



International Standards workshop for Oil and Gas industry – Focusing on Thailand

11th March 2010, Bangkok



BP's Experience in Working with International Standards and Their Impact on BP's Corporate Specifications

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Introduction

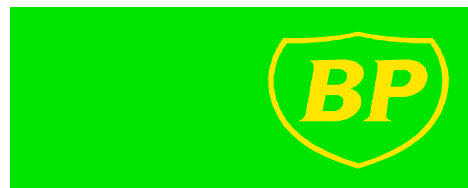


- BP Standards history
- BP Engineering Practices project
- External Standards
- BP practices content and IT System
- Involvement in International Standards
- Conclusions

BP Standards History



- BP Group grew dramatically in late 1990s
- Inclusion of Amoco, Arco, Burmah Castrol, Aral etc.
- All with heritage practices and standards
- Lack of effort in updating those practices
- Little knowledge sharing and no formalised learning system
- All parts of BP were re-learning over and over again
- Engineering Technical Practices (ETPs) Project started in 2001



ETP principles



- Rely on – Do not rewrite established external standards
- Participate in writing key external standards to influence industry and protect BP's interests
- Recognise limitations of external standards
- Supplement external standards with BP's knowledge and experience
- Manage requirements that might be suitable for some situations but be overly conservative for others
- Clear owners of ETP content for across all parts of organisation – Subject Matter Experts (SMEs)
- A robust continuous improvement program for improving our practices by sharing, validating and incorporating 'Shared Learnings'
- Four clear main types of document

Types of Documents



- **Group Practice (GP)**
 - GP provides requirements, preferences and possibilities for:
Engineering, Design, Commissioning, Inspection and Testing
- **Group Instruction for Supply (GIS)**
 - GIS Provides requirements, preferences and possibilities for:
Purchase of materials, equipment and systems
- **Guidance Note (GN)**
 - GN provides validated further guidance on a topic
- **Reference Document (RD)**
 - RD provides non validated information – often external to BP

ETP writing



- Never unnecessarily duplicate what is written in the external standard
- Wherever possible use 'commentary' to illustrate and explain BP additional or altered requirements
- Be clear if requirements only apply to specific business units or risks
- Be clear when a requirement is 'mandatory' (Use of shall) or best practice for consideration 'should'
- Follow indexing of international standard




Use of External Standards

- Many organisations used
- 25% of approx 400 documents based on International Standards (ISO, IEC etc)
- Reference over 1000 other documents (mainly standards) throughout the ETPs
- Primary usage is of ISO, IEC, API, ASME, ANSI
- 155 BP employees involved in external standards committees and other similar bodies
- Roles taken from Chair of Technical and Management committees to participating members at all levels
- Control of which committees to participate in taken primarily by Discipline Chief Engineers
- Budgets supported by Group Engineering

Example of BP ETP based on International Standard



 **bp**

Document No.	GIS 26-103
Applicability	Group
Date	17 August 2007

GIS 26-103

Air-Cooled Heat Exchangers (ISO 13706 or API 661)

Group Instruction for Supply

**BP GROUP
ENGINEERING TECHNICAL PRACTICES**



Example of ETP Content

6.1.4 Modify to Read

Weld maps and all proposed welding procedures, including tube to tubesheet welding procedures and qualifications (including impact test results, if applicable) shall be submitted and shall be subject to approval prior to fabrication.

6.2 Final records

6.2.2 Modify to Read

The following shall be supplied for final record: The dossier containing final records identified by item number, ultimate user name, project name and location, purchase order number, Vendor shop number (and manufacturer number, if different).

6.2.2 Add to List m) Driver performance curves for variable speed motors .n) Drawings at “as built” status. o) Mechanical, structural, and thermal design calculations .p) Quality plan signed by inspection parties .q) The following documents associated with the headers:

- 1) Weld seam identification chart (or cross reference notes on the drawing).
- 2) Qualified weld procedures.
- 3) Heat treatment record.4) Hydraulic test certificate.

7 Design

7.1 Tube bundle design

7.1.1 General

Add

7.1.1.13 Tube velocity shall be optimised to minimise erosion, fouling, and phase separation and maintain suspension of solids in slurries.

7.1.1.14 Maximum nozzle velocity shall be limited by the value of ρV^2 equal to 9 000 kg/m-s² (6 000 lb/ft-s²).

BP's Learning process



- ETP Library has both Comments and Shared Learning Features
- Comments for confidential discussion between engineer and SMEs.
 - Questions on content
 - Notification of errors
 - Suggestions for improvement, additions, etc
- Shared Learnings are visible for all to learn from.
 - Based on incidents and learnings from them
 - Entered by Engineer involved in Incident or Investigation
 - Validated by Subject Matter Experts
 - Always visible whenever tagged ETP open
- All permanently stored for future reference in system

Comments and Shared Learnings



View Document - Microsoft Internet Explorer


File Edit View Favorites Tools Help

View Document

Create **Shared Learning** or Create **Comment** relating to this document

Related Shared Learnings: Gas Detection Calibration and Repair | Location of Smoke Detectors in Quarters | Sensor specification for Fire and Gas Detection Systems for Gas Turbine Enclosures | Gas Detector Wiring Connection | Inadequate Access to Flame and Gas Detectors | GOM Gap analysis on GP 30-85

Final Showing Markup Show



Document No.	GP 30-85
Applicability	Group
Date	31 December 2008

GP 30-85

Fire and Gas Detection

Group Practice

start

3 Microso... Protocol GD... C:\Docume... Microsoft P... 2 Interne... EN 15:54

Shared Learning



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Shared Learning: Corrosion Under Labels

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Shared Learning Title Corrosion Under Labels
Contributor Name Darryl Godfrey
Email Address darryl.godfrey@se1.bp.com
Author Connect Info [Darryl Godfrey](#)

Contributor Business Segment [Refining and Marketing](#)
Contributor Business Unit [Refining Technology](#)
Proj. Name/Asset Name/Location [-none-](#)
Contributor Job Responsibility [-none-](#)
Project Phase [-none-](#)

Created Date 18 Jul 2008
Status Validated

Category [06 Corrosion](#)
Sub-Category [General](#)
Sub Sub-Category [General](#)
Heading [General](#)
Mapped to ETP Doc No GP 06-67

Date of Event [18 Jul 2008](#)
Lesson Offered By [Carson and Cherry Point Refineries](#)
Context/Expectations Prior to Event [ETP GP 42-10 Section 336 indicates a requirement to clearly mark piping with information on the line contents however it gives no information on how this should be done. It would be expected that the labelling system used would not result in damage or deterioration of the underlying equipment.](#)
Event Description [The attached case histories describe damage associated with corrosion under labels. The most recent \(June 2008\) being a deeply pitted NHDS stripper overheads line and previous incidents \(Jan 2008 and during 2005\) at the Cherry Point Refinery. These labels do not have sticky backing material all the way around. Instead they have an adhesive strip that sticks one end of the label to the other where they overlap, but the label is for the most part somewhere between a loose fit and a relatively tight fit around the pipe, with no adhesive directly contacting the pipe. The second example is from Carson Refinery where a leak occurred in May 2006 as a result of corrosion under labels. The third example is from SNS Gas \(2003\) where austenitic stainless steel vent headers with sticky labels applied to indicate direction of flow suffered pitting and moderate corrosion. The C Train photo has deep pits, the P2 photo shows typical labelling and the A train photo is moderate corrosion. Operating temperatures are ambient, conditions are offshore but coastal regions could produce similar results as would industrial pollution and rain. Same problem existed with stainless Diesel fuel lines.](#)
Difference between Expectations (or what was Normal) and Actual Event? [Corrosion underneath the labels was not expected. The active corrosion beneath the labels was not necessarily obvious until it reached an advanced stage although it could be expected that some deterioration was evident in some of the attached cases and thus could have been identified during the visual external inspections.](#)
Learnings [Stick on or wrap around labels appear to be the common factor where moisture can get underneath the label. A painted stencilled label would not give the same susceptibility to damage. Sites that use stick on or wrap around labels should ensure that their inspectors are aware of the damage potential and look for it during their visual inspection programs. Consideration should be given to using stenciling rather than labels to avoid the problem. ETP 06-67 Design Decisions that Affect Corrosion and ETP 32-40 In service inspection and testing - Common Requirements would appear to be the most appropriate documents in which to record this guidance and/or link this Shared Learning.](#)
SME Team Comments [\(Note: Regular users \(including shared learning author\(s\)\) do NOT see these comments. These comments are only seen by the ETP SME team members.\)](#)
Filing [a\) Include in ETP document revision](#)
ETP Document number to be revised [GP 06-67 - Design Decisions that Affect Corrosion](#)

Severity Matrix [?](#)

CAPITAL AND/OR OPERATIONAL COST (US\$)	FREQUENCY		
	<1 in 5 years	<1 per year	>1 per year
>1.5m			
150k-1.5m			
50k-150k		✓	
<10k-50k			
<10k			

- File Attachments**
- Carson Corrosion Under Labels.JPG
 - Carson CUL example.JPG
 - Cherry Point - Pipe label issues.doc
 - SNS Gas Corrosion Under Labels.doc
 - Cherry Point - Corrosion line 3-PCAO-248 2008.doc
 - Cherry Point 3 inch NHDS Stripper Line.jpg

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Technical Practice Portal



- Primary source of Information for BP Engineers
- Access to Engineering Technical Practices Library
- Access to Shared Learning and Comments system
- Access to BP selection of External Standards
 - Simple for Engineers to use
 - Blind log-in – Nothing for BP engineers to remember
 - Controlled via BP Intranet
 - Ability to purchase standards to which BP does not have global licence.
 - Also provides access to other Engineering data and information.



Technical Practices Portal



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Technical Practices

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▶ [IHS ESDU - more info](#)

▶ [CyberRegs - more info](#)

▶ [Knovel - more info](#)

▶ [PIP - more info](#)

▶ [BP Heritage Technical Information](#)

▶ [Engineering technical practices community \(BP Connect\)](#)

▶ [News items](#)

▶ [Non-BP Group companies \(third parties\) - Information](#)

▶ [Confirmation page](#)

Industry standards-regulations-technical info

BP subscribes through several providers to industry standards, regulations and a variety of technical information. Online access is provided in the table below.

There are external committees for standards development organisations along with organisations and institutions that BP has representation. A spreadsheet has been comprised to reflect representation on these various areas.

Access the below online industry standards, regulations and technical info

IHS: Standards Expert - API, ASTM, BSI, EEMUA etc
▶ [Access now](#) ▶ [More info](#)

IHS: ESDU - Eng. Data, Methods & Software
▶ [Access now](#) ▶ [More info](#)

IHS: OHSIS - Occupational Health & Safety Information Service
▶ [Access to OHSIS is no longer supported at BP Group level. BP Entities would need to take out individual subscriptions if they wish with IHS.](#)

CyberRegs - North America, Federal, State & Local Regulations
▶ [Access now](#) ▶ [More info](#)

EI: Energy Institute (EI) Standards
▶ [Access now](#)

PIP: US Process Industry Practices
▶ [Access now](#) ▶ [More info](#)

Australian Standards - Facilitated by BP Australian BU's, Melbourne.
Please direct queries on Australian Stds to [Fortina Di Marzio](#).
▶ [Access now](#)

Knovel: Reliable & relevant technical ref info - 1st time-create profile.
PLEASE NOTE: If you are accessing Knovel remotely, please use username bp1 and password knovel to register or gain access.
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External Industry Links and BP Representation

External Industry Links and BP representation can be found in the following **spreadsheet**. Updates are done throughout the year as well as one mass email requesting review once a year. ▶ [exrep2009_2010.xls](#)

Besides the spreadsheet, we have 3 pdf files reflecting **API Major Committee Structure listing the BP representation**. The pdf files will be updated each January.

- ▶ [GOV_CMTE_Structure_BP-America.pdf](#)
- ▶ [Downstream_Structure_BP.pdf](#)
- ▶ [Upstream_Structure_BP.pdf](#)



Technical Practices portal

Access the below online industry standards, regulations and technical info

IHS: Standards Expert - API, ASTM, BSI, EEMUA etc

» [Access now](#) » [More info](#)

IHS: ESDU - Eng. Data, Methods & Software

» [Access now](#) » [More info](#)

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CyberRegs - North America, Federal, State & Local Regulations

» [Access now](#) » [More info](#)

EI: Energy Institute (EI) Standards

» [Access now](#)

PIP: US Process Industry Practices

» [Access now](#) » [More info](#)

Australian Standards - Facilitated by BP Australian BU's, Melbourne.

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Knovel: Reliable & relevant technical ref info - 1st time-create profile.

PLEASE NOTE: If you are accessing Knovel remotely, please use username bp1 and password knovel to register or gain access.

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Heritage documents



Quick Launch

Downstream BP Measurement Standards Manual

ex-Amoco ACES supporting information

ex-BP RPSE Tech Bulletins, Std Drawings, CP/Std Index & Status List

ex-BP Oil US Refining Practices (RP)

ex-BP Oil US Reuse Practices (RUP)

ex-Amoco Chemical Standard Engineering Specifications

ex-Amoco Oil Company Engineering Specifications

Non-heritage Documents

Summary



- BP strongly supports and participates in the formation of Global Industry Standards
- Use of International Standards ensures consistency and more efficient worldwide operations across BP
- Wherever possible BP's internal practices are based on International Standards
- Through its Shared Learning System BP is able to contribute global experience into International Standards
- BP would encourage all Global, National and Local Oil and Gas Companies to participate in the development of International Standards

Thank You



- Questions ?