



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

20th February 2009, Perth



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

Ross Smith – Director Engineering Standards

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



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 | Microsoft... | Protocol GD... | C:\Docume... | Microsoft P... | 2 Intern... | EN | 15:54

Shared Learning



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Shared Learning: Corrosion Under Labels

Class Edit Print Delete Copy URL Create Duplicate Archive this Learning

Shared Learning Title Corrosion Under Labels
Contributor Name Darryl Godfrey
Email Address darryl.godfrey@e1.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 326 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 NHD5 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 SNG 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 (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 standlaid 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
 - SNG Gas Corrosion Under Labels.doc
 - Cherry Point - Corrosion Line 3-PCAD-248 2008.doc
 - Cherry Point 3 Ind NHD5 Stripper Line.jpg

Class Edit Print Delete Copy URL Create Duplicate Archive this Learning


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.

Engineering Practices Portal





Technical Practices Portal

providing access to internal and external engineering standards and practices

news
[Implementation of the Integrity Management \(IM\) Standard in BP](#)
[administration](#)


etp library
shared learning system
industry standards online access
other bp technical practices & related sites

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IHS Standards Expert Training

If you have not had an opportunity to utilise the online training, it is still available. Click the 'more info' to find out about the transition information and online training.

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technical practices portal



IM Portal	FAQs	ETPCOI	ETP Project Homepage
External Organizations and BP Representation	Who to Contact and Standardsline	eCLIPS	OneBP

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Engineering Practices Portal



Technical Practices Portal

providing access to internal and external engineering standards and practices

news [NEW plug-in required to access some industry standards from IHS](#) [administration](#)

etp library	shared learning system	industry standards online access	other bp technical practices & related sites
<p>Feature News more news ✕</p> <p>IHS Standards Expert Training</p> <p>If you have not had an opportunity to utilise the online training, it is still available. Click the 'more info' to find out about the transition information and online training.</p> <p>more info</p>	<p>IHS: Access and Information more info</p> <p>IHS: Standards Expert API, ASTM, BSI, EEMUA etc. go there now more info</p> <p>IHS: ESDU eng. data, methods & software go there now more info</p> <p>IHS: OHSIS Occupational Health & Safety Information Service go there now more info</p> <p>CyberRegs: North America, Federal, State & Local regulations go there now more info</p> <p>EI - Energy Institute (IP) Standards go there now more info</p> <p>PIP: US Process Industry Practices go there now more info</p> <p>Australian Standards go there now more info</p> <p>Knovel: Reliable and relevant technical reference information - <i>fast</i> go there now more info</p> <p>Public Catalogues and Indexes go there now more info</p>	  	
<p>IM Portal</p>	<p>FAQs</p>		<p>ETP Project Homepage</p>
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<p>Last Updated: 13 August 2008</p>			

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 ?