Testimony
House Committee on Education and Labor
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2175 Rayburn House Office Building
March 22, 2007, 10:00 a.m.

Good morning Chairman Miller, Ranking Member McKeon, and members of the committee.

I am Red Cavaney, President and CEO of the American Petroleum Institute (API). API's 400 member companies represent all sectors of America's oil and natural gas industry. I am testifying today on behalf of API and the National Petrochemical and Refiners Association (NPRA). NPRA has 450 members, including virtually all U.S. refiners and petrochemical manufacturers.

Texas City has been a devastating tragedy to the facility's workers, their families, the community, and the company involved. It has also had a profound impact on the refining and petrochemical industry. No words can fully describe the deep sadness and sympathy we all feel.

Safety in the industry is a moral imperative and a top priority. Keeping employees, contractors and neighbors safe is, and was, and is a goal we continually strive to achieve. It's the right thing to do. It also happens to be good business practice. No accident is acceptable. And, preventing the possibility of a fatal accident like what happened at Texas City is a goal we work towards day in and day out.

Industry action: standards

Within API, we have a formal, comprehensive and rigorous approach to the development of industry standards and recommended practices, which we routinely update as new information and data become available. Following the Texas City incident, we did just that, and, as is our practice, we will continue to do so.

We have reviewed the Chemical Safety Board (CSB) recommendation on temporary facility siting and published a draft recommended practice in 2006. API expects to publish a final version of this recommended practice later this spring. We are also working to identify areas where new guidance related to process safety is needed and will certainly consider developing additional standards as appropriate. We are reviewing all of CSB's recently issued recommendations on additional safety standards.

API is the industry standards setting leader and, as an American National Standards Institute (ANSI) accredited standards development organization, operates with approved standards development procedures and undergoes regular audits of its processes. API standards affect both industry equipment and operations. Standards serve both safety and business objectives. In developing our industry standards, API is in conformance with ANSI guidelines and employs a consensus process that often includes regulators and experts who are not API members.

Among the 500 standards we now maintain and regularly review and revise, many are focused on process safety and are consistent with OSHA process safety management rules. In fact, API Recommended Practice 750, *Management of Process Hazards*, was one of the primary resources used by OSHA in its development of process safety management regulations.

API's approximately 110 process safety-related standards cover worker and contractor safety; mechanical integrity of pressure vessels and tanks; fire prevention, protection and suppression; and certification of refinery equipment safety inspectors. These standards are consistent with and reinforce OSHA's process safety management rule. An addendum with specifics is attached.

As a specific example of the interrelationship between the API Standards and Certification Programs and the OSHA Process Safety Management Regulations, one only need refer to Section J of the regulations on Mechanical Integrity. This section applies to a broad range of process equipment including pressure vessels and storage tanks,

controls, piping, valves, pumps and other key equipment used in refineries and chemical processing facilities. Each piece of equipment specified in Section J is also subject of an API standard or recommended practice. Further, the equipment inspection requirements of Section J are also backed by a series of API standards for inspection, which are also the basis of the API Individual Certification Program (ICP).

The ICP programs are designed to promote safety and health, improved inspection capabilities, and improved management control and environmental performance. Certified inspectors are recognized as working professionals who are fully knowledgeable on industry inspection codes, and who are performing their jobs in accordance with those requirements. ICP provides an essential springboard for inspectors to make even more valuable contributions to the safety and quality of industry operations. API's certification programs also reflect API's Environmental, Health and Safety Mission and Guiding Principles, which are part of API's bylaws.

API's inspector certifications are based on industry-developed standards that are recognized and used with confidence worldwide. These standards have also provided a uniform platform that serves as a model for many state and government regulations. These API programs emphasize professional credibility and process integrity. Certified inspectors are required to complete an eight-hour comprehensive, proctored exam and are recertified every three years.

Industry action: sharing lessons learned and best practices

In addition to the comprehensive industry standards program, our industry has developed mechanisms to share valuable lessons-learned from incidents, potential incidents and best practices to improve safety at processing facilities. API holds an annual process safety management best practices workshop. NPRA holds an annual safety conference. API is working with OSHA, the National Fire Protection Association (NFPA), and the Steel Tank Institute (STI) to improve tank safety. There are also industry safety awards to heighten awareness and competition for best-in-class practices; process safety training; and industry conferences on incident root causes, learnings and

mitigation measures. The Baker panel report and the CSB report provide additional opportunities to improve process safety.

Refiners and chemical plant operators have also formed a broad coalition of organizations and industry experts as part of our continuous improvement program, which includes all aspects of industry safety, including process safety. This coalition is evaluating ways to continue to improve process safety and to leverage the lessons learned among the coalition member organizations.

Also, the Center for Chemical Process Safety, an organization supported by API and NPRA members, expects to publish a study this year setting forth the lessons learned from process unit accidents, including the Texas City accident.

In addition, API has an educational program, API University, which includes more than 35 classroom and e-Learning courses and workshops on safety and safety-related issues. Through this collection of courses, API brings together and trains hundreds and hundreds of people annually in diverse safety subject matters. Examples of API University courses include Process Safety Management (PSM) for Refineries and Exploration and Production Operations, Performing Facility Siting Studies, and Improving Process Safety Management and Effectiveness. In the Process Management for Refineries and Exploration and Production Operations course, trainees study specific guidelines for developing written programs to meet PSM regulations, integrating PSM element requirements into other corporate programs, and evaluating program compliance throughout the implementation phase. Trainees in this course also get insight into the latest regulatory developments and receive summary documentation of key clarifications by OSHA and EPA.

Conclusion

The devastation caused by the Texas City accident demands of us in industry to look anew at what we are doing and to strive toward continual improvement. That is happening, and it will continue. Texas City and its loss of colleagues, as well as the pain

and grief suffered by loved ones, will not be forgotten. These lessons will remain with us for many years.

This concludes my statement, Mr. Chairman. I welcome the opportunity to answer any questions the committee might pose.

OSHA Process Safety Management of Highly Hazardous Chemicals, 29CFR1910.119 and the API Standards Program

The purpose of the OSHA process safety management (PSM) regulations is as follows:

> *This section contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards.*

The PSM Standard is also the required prevention program for the Environmental Protection Agency's "Risk Management Program Rule" for Program 2 (modified) or Program 3 processes.

Overview

The PSM regulations are organized by the following subsections and lay out a prescribed set of rules for compliance. These rules require significant documentation to ensure safe work practices for employees and contractors, operational safety, equipment integrity, management of change and incident investigation. The regulatory language is simple and brief, but requires detailed documentation, and a thorough working knowledge of each of the subsections' applications.

(a) Application
(b) Blank
(c) Employee Participation
(d) Process Safety Information
(e) Process Hazard Analysis
(f) Operating Procedures
(g) Training
(h) Contractors
(i) Pre-Startup Safety Review
(j) Mechanical Integrity
(k) Hot-Work Permit
(l) Management of Change
(m) Incident Investigation
(n) Emergency Planning and Response
(o) Compliance Audits
(p) Trade Secrets

The purpose of this summary is to link the subsection areas with the API specifications, standards, recommended practices and codes ("standards") that are relevant and applicable in documenting PSM compliance.

Role of National Consensus Standards in PSM Compliance

In an interpretation provided to ISA in 2000, (http://www.osha-slc.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=23722) OSHA stated, in response to a query regarding the applicability of ANSI/ISA S84.01, that as a national consensus document, OSHA considers it to be a recognized and generally accepted good engineering practice. Further it states, "Based on input from stakeholders, OSHA stated in the PSM final rule (see F.R., Volume 57, No. 36, pg 6390) that it did not intend to incorporate by reference into PSM all the codes and standards published by consensus groups."

Further, in Appendix C to 1910.119, with regard to process safety information, OSHA states:

> *The information pertaining to process equipment design must be documented. In other words, what were the codes and standards relied on to establish good engineering practice. These codes and standards are published by such organizations as the ….American Petroleum Institute….*

In the context of mechanical integrity and inspection, OSHA notes:

> *Meantime to failure of various instrumentation and equipment parts would be known from the manufacturers data or the employer's experience with the parts, which would then influence the inspection and testing frequency and associated procedures. Also, applicable codes and standards such as ….those from the American Petroleum Institute….and other groups, provide information to help establish an effective testing and inspection frequency, as well as appropriate methodologies.*

In these two citations, OSHA has asserted that compliance with OSHA PSM requirements, therefore, may be demonstrated and supported through the reliance on these national consensus documents developed under ANSI accredited procedures including numerous standards produced by API.

Relationship Between API Standards and Certification Programs to OSHA PSM Requirements

The relevant API standards and programs can be generally grouped into five categories:

a) Personnel and Contractor Safety
b) Fire Prevention, Protection and Suppression
c) Inspection of Equipment and Methodologies for In-Service Assessment
d) Equipment Design and Reliability
e) Technical Data on Petroleum Product Properties
f) Certification for Training Providers and Individuals

The following list by PSM Subsection shows the relevant API standards and programs that related to each section's subject area.

a) Application
b) Blank
***c)** Employee Participation—*

2220, Improving Owner and Contractor Safety Performance
2221, Contractor and Owner Safety Program mplementation

d) *Process Safety Information*

- *Safe Limits/Process Chemistry*
  Technical Data Book – Petroleum Refining
- *Materials of Construction—*
  600, Bolted Bonnet Steel Gate Valves for Petroleum and Natural Gas Industries
  602, Steel Gate, Globe and Check Valves for Sizes DN 100 and Smaller for the Petroleum and Natural Gas Industries
  603, Corrosion-Resistant, Bolted Bonnet Gate Valves—Flanged and Butt-Welding Ends
  608, Metal Ball Valves—Flanged, Threaded and Butt-Welding Ends
  609, Butterfly Valves: Double Flanged, Lug- and Water-Type
  620, Design and Construction of Large, Welded, Low-pressure Storage Tanks
  650, Welded Steel Tanks for Oil Storage
  520, Sizing, Selection, and Installation of Pressure-relieving Devices in Refineries, Part I – Sizing and Selection
  6D, Specification for Pipeline Valves

- *Electrical Classification—*
  500, Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2
  505, Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1 and Zone 2

- *Relief System Design—*
  520 Pt.1, Sizing, Selection, and Installation of Pressure-relieving Devices in Refineries, Part I – Sizing and Selection
  521, Guide for Pressure-relieving and Depressuring Systems

- *Ventilation System Design—*
  2015, Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks
  2016, Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks
  2217A, Guidelines for Work in Inert Confined Spaces in the Petroleum Industry

- *Safety Systems—*

2001, Fire Protection in Refineries
2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents
2009, Safe Welding, Cutting and Hot Work Practices in the Petroleum and Petrochemical Industries
2027, Ignition Hazards Involved in Abrasive Blasting of Atmospheric Storage Tanks in Hydrocarbon Service
2028, Flame Arresters in Piping Systems
2030, Application of Fixed Water Spray Systems for Fire Protection in the Petroleum and Petrochemical Industries
2201, Safe Hot Tapping Practices in the Petroleum & Petrochemical Industries
2210, Flame Arresters for Vents of Tanks Storing Petroleum Products
2214, Spark Ignition Properties of Hand Tools
2216, Ignition Risk of Hydrocarbon Vapors by Hot Surfaces in the Open Air
2217A, Guidelines for Work in Inert Confined Spaces in the Petroleum Industry
2218, Fireproofing Practices in Petroleum and Petrochemical Processing Plants
2220, Improving Owner and Contractor Safety Performance
2221, Contractor and Owner Safety Program Implementation
2015, Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks
2016, Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks
2021, Management of Atmospheric Storage Tank Fires
2026, Safe Access/Egress Involving Floating Roofs of Storage Tanks in Petroleum Service
2350 Overfill Protection for Storage Tanks in Petroleum Facilities

- *Inspection—*
  510, Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration
  570, Piping Inspection Code: Inspection, Repair, Alteration, and Rerating of In-service Piping Systems
  653, Tank Inspection, Repair, Alteration, and Reconstruction
  579, Fitness-For-Service
  572, Inspection of Pressure Vessels
  573, Inspection of Fired Boilers and Heaters
  574, Inspection Practices for Piping System Components
  575, Inspection of Atmospheric & Low Pressure Storage Tanks
  576, Inspection of Pressure Relieving Devices

577, Welding Inspection and Metallurgy
578, Material Verification Program for New and Existing Alloy Piping Systems

e) *Process Hazard Analysis*

- *Incident Data—*
  2384, 2005 Survey on Petroleum Industry Occupational Injuries, Illnesses, and Fatalities Summary Report: Aggregate Data Only
  2383, 2004 Survey on Petroleum Industry Occupational Injuries, Illnesses, and Fatalities Summary Report: Aggregate Data Only
  2382, 2003 Survey on Petroleum Industry Occupational Injuries, Illnesses, and Fatalities Summary Report: Aggregate Data Only
  2381, 2002 Survey on Petroleum Industry Occupational Injuries, Illnesses and Fatalities Summary Report: Aggregate Data Only

- *Controls for Process Monitoring and Instrumentation—*
  551, Process Measurement Instrumentation
  552, Transmission Systems
  553, Refinery Control Valves
  554, Process Instrumentation and Control
  555, Process Analyzers
  556, Fired Heaters & Steam Generators
  557, Guide to Advanced Control Systems

- *Consequences of Failure—*
  580, Risk-Based Inspection
  581, Base Resource Document – Risk Based Inspection

f) *Operating Procedures*

g) *Training*

*Initial and refresher training programs are supported by several API programs including the "**Training Provider Certification Program" (TPCP)** which accredits trainers, the **"Individual Certification Program" (ICP)** which accredits individuals who have demonstrated competency in various inspection subject areas, and "**API University"** which provides specific training on safety, maintenance, operations, and standards*
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h) *Contractors*
2220, Improving Owner and Contractor Safety Performance
2221, Contractor and Owner Safety Program Implementation

i) *Pre-Startup Safety Review*
j) *Mechanical Integrity*

- *Application—*
  579, Fitness-For-Service

- *Pressure Vessels and Storage Tanks—*
  510, Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration
  653, Tank Inspection, Repair, Alteration, and Reconstruction
  572, Inspection of Pressure Vessels
  575, Inspection of Atmospheric & Low Pressure Storage Tanks

- *Piping Systems and Valves—*
  570, Piping Inspection Code: Inspection, Repair, Alteration, and Rerating of In-service Piping Systems
  574, Inspection Practices for Piping System Components
  578, Material Verification Program for New and Existing Alloy Piping Systems
  598, Valve Inspection and Testing
  607, Testing of Valves – Fire Type-testing Requirements
  622, Type Testing of Process Valve Packing for Fugitive Emissions

- *Relief and Vent Systems and Devices—*
  576, Inspection of Pressure Relieving Devices
  510, Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration
  537, Flare Details for General Refinery and Petrochemical Service
  2000, Venting Atmospheric and Low-pressure Storage Tanks: Nonrefrigerated and Refrigerated

- *Emergency Shutdown Systems—*
  2350, Overfill Protection for Storage Tanks in Petroleum Facilities

- *Controls—*
  551, Process Measurement Instrumentation
  552, Transmission Systems
  553, Refinery Control Valves
  554, Process Instrumentation and Control
  555, Process Analyzers
  556, Fired Heaters & Steam Generators
  557, Guide to Advanced Control Systems

- *Pumps—*

610, Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries
614, Lubrication, Shaft-sealing, and Control-oil Systems and Auxiliaries for Petroleum, Chemical and Gas Industry Services
674, Positive Displacement Pumps—Reciprocating
675, Positive Displacement Pumps—Controlled Volume
676, Positive Displacement Pumps—Rotary
681, Liquid Ring Vacuum Pumps and Compressors
682, Pumps—Shaft Sealing Systems for Centrifugal and Rotary Pumps
685, Sealless Centrifugal Pumps for Petroleum, Heavy Duty Chemical, and Gas Industry Services
686, Machinery Installation and Installation Design
687, Rotor Repair

k) Hot-Work Permit—
2201, Safe Hot Tapping Practices in the Petroleum & Petrochemical Industries

l) Management of Change
- *Inspections and Tests—*
510, Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration
570, Piping Inspection Code: Inspection, Repair, Alteration, and Rerating of In-service Piping Systems
653, Tank Inspection, Repair, Alteration, and Reconstruction
579, Fitness-For-Service
572, Inspection of Pressure Vessels
573, Inspection of Fired Boilers and Heaters
574, Inspection Practices for Piping System Components
575, Inspection of Atmospheric & Low Pressure Storage Tanks
576, Inspection of Pressure Relieving Devices
577, Welding Inspection and Metallurgy
578, Material Verification Program for New and Existing Alloy Piping Systems
581, Base Resource Document – Risk Based Inspection

- *Suitability for Service—*
(All Previously Standards Listed Above)

m) Incident Investigation
n) Emergency Planning and Response
o) Compliance Audits
p) *Trade Secrets*