://a257.g.akamaitech.net/7/257/2422/01jan20071800/edocket.access.gpo.gov/2007/E7-17183.htm>

OSHA Proposes to Revise PPE Sections of Standards

<http://frwebgate3.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=029746384+3+0+0&WAISaction=retrieve>

OSHA Seeks Comment on Emergency Response & Preparedness

<http://a257.g.akamaitech.net/7/257/2422/01jan20071800/edocket.access.gpo.gov/2007/E7-17771.htm>

OSHA Seeks Comment on Mechanical Power Presses Standard

<http://a257.g.akamaitech.net/7/257/2422/01jan20071800/edocket.access.gpo.gov/2007/E7-10655.htm>

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