



# 中国分部过程安全培训

THE 7<sup>th</sup> CCPS-CHINA SECTION PROCESS SAFETY TRAINING



美国化学工程师协会  
化工过程安全中心  
—中国分部



# 第七届 CCPS 中国分部过程安全培训

## THE 7<sup>th</sup> CCPS-CHINA SECTION PROCESS SAFETY TRAINING

### 主题 Theme

事故调查

Accident Investigation

### 宗旨 Objective

课程帮助学员理解事故调查体系。在对事故理论进行讲解的基础之上,介绍事故调查的过程,重点强调事故调查的方法和手段,得出事故的结果和结论。

The course is designed to provide the students with a deep understanding of the accident investigation system. Based on the explanation of the accident theory, the course will firstly introduce the process of the accident investigation, and then focus on the accident investigation methods and means, and finally draw the conclusions of the accident.

### 时间与地点 Date and Venue

2011.7.18~2011.7.21

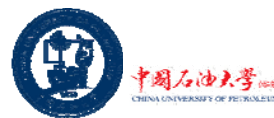
中国石油大学(青岛校区)

July18-21, 2011

China University of Petroleum, Qingdao, China

## 合作组织 Organized by

中国石油大学（华东）环境与安全技术中心(CUP-ESTC)



美国化学工程师协会化工过程安全中心（AIChE-CCPS）



美国化工过程安全中心中国分部（CCPS-CS）



## CCPS-CS 简介 About CCPS-CS

CCPS-CS (Center for Chemical Process Safety-China Section), 即美国化工过程安全中心中国分部成立于2007年4月,是由美国化学工程师协会化工过程安全中心与中国石油大学(华东)环境与安全技术中心合作共同建立的非盈利性组织。

CCPS-CS 的使命是:

- 在中国推广最新的过程安全技术和管理经验
- 担任中国过程安全资料库的首要信息来源
- 推进大学本科工程教育中的过程安全学习
- 推广过程安全使其产生重要的工业价值

CCPS-CS (Center for Chemical Process Safety-China Section), established in April 2007, is organized by Center for Chemical Process Safety of AIChE and the Environment and Safety Technology Center of China University of Petroleum (East China).

The mission of CCPS-CS is to:

- Advancing the state of the art of process safety technology and management practices in China
- Serving as a premier resource for process safety information in China
- Fostering process safety learning in undergraduate engineering education
- Promoting process safety as a key industry value

## 历届培训剪影 Picture of Previous Courses



- 2007年4月，CCPS-CS 挂牌成立
- CCPS-CS Unveiling Ceremony in Apr., 2007



- 2007年10月，第二届化工过程安全中心中国分部过程安全培训在中国石油大学青岛校区举行
- The 2<sup>nd</sup> China Section Chemical Process Safety Training was held in CUP Qingdao campus in Oct., 2007



- 2008年10月，第三届化工过程安全中心中国分部过程安全培训在中国石油大学青岛校区举行
- The 3<sup>rd</sup> China Section Chemical Process Safety Training was held in CUP Qingdao campus in Oct., 2008



- 2009年3月，第四届化工过程安全中心中国分部过程安全培训在上海举行
- The 4<sup>th</sup> China Section Chemical Process Safety Training was held in Shanghai in Mar., 2009



- 2009年10月，第五届化工过程安全中心中国分部过程安全培训在中国石油大学青岛校区举行
- The 5<sup>th</sup> China Section Chemical Process Safety Training was held in CUP Qingdao campus in Oct., 2009



- 2010年9月，第六届化工过程安全中心中国分部过程安全培训在中国石油大学青岛校区举行
- The 6<sup>th</sup> China Section Chemical Process Safety Training was held in CUP Qingdao campus in Sep., 2010

## AIChE 简介 About AIChE

美国化学工程师协会 (AIChE) 是具有领导地位的专业团体，我们的会员来自业内、学术界和政府等不同产业，包括炼油、石化流程、生物工程、纳米技术、氢燃料发展、环保工程、可持续发展及安全项目。经过一百年的成长，我们目前拥有 40,000 位来自世界 93 个国家的会员。

The American Institute of Chemical Engineers (AIChE) is the leading global organization for professionals in the chemical engineering field. Our members work in various areas of industry, science and government, including petroleum refining and petrochemical processing, biological engineering, nanotechnology, hydrogen fuel development, environmental engineering, sustainability and safety engineering. Nearly a century later, we have a membership of 40,000 from 93 different countries.

## 美国化工过程安全中心简介 About CCPS

美国化工过程安全中心 (CCPS) 是美国化学工程师协会 (AIChE) 下属一家非盈利性的企业联合组织，该中心致力于在化工、制药、石油等领域的过程安全研究与评估。同时，CCPS 带动了制造业、政府部门、咨询业、学术界、保险业等行业对工业过程安全的认识与提高。

CCPS is a not-for-profit, corporate membership organization within AIChE that identifies and addresses process safety needs within the chemical, pharmaceutical, and petroleum industries.

CCPS brings together manufacturers, government agencies, consultants, academia and insurers to lead the way in improving process safety in industries.

## **中国石油大学（华东）环境与安全技术中心简介 About ESTC**

中国石油大学（华东）环境与安全技术中心是中国石油大学（华东）安全和环保科研、教学力量的集中体现，是环境、安全科研与培训的重要基地，国家安全生产监督管理局石油天然气安全生产工程技术研究中心和中国石油天然气集团公司环境工程研究开发中心也挂靠在该中心。中心拥有众多技术骨干力量，专业涵盖环境、安全、化工、石油等众多领域，在石油、石化等行业的安全评价工作中具有明显的专业和学术优势。

该中心具有国家安全生产监督管理局颁发的“安全评价甲级资质”（APJ-(国)-0118-2005）以及“安全生产一级培训资质”，建有完整的安全工程学科体系，硬件设施优越，在国内石油、化工行业安全、环境领域科研、评价、培训等方面有很好的业绩，并与国内外有着广泛的合作和交流。中心自成立以来，已经完成了国内 100 余项大中型化工项目安全评价与环境影响评价，并与国内数十家大中型石油化工企业建立了广泛的业务往来。

The Environment and Safety Technology Center of China University of Petroleum (East China) (CUP-ESTC) leads the safety and environmental research and teaching of the university. The Petroleum & Natural Gas Safety Production Engineering Technology Research Center of State Administration of Work Safety and Environmental Engineering R&D Center of China National Petroleum Corporation are also affiliations of the center. ESTC staff members are specialized in the environmental engineering, safety engineering, chemical engineering, petroleum engineering and so on, and the center has obvious academic and professional advantages on environmental and risk assessments in petroleum and petrochemical industrial fields.

ESTC possesses the National Safety Assessment Certificate of grade A(APJ-National-0118-2005) and A-class training Qualification certified by the State Administration of Work safety. ESTC also has a complete safety engineering discipline system and excellent hardware facilities, and the center has made outstanding achievements in the domestic petroleum and chemical industry for safety and environmental research, assessment and training, and keeps extensive cooperation and communication at home and abroad. Since the

establishment of ESTC, it has completed more than 100 large and medium domestic chemical risk assessments and environmental impact assessments, and has established firm cooperation with a wide range of petroleum and petrochemical corporations.

## 专家介绍 Directors

### 布赖恩 D. 凯利 Brian D. Kelly P.Eng.

BriRisk 咨询有限公司首席顾问

渥太华大学 1970 年化学工程硕士

- 注册专业工程师，阿尔伯塔省（阿尔伯塔专业工程师）
- 美国化学工程师协会会员（AIChE）
- 化工过程安全中心顾问
- 化工过程安全中心（美国）技术指导委员会委员
- 风险研究协会会员，沃特卢，安大略省（1993 年至今）
- 美国化学工程师协会卫生和安全分部主任（2008-2010 年）
- 加拿大化学化工协会会员（化学工程）过程安全管理执行委员会主席，2002-2003 年
- 加拿大重大工业事故理事会（MIACC）过程风险和安全委员会委员，1993 至 1999 年

布赖恩·凯利先生在石油行业拥有 34 年的经验，另外还从事过程安全咨询工作 4 年有余。他曾在皇家石油有限公司工作 5 年，在加拿大辛克鲁德有限公司任职 29 年，担任过工程设计、项目研发、运营和过程安全方面的高级技术和管理等职务。凯利先生是原 MIACC（加拿大重大工业事故理事会）过程安全组织的成员。2003 年他成立 BriRisk 咨询有限公司，并负责多起事故的调查、过程安全审计，和石油、天然气、化工和采矿行业的工业过程安全审查。

Principal consultant, BriRisk Consulting Ltd

Masc., Chemical Engineering, University of Ottawa, 1970

- Registered professional engineer, Province of Alberta (APEGGA).
- Member of American Institute of Chemical Engineers (AIChE).
- Staff consultant (part time), Center for Chemical Process Safety
- Member of Technical Steering Committee, Center for Chemical Process Safety (U.S.)
- Member of Institute for Risk Research, Waterloo, Ont. (1993 to present).

- Director, Health and Safety Division, AIChE (2008-2010).
- Member of Chemical Institute of Canada (Chemical Engineering), Chair of Process Safety Management Executive committee 2002-2003.
- Major Industrial Accidents Council of Canada (MIACC); member of risk and process safety committees, 1993 to 1999.

Brian Kelly has 34 years of experience in the oil industry plus 4 years of process safety consulting. His working career included 5 years with Imperial Oil Enterprises and 29 years with Syncrude Canada Ltd. where he held a number of senior technical and management positions in engineering, project development, operations and process safety. Mr. Kelly was an active participant in the former MIACC (Major Industrial Accidents Council of Canada) process safety group. In 2003 he formed BriRisk Consulting Ltd. and has led numerous incident investigations, process safety audits and engineering safety reviews in the oil, gas, chemical and mining industries.

### 斯考特·柏格 Scott Berger

斯考特·柏格先生早先曾在 Owens Corning 公司工作五年，之后于 2001 年加入 CCPS，策划了一系列环境、健康、安全（简称 EHS）项目，并担任 EHS 战略管理主管。斯考特先生还在 Rohm & Haas 公司工作了 18 年，负责研发，工程，EHS 项目。他还是美国化学工程师协会物理性质设计研究所（DIPPR）以及能释设计研究所（DIERS）的管理层人员。同时他还拥有马萨诸塞科技学院的学士和硕士学位。斯考特先生曾多次访问中国，对中国的化工安全事业具有独到的见解。

Scott Berger, Director of CCPS, joined CCPS in 2001 after 5 years at Owens Corning, where he held a range of Environment, Health, and Safety (EHS) assignments including Director of EHS Strategic Management. Scott has also worked for Rohm & Haas Company for 18 years, responsible for developing, engineering and EHS project. Scott also has administrative responsibility for the Design Institute for Physical Properties (DIPPR), and the Design Institute for Emergency Relief (DIERS). Scott received a BS and MS from the Massachusetts Institute of Technology.

### 赵东风 Zhao Dongfeng

赵东风，教授，博士生导师，教育部“新世纪优秀人才支持计划”入选者。现任中国石油大学（华东）环境与安全技术中心主任，CCPS 中国分部主任，国

家安全生产监督管理局石油天然气安全生产技术中心副主任，中国石油天然气集团公司环境工程研究开发中心副主任。美国化学工程师协会（AIChE）会员，多年来一直从事安全系统工程和过程安全的科研和教学工作，是中国化工安全界知名专家，尤其对石化、炼化安全事业具有丰富的理论及经验。

Doctor Zhao Dongfeng, professor, doctoral supervisor, "New Century Excellent Talents" selected candidates. He is now Director of the ESTC of CUP, Director of CCPS-CS, Deputy Director of Oil and Gas Technology Center for State Administration of Work Safety, Deputy Director of Environmental Engineering R&D Center for CNPC. He is also a member of the American Institute of Chemical Engineers (AIChE). He has been engaged in safety engineering and process safety research and teaching work for years and is a renowned expert in chemical safety.

### 刘义 Liu Yi

刘义，博士，中国石油大学（华东）副教授，国家注册安全工程师，美国化学工程师协会化工过程中心中国分部技术委员会委员，毕业于中国科学技术大学火灾科学国家重点实验室，从事石油化工安全科研、教学相关工作。

Doctor Liu Yi, Associate Professor, the state registered safety engineer, member of Technical Steering Committee of CCPS-CS. He received his PhD from the State Key Laboratory of Fire Science in the University of Science and Technology of China. He is now majoring in the research and teaching in the field of chemical process safety.

### 孟亦飞 Meng Yifei

孟亦飞，博士，国家注册安全工程师，国家级安全评价师，中国石油大学（华东）环境与安全技术中心成员，美国化学工程师协会化工过程中心中国分部技术委员会委员，毕业于南京工业大学，现从事化工过程安全科研、教学相关工作。

Doctor Meng Yifei, the state registered safety engineer & the national level safety evaluator, member of the ESTC of CUP and Technical Steering Committee of CCPS-CS. He received his PhD degree from Nanjing University of Technology. He is now majoring in the research and teaching in the field of chemical process safety.

培训日程安排

时间	主题	主讲人
<i>报到, 七月十七日</i>		
<i>星期一, 七月十八日</i>		
8:00 ~ 11:30 上午	• 欢迎致辞 (中国石油大学&环境与安全技术中心)	赵东风教授
	• 欢迎致辞 (美国化学工程师协会化工过程安全中心)	斯考特·柏格先生
	• 简介	布赖恩 D. 凯利博士
	• 事故分类	
• 事故模型		
2:00 ~ 5:30 下午	• 调查过程	布赖恩 D. 凯利博士
	• 开始调查	
<i>星期二, 七月十九日</i>		
8:00 ~ 11:30 上午	• 目击者采访	布赖恩 D. 凯利博士
	• 方位证据	
2:00 ~ 5:30 下午	• 细节检查	
	• 文件材料审查	
	• 制作证据表格	
<i>星期三, 七月二十日</i>		
8:00 ~ 11:30 上午	• 根源解析	布赖恩 D. 凯利博士
	• 调查结果和结论	
2:00 ~ 5:30 下午	• 调查练习	
	• 建设性建议	
<i>星期四, 七月二十一日</i>		
8:00 ~ 11:30 上午	• 最终报告	布赖恩 D. 凯利博士
	• 案例学习	
2:00~ 5:30 下午	• 案例学习及总结	全体学员
	• 培训结业证书颁发仪式	
<i>青岛一日游, 七月二十二日</i>		

注: 具体日程如有变动以当日安排为准

***Training Agenda***

<b>Time</b>	<b>Topic</b>	<b>Instructor</b>
<i>Check in, July.17</i>		
<i>Monday, July. 18</i>		
8:00 ~ 11:30 AM	<ul style="list-style-type: none"> <li>• Welcome from China University of Petroleum &amp; Environment and Safety Technology Center</li> </ul>	Pro. Zhao Dongfeng
	<ul style="list-style-type: none"> <li>• Welcome from the Center for Chemical Process Safety</li> </ul>	Mr. Scott Berger
	<ul style="list-style-type: none"> <li>• Introduction</li> </ul>	Brian D. Kelly P.Eng.
	<ul style="list-style-type: none"> <li>• Classification of Incidents</li> </ul>	
	<ul style="list-style-type: none"> <li>• Accident Model</li> </ul>	
2:00 ~ 5:30 PM	<ul style="list-style-type: none"> <li>• The Investigation Process</li> </ul>	Brian D. Kelly P.Eng.
	<ul style="list-style-type: none"> <li>• Initiating the Investigation</li> </ul>	
<i>Tuesday, July.19</i>		
8:00 ~ 11:30 AM	<ul style="list-style-type: none"> <li>• Witness Interviews</li> </ul>	Brian D. Kelly P.Eng.
	<ul style="list-style-type: none"> <li>• Positional Evidence</li> </ul>	
2:00 ~ 5:30 PM	<ul style="list-style-type: none"> <li>• Parts Examination</li> </ul>	
	<ul style="list-style-type: none"> <li>• Documentation Review</li> </ul>	
	<ul style="list-style-type: none"> <li>• Tabulation of Evidence</li> </ul>	
<i>Wednesday, July.20</i>		
8:00 ~ 11:30 AM	<ul style="list-style-type: none"> <li>• Root Cause Analysis</li> </ul>	Brian D. Kelly P.Eng.
	<ul style="list-style-type: none"> <li>• Findings and Conclusions</li> </ul>	
2:00 ~ 5:30 PM	<ul style="list-style-type: none"> <li>• Investigation Exercise</li> </ul>	
	<ul style="list-style-type: none"> <li>• Developing Recommendations</li> </ul>	
<i>Thursday July.21</i>		
8:00 ~ 11:30 AM	<ul style="list-style-type: none"> <li>• The Final Report</li> </ul>	Brian D. Kelly P.Eng.
	<ul style="list-style-type: none"> <li>• Working Case Study</li> </ul>	
2:00 ~ 5:30 PM	<ul style="list-style-type: none"> <li>• Working Case Study</li> </ul>	
	<ul style="list-style-type: none"> <li>• Certificates ceremony</li> </ul>	All students
<i>Qingdao one-day tour, July.22</i>		

**Note:** The specific schedule is subject to the change by the day arrangements.

## 联系我们 Contact us

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