



Implementation of Standards by an International E&P Company

CES Implementation Status

12 March 2010

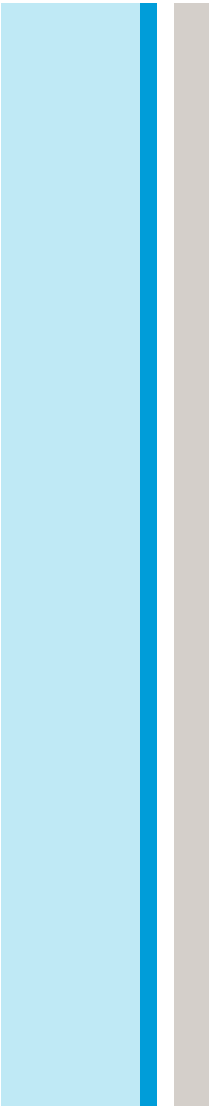


Presentation Overview

- I. Background/History - Chevron and Unocal Standards in Thailand
- II. Chevron's Philosophy Regarding Standards
- III. Value/Benefits of Standards
- IV. Chevron Thailand's current efforts concerning standardization
- V. Resources (Access to Standards)

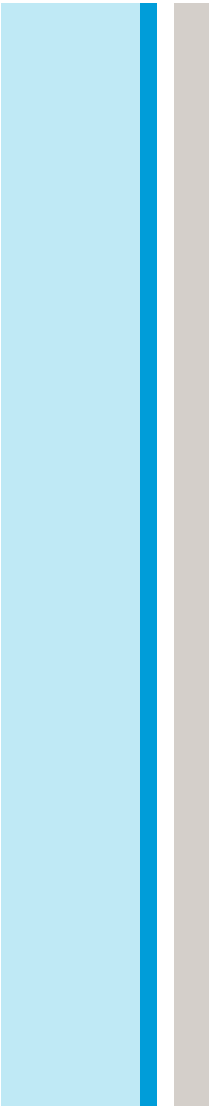


I. Background/History - Chevron and Unocal Standards in Thailand





Unocal Thailand Standards Background



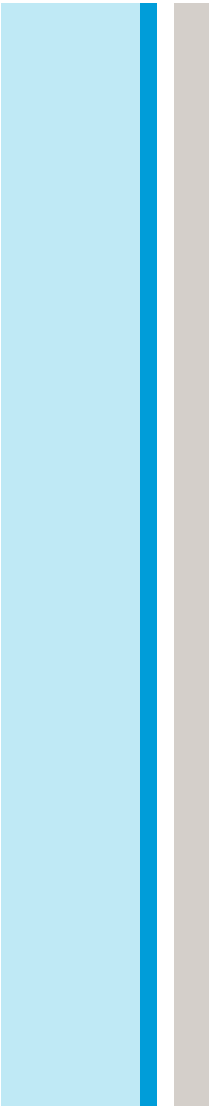
Unocal Thailand Standards Background



- Unocal Thailand General Specifications were based on Crest Engineering Standards (part of Combustion Engineering Group).
- General Specifications were Thailand specific but based on learnings from the Gulf of Mexico.
- Unocal Thailand used Thailand specific standards and were not required to comply with Unocal Corporate Standards. Corporate Standards were either non-existent or developed later.



Chevron Corporate Standards Background





Chevron History - Corporate Standards

Prior to mid-1980's:

- Chevron Engineering Department existed
- Engineering Department wrote and maintained Chevron Corporate Standards
- Existing Business Units utilized Corporate Standards
- Large projects utilized Corporate Standards and/or Engineering Contractor Standards

Mid-1980's:

- Chevron Engineering Department disbanded
- Engineering Department experts retired or transferred to Business Units



Chevron History - Corporate Standards

After the mid-1980's:

- Chevron Business Units continue to use Standards created by the Chevron Engineering Department
- Each year, the Chevron Engineering Department Standards become more and more outdated (no centralized group owns and maintains the documents)
- Business Units start to revise the old Chevron Engineering Department Standards or create new Standards
- Greater reliance of Engineering Contractor Standards

Decentralized Model



Chevron History - Corporate Standards

Since 2005:

- Renewed focus on creating and maintaining Corporate Standards
- Greater emphasis on compliance with Chevron Corporate Engineering Standards (CES)
- Use of Local Addenda allowed

Why???



Chevron History - Corporate Standards

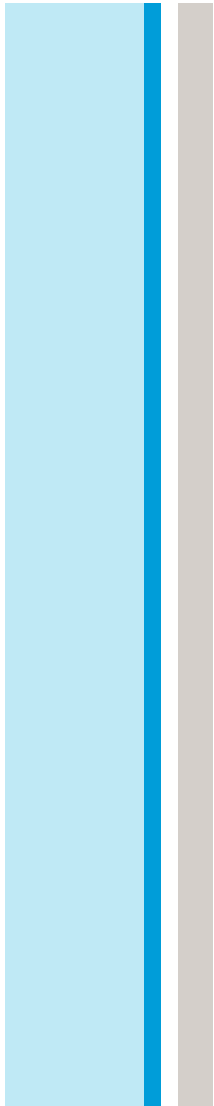
Why this model?

- Decentralized Model failed. This led to areas of excellence... and areas with challenges
- No Lessons Learned sharing between Business Units
- Requirement of Chevron Corporate Engineering Standards (CES) is seen as a way of improving performance worldwide
- Allowing use of Local Addenda allow continued local ownership and seen as a way to drive innovation

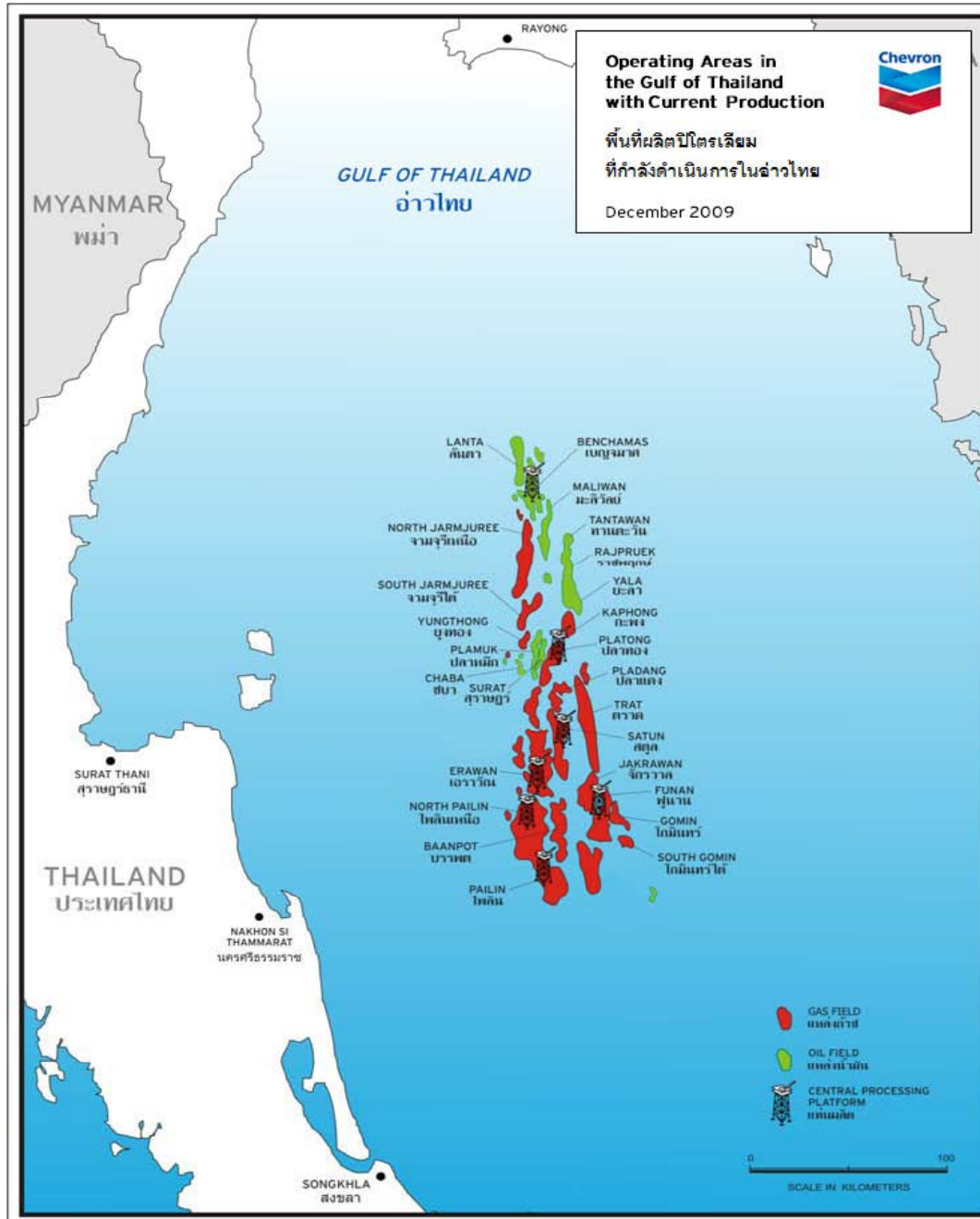
Top Corporate Management support is required to ensure success and accountability!



Chevron Thailand Background



Chevron & Unocal History in Thailand



Chevron History:

- 1997 – Tantawan
- 1999 – Benchamas
- 2001- Maliwan
- 2004 – North Jarmjuree
- 2005 – Rajpruek
- 2007 – Lanta
- 2009 - Chaba

Unocal History:

- 1981 - Erawan
- 1984 – Platong
- 1984 – Satun
- 1991 – Funan
- 1999 – Pailin
- 2002 – North Pailin

* All dates reflect first production

Background/History - Chevron and Unocal Standards in Thailand



- Legacy Unocal Assets were constructed and maintained using Unocal Thailand General Specifications
- Legacy Chevron Assets were constructed and maintained using area specific Chevron Corporate Standards
- Chevron Thailand currently has 219 Platforms (188 wellhead, 4 production, 6 central processing, 2 oil central processing, 7 living quarters, 9 flare tripods, 1 mercury removal, 1 CPP/LQ and 1 PTT-CTEP gas compression)
- Since the Unocal acquisition by Chevron in 2005, Chevron Thailand has been operating with two sets of Legacy Standards

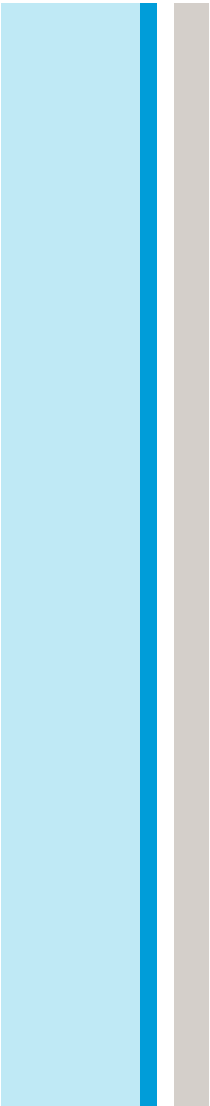
Background/History - Chevron and Unocal Standards in Thailand



- There are a total of over 5,000 Chevron Engineering Standards (CES). They include engineering practices, general specifications, equipment specifications, and construction and technical specifications.
- Approximately 300 specifications are applicable to offshore operations.
- There is a current project to adopt Chevron Engineering Standards (Corporate Standards) for Chevron Thailand – Expected completion date 4Q10 (Total project duration = 2 years)

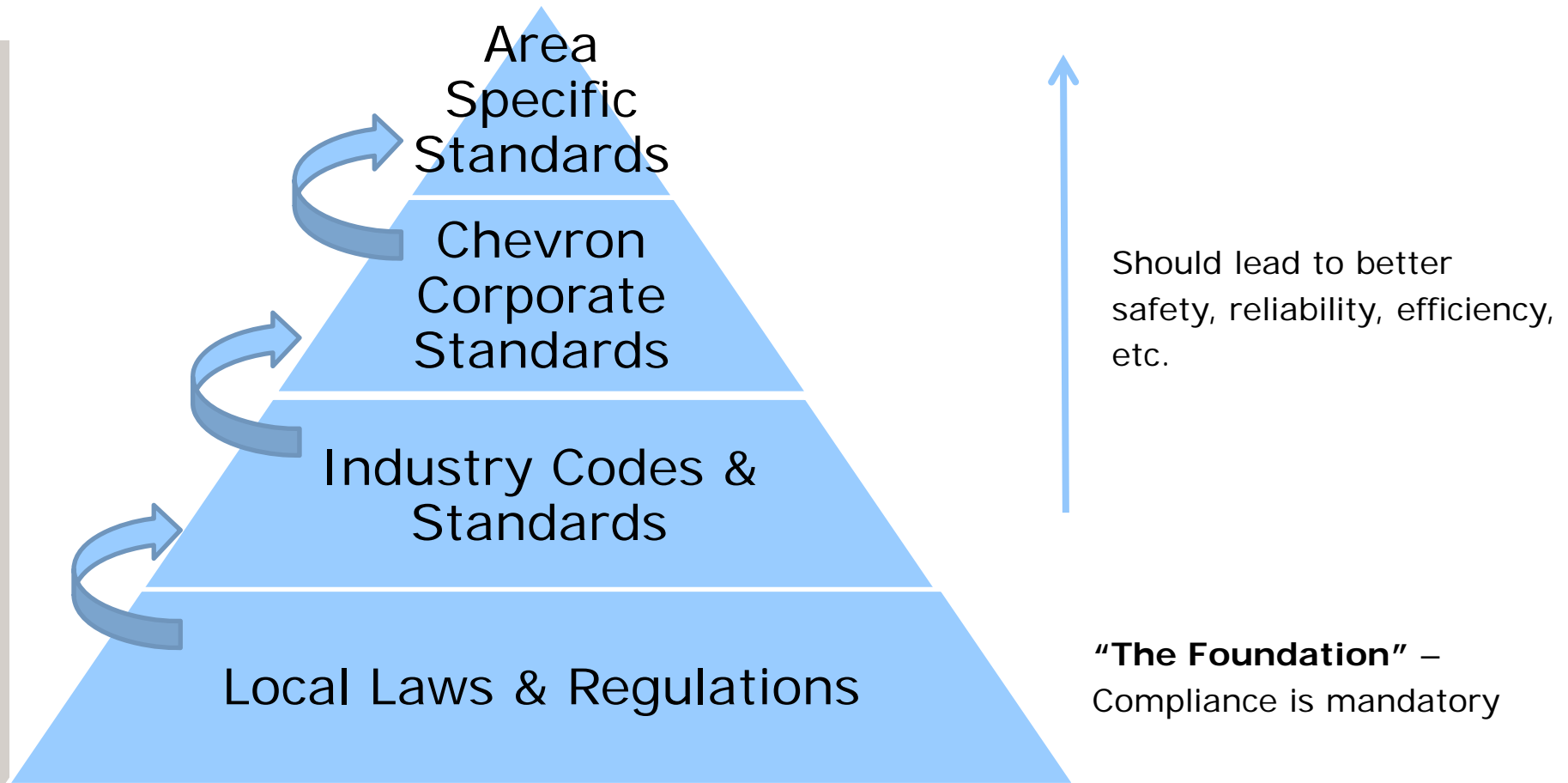


II. Chevron's Philosophy Regarding Standards





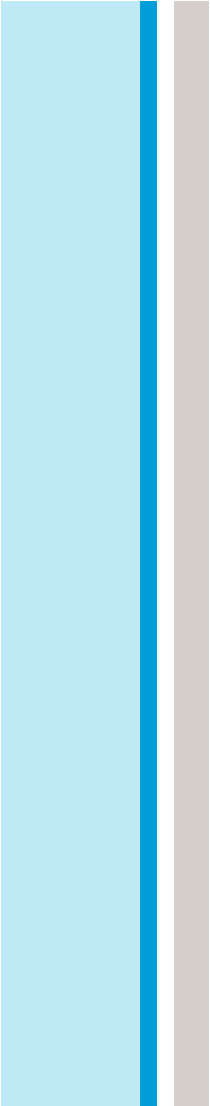
Chevron's Philosophy Regarding Standards



Standards Hierarchy – Typically, Industry Codes & Standards are only relevant if they meet or exceed all aspects of Local Laws & Regulations. Company Standards must meet or exceed Local Laws & Regulations and Industry Codes & Standards.



III. Value/Benefits of Standards





Value/Benefits of Standards

- Defines/Clarifies acceptable design requirements.
- Conformance to standards and acceptable design requirements has many benefits:
 - Safety
 - Reduced project risk
 - Cost – Life cycle cost
 - Schedule
 - Efficiency
 - Reliability
 - Reduces training requirements
 - Reduces spare parts



Value/Benefits of Standards

- Facilitate knowledge transfer to person(s) reviewing the code. Members involved gain expertise in the Standard that can be used/shared.
- Drives Continuous Improvement – Updates to Standards should include assessments and recommendations from previously identified problems/solutions (i.e. – Lessons Learned).
- Exceptions specs provide an organized structure to assess and implement lessons learned, innovations, and step outs.
- Continuous improvement of Chevron knowledge base
- System wide improvements are realized rather than project by project variable results



IV. Chevron Thailand's current efforts concerning standardization



- Home
- Safety
- Construction >>
- Engineering
- Reliability >>
- M & M >>
- Major Projects
- Project Services
- FE Library
- FE Standards**
- Processes
- Reporting
- Useful Forms
- Useful Links



The purpose of this site is to promote sharing the 3 groups of CES, COTL and CTEP - FE General Standards (GS) and to provide a location for storing the information of the filtered 26 key Offshore Top Side Facilities General Standards which are reference for the combined Chevron General Standard (CGS) project.

In May 2008, FE Engineering started the Integration of three FE Top Site Offshore Facilities General Standards which were called "Chevron General Standard or CGS". The project detail and its progress is posted in following link.

[FE - Chevron General Standard \(CGS\) Integration Project](#)

Deviation Procedure

[GS Deviation Procedure](#) (68 KB)

FE - Standards (Sorted by Function)

- | | | | |
|--|---|---|--|
| 1. Civil and Structure | 11. Flare Relief System | 21. Fired Heater | Other
1. Related References and Technical Papers |
| 2. Corrosion & Materials | 12. Instrument & Control | 22. Noise Control | |
| 3. Coatings | 13. Electrical | 23. Compressor | |
| 4. Piping | 14. Utilities | 24. Reliability | |
| 5. Pump | 15. Insulation & Refractory | 25. Risk-Based Inspection | |
| 6. Driver | 16. Fire Protection | 26. Welding | |
| 7. General Machinery | 17. Fluid Flow | | |
| 8. Pressure Vessels | 18. Miscellaneous | | |
| 9. Heat Exchangers | 19. Package Equipment | | |
| 10. Tank | | | |

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- Useful Links
- [Chevron Engineering Standards \(CES\) - Global Link](#)
 - [Chevron Engineering Standards \(CES\) - Offshore Facilities](#)
 - [CTEP Engineering Standards](#)
 - [COTL Engineering Standards \(FE Library\)](#)
 - [FE - Major Project General Specifications \(Phase#36\)](#)
 - [PLCPP2 Specifications \(Platong General Project\)](#)

The Facility Engineering Website has links to more than 334 Standards covering 26 subjects. Simplifying access to standards increases usage and reduces the likelihood of using old or cancelled versions.



Function	CES		COTL			CTEP			
	Group	Title Document	Group	Title	Version	Group	Title	Version	
1. Civil and Structure (CIV)	1.10	Design and Installation of Living Quarters	SU	GS 01.01	GENERAL STRUCTURAL DESIGN	Rev.0 Aug-01	GS10Rev2	Structural Welding & Inspection	Rev.2 Nov-94
	1.14	Structural Steels and Other Materials	SU	GS 01.09	GENERAL BUILDINGS	Rev.0 Aug-01	GS15Rev2	Misc Minor Steel Structures	Rev.2 Jun-99
	1.15	Structural Welding and Inspection	SU	GS 01.10	LIVING QUARTERS BUILDING	Rev.0 Aug-01	GS19Rev1	HVAC & Pressurisation	Rev.1 Oct-99
	1.19	Design of Platform Structures	SU	GS 01.12	GENERAL PLUMBING SYSTEMS	Rev.0 Aug-01	GS1Rev1	Offshore Platform	Rev.1 Aug-91
	1.20	Fabrication of Platform Structures	SU	GS 01.14	STRUCTURAL STEEL AND OTHER MATERIALS	Rev.0 Aug-01			
	1.24	Design and Fabrication of Buildings	SU	GS 01.15	STRUCTURAL WELDING & INSPECTION	Rev.0 Aug-01			
	1.25	Geotechnical Site Investigation	PU	GS 01.19	PLATFORM FABRICATION	Rev.0 Aug-01			
	1.27	Installation of Platform Structures	SU	GS 01.27	PLATFORM INSTALLATION	Rev.0 Aug-01			
	1.28	Helidecks on Offshore Installations	SU	GS 13.06	SKIM PILE	Rev.0 Aug-01			
	2. Corrosion & Materials (CPM)	2.03	Aluminum Alloy Anodes for Offshore Platform Cathodic	SU DS	GS 02.01	CATHODIC PROTECTION FOR OFFSHORE PLATFORMS	Rev.A Jun-00	GS40Rev1	Sacrificial Anodes for Offshore Platforms
2.04		Protection Underwater Cathodic Protection Survey for Offshore Platforms	PU	GS 20.12	ASPHALT ENAMEL CORROSION COATING OF SUBMARINE PIPELINES	Rev.A Dec-00	GS51Rev0	Corrosion Resistant Alloy (CRA) Clad Steel Fittings	Rev.0 Apr-91
3. Coatings (COM)	2.02	Materials and Application of Painting and Protective Coatings	SU	GS 02.02	PAINT AND PROTECTIVE COATINGS	Rev.A Jun-00	GS13Rev7	Protective Coating	Rev.7 Apr-03
	5.01	Rotor Storage	SU	GS 20.09	COAL-TAR ENAMEL	Rev.0	GS13Rev7	Request for Change -	Rev.7

The Facility Engineering Website lists Corporate Standards (CES) and the standards from the legacy companies (COTL = Chevron Thailand; CTEP = Unocal Thailand)

Chevron Thailand's current efforts concerning standardization

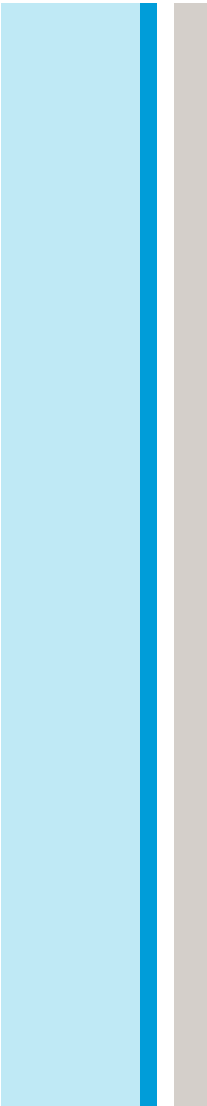


- Standards are being reviewed with the goal of adopting Chevron Corporate Engineering Standards (CES).
- Many CES Standards will be adopted with "Addendum".
- An Addendum allows the inclusion of area specific requirements (i.e. – Local Laws, etc.) into adopted CES Standards.
- An Addendum also allows past improvements, Lessons Learned and Best Practices to be incorporated into the CES Standards.

Chevron Thailand's current efforts concerning standardization



Chevron Corporate Engineering Standards Adoption Process





Chevron Thailand's Standardization Process

1st Step – Map the different/common specifications

CES				CTEP			COTL		
Code	Group	Title	Code	Code	Rev	Title	Code	Rev	Title
CIV	1.24	Design and Fabrication of Buildings	CIV-SU-1.24				GS 01.09	0	GENERAL BUILDINGS
							GS 13.06	0	SKIM PILE
CIV	1.14	Structural Steels and Other Materials	CIV-SU-1.14	GS-15 (2MB)	2	Miscellaneous Minor Steel Structures	GS 01.14	1	STRUCTURAL STEEL AND OTHER MATERIALS
CIV	1.15	Structural Welding and Inspection	CIV-SU-1.15	GS-10 (1.4MB)	2	Structure Welding and Inspection	GS 01.15	0	STRUCTURAL WELDING & INSPECTION
CIV	1.19	Design of Platform Structures	CIV-SU-1.19	GS-1 (308KB)	1	General Specification Definition for Offshore Platform	GS 01.01	1	GENERAL STRUCTURAL DESIGN
CIV	1.20	Fabrication of Platform Structures	CIV-SU-1.20				GS 01.19	0	PLATFORM FABRICATION
CIV	1.27	Installation of Platform Structures	CIV-SU-1.27				GS 01.27	0	PLATFORM INSTALLATION
				GS-40 (1.2KB)	1	Sacrificial Anodes for Offshore Platforms			
				GS-19		Heating, Ventilating, Air Conditioning, and	GS 01.12	0	GENERAL PLUMBING SYSTEMS
CIV	1.10	Design and Installation of Living Quarters	CIV-SU-1.10	GS-19			GS 01.10	0	LIVING QUARTERS PLUMBING



Chevron Thailand's Standardization Process

2nd Step – Compare the common specifications

Integration GS-Standard analysis					
Generic Grouping: Main GS-Standard Name:			Reference Document: Date:		
Referenced Document	CTEP	Rev	CES	Gr.	COTL
	Electrical Work	2	General Electrical Design	-	General Electrical Specification
Topic Name	GS-11		ELC-DU12.01		GS 12.01
Introduction	CONTENTS SECTION 1.0 SCOPE 2.0 CODES AND STANDARDS 3.0 ENVIRONMENTAL CONDITIONS 4.0 CLASSIFICATION OF AREAS 5.0 MATERIALS 6.0 INSTALLATION METHODS 7.0 ELECTRIC MOTORS 8.0 MOTOR STARTERS AND CIRCUIT BREAKERS 9.0 CONTROL STATIONS 10.0 GROUNDING 11.0 LIGHTING 12-0 CABLE INSTALLATION 13.0 RELAYS 14.0 PROTECTION OF EQUIPMENT AND MATERIALS 15.0 INSPECTION AND FINAL APPEARANCE 16.0 TESTING 17.0 FABRICATORS WARRANTY	PAGE 3 3 4 4 5 8 11 13 13 14 14 15 15 15 17 18 20	CONTENTS 1.0 INTRODUCTION 1.1 Scope 1.2 Responsibilities 1.3 Conflicts and Deviations 2.0 REFERENCES 2.1 Industry Standards 2.2 Chevron/Texaco Specifications 2.3 Government Agencies 3.0 ELECTRICAL DESIGN PRACTICES 3.1 General 3.2 Materials 3.3 Threaded Connections 3.4 Penetrations 3.5 Separation of Instrument and Power Circuits 3.6 Building Wiring 3.7 Voltage Selection 3.8 Steady State and Transient Voltage Drop 3.9 Equipment Sizing and Capacity 3.10 Grounding 3.11 Transient Voltage and Surge Protection 3.12 Harmonics 3.13 Efficiency Evaluation 3.14 Emergency Power	5 5 5 5 5 6 6 6 6 6 9 10 10 11 13 14 15 15 17 18 18 19 20	TABLE OF CONTENTS 1.0 INTRODUCTION 1.1 Scope 1.2 Responsibilities 1.3 Conflicts and Deviations 1.4 Company Documentation 2.0 STANDARDS AND CODES 2.1 Code Making Organizations and Approval Bodies 2.2 Codes and Standards 2.3 Company Specifications 3.0 ELECTRICAL DESIGN PRACTICES 3.1 General 3.2 Units of Measure 3.3 Materials 3.4 Threaded Connections 3.5 Penetrations 3.6 Separation of Instrument and Power Circuits 3.7 Building Wiring 4.0 AREA CLASSIFICATIONS 5.0 GROUNDING 6.0 POWER SYSTEM REQUIREMENTS 6.1 Power and Control Module 6.2 Primary Power 6.3 Emergency Power 6.4 Power Distribution



Chevron Thailand's Standardization Process

2nd Step – Compare the common specifications
 Highlight the differences


	CTEP	Rev	CES	Gr.	COTL	Rev
General Requirements	<p>4.0 CLASSIFICATION OF AREAS</p> <p>4.1 The determination of the area classifications shall be in accordance with API-RP-500B and Article 500 of the National Electrical Code. The areas will be either Class I, Division 1 or Division 2, or unclassified.</p> <p>4.2 Area classifications will be furnished. Generally, the areas external to a pressurized air-conditioned building will be classified Class I, Group D, Division 1 or 2. Building interiors will be unclassified in accordance with NFPA No. 496-1974 Chapter 3, Standard for Purged Control Rooms for Electrical Equipment in Hazardous Locations. Rooms containing storage batteries will be classified Class I, Group B, Division 2.</p>		<p>6.0 AREA CLASSIFICATIONS</p> <p>6.1 General Areas shall be classified in accordance with either American Petroleum Institute Recommended Practice RP-500 (Division Method) or American Petroleum Institute Recommended Practice RP-505 (Zone Method) as specified on the Data Sheet.</p> <p>6.2 Buildings</p> <p>1. Primary buildings housing electrical equipment or normally occupied buildings located adjacent to or in classified areas (such as the Power and Control Building) shall be purged and pressurized according to NFPA 496 to declassify the interior.</p> <p>2. Other buildings (such as Workshops, Supply Buildings, and Warehouses) may be constructed in accordance with API RP 500, Paragraph 6.3 and 6.5 to declassify the interior.</p> <p>a. Power for purge air fans and air conditioners shall be supplied from the emergency bus.</p> <p>b. Purge air shall be supplied by air ducts</p>		<p>4.0 AREA CLASSIFICATIONS</p> <p>4.1 Areas shall be classified in accordance with the American Petroleum Institute Recommended Practice RP-500.</p> <p>4.2 Primary buildings housing electrical equipment or normally occupied buildings located adjacent to or in classified areas (such as the Power and Control Building) shall be purged and pressurized according to NFPA 496 to declassify the interior. Other buildings (such as Workshops, Supply Buildings, and Warehouses) may be constructed in accordance with API 500, Para. 4.8 to declassify the interior. Power for purge air fans and air conditioners shall be supplied from the emergency bus. Purge air shall be supplied by air ducts with intakes located in unclassified areas. There shall be an alarm indication in the control room for low purge air pressure. Gas detection shall</p>	



Chevron Thailand's Standardization Process

- 3rd Step – Subject Matter Expert (SME) assigned to determine how best to adopt Chevron Corporate Engineering Standard (CES).
- 4th Step - SME creates Addendum (standard document), which contains their recommendations on how we should vary from CES.
- 5th Step – SME presents recommendations (Addendum) to Senior Engineers and FE Management for review and approval.
- 6th Step – After approval, document is approved as the new Standard for Chevron Thailand and is posted to the web.

Inside Home Find & Search People Finder

Asia South Chevron Thailand | 

FE Facilities Engineering

Home

Safety

Construction >>

Engineering

Reliability >>

M & M >>

Major Projects

Project Services



FE Library

FE Standards

Processes

Reporting

Useful Forms


The purpose of this site is to promote sharing the FE Combined General Standards (CGS) with their addendum aligned with GOT offshore facilities and to provide a location for storing the information of the filtered 8 key function of GOT Offshore Facilities General Standards which are reference for any new project or brown filed modification.

FE - Combined General Standards (CGS)

- [Electrical and Instrument](#)
- [Material & Corrosion](#)
- [Mechanical Equipments](#)
- [Civil & Structural](#)
- [Miscellaneous](#)
- [Pipeline](#)
- [Piping](#)
- [Safety \(HES\)](#)




Function	Topic	CES	CES Addendum	Attachment	Last Revision	SME Owner	Next Revision
1. Electrical and Instrument (ISA)						Surasie I.	
	General Electrical Design	ELC-DU-12.01	ELC-LA-12.01-BKK	DS	Nov-09	Teeraj S.	Nov-10
	General Requirements for Installation of Electrical Facilities	ELC-SU-12.02	ELC-LA12.02-BKK	-	Nov-09	Teeraj S.	Nov-10

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Useful Links

-  [Chevron Engineering Standards \(CES\) - Global Link](#)
-  [Chevron Engineering Standards \(CES\) - Offshore Facilities](#)
-  [CTEP Engineering Standards](#)

As CES Standards are adopted, the Standards website is updated.

- Legacy COTL and CTEP Standards are removed
- A link to the CES Addendum is added
- Additional items added: Last revision date, Owner, Next Revision Date



FE Facilities Engineering

- Home
- Safety
- Construction >>
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2. [Material & Corrosion](#)
3. [Mechanical Equipments](#)
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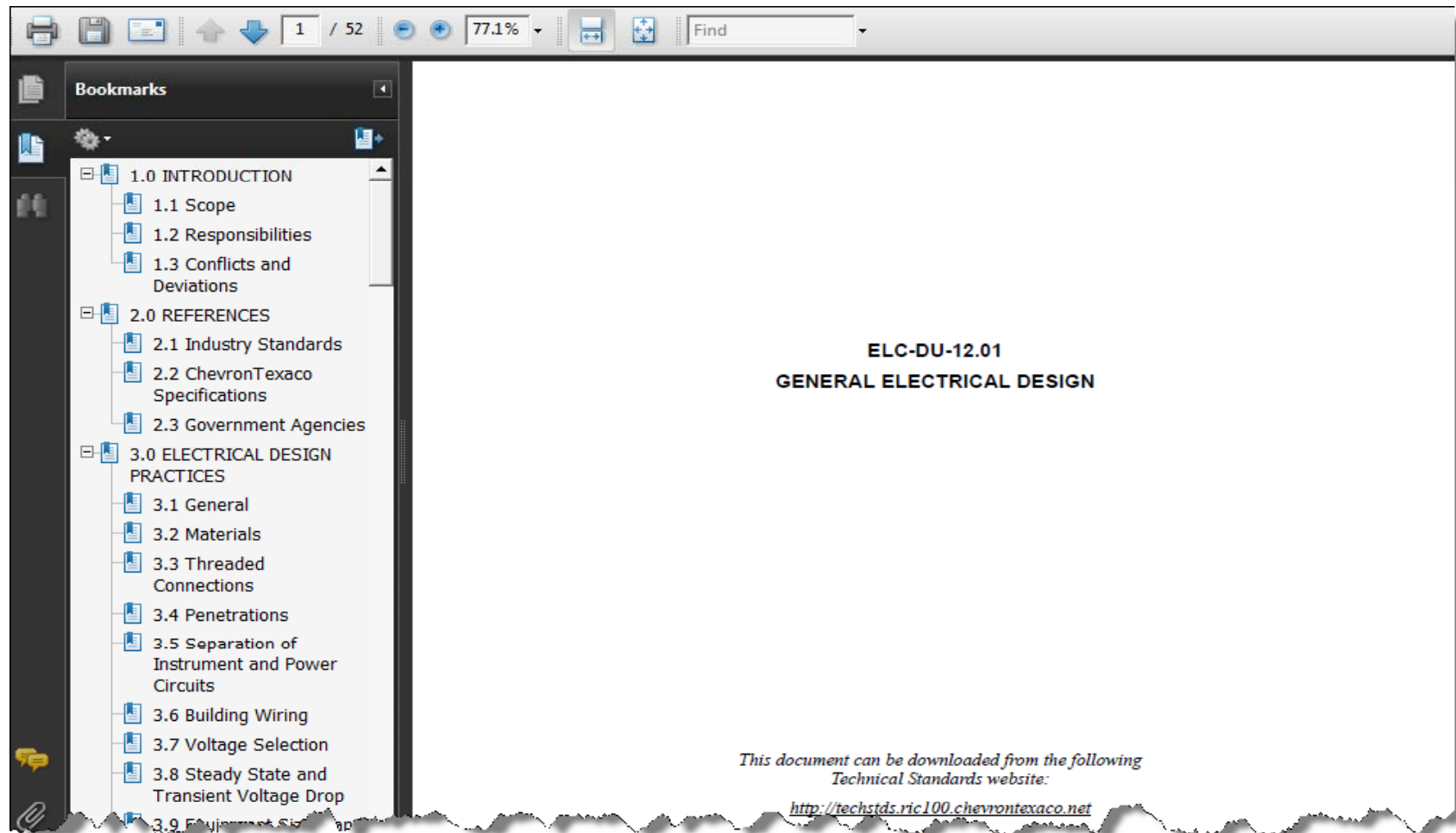
- Useful Links**
- [Chevron Engineering Standards \(CES\) - Global Link](#)
 - [Chevron Engineering Standards \(CES\) - Offshore Facilities](#)
 - [CTEP Engineering Standards](#)

Example on functionality... When the CES Standard (ELC-DU-12.01) is clicked



ELC-DU-12.01 General Electrical Design

(52 page Chevron Corporate Standard)





FE Facilities Engineering

- Home
- Safety
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 - [Chevron Engineering Standards \(CES\) - Offshore Facilities](#)
 - [CTEP Engineering Standards](#)

Example on functionality (continued)... When CES Addendum (ELC-LA-12.01-BKK) is clicked



Integration of General Specifications

ELC-LA-12.01-BKK
ELC-DU-12.01 (January 2005)
[General Electrical Design]

This specification modifies the CES specification indicated above for use in the following location: CTEP's and COTL's facilities in the Gulf of Thailand. The modifications required are listed in this addendum. The CES specification is attached.

The revision numbers and dates shown on this page pertain to modifications made by this addendum specification to the CES specification.

Rev.		By		Date		Pages
Rev.	0	By	Teeroj S.	Date	Oct-09	Pages 5
Rev.		By		Date		Pages
Rev.		By		Date		Pages
Rev.		By		Date		Pages
Rev.		By		Date		Pages
Rev.		By		Date		Pages
Rev.		By		Date		Pages
Rev.		By		Date		Pages

Reviewed by:


Sunee E. (Supervisor, UE SCADA)

Saritsong S. (Senior Advisor Facilities)

By: 
Date: 9 Nov. 2009


By: 
Date: 9 Nov. 2009

Toomey, Pat (Manager, FE Engineering)

By: 
Date: 9 Nov. 2009

Approved for Design by:

Boonchai C. (Manager, Facilities Engineering)

By: 
Date: 25 Nov. 09

October 2009

1 of 5

Addendum:

ELC-LA-12.01-BKK

General Electrical Design

Notes:

- Written and edited by Subject Matter Experts
- Approved by Senior Engineers and Senior Facility Engineering Management



Integration of General Specifications

ELC-LA-12.01-BKK ELC-DU-12.01 (January 2005) [General Electrical Design]

Scope

1. This Location Addendum Specification (LA) defines additional requirements for **CTEP's and COTL's facilities in the Gulf of Thailand**.
2. The requirements in this LA are modifications to the requirements in CES document **ELC-DU-12.01**.
3. The type of modification shall be defined and indicated in subsequent text as follows:
(ADD) - Indicates the following statement(s) is/are added to the CES referenced text.
(DELETE) - Indicates the following statement(s) is/are deleted from the CES referenced text.
(REPLACE WITH) - Indicates the following statement(s) is/are revision(s) to the CES referenced text.
4. In case of conflict, requirements in this LA take precedence, but in no case will a less stringent requirement be used unless clearly stated in this LA that the requirement specifically replaces the more stringent requirement.

Changes to the Specification

The following section/paragraph numbers correspond to those in CES document **ELC-DU-12.01**.

2.0 REFERENCES

2.1 Industry Standards:

(ADD) Factory Mutual Research Corporation (FM)

(ADD) Illuminating Engineers Society (IES)

RP-7 Practice for Industrial Lighting

Institute of Electrical and Electronics Engineers (IEEE)

(ADD) 45 IEEE Recommended Practice for Electric Installations on Shipboard

(ADD) 446 IEEE Recommended Practice for Emergency and Standby Power Systems for Industrial and Commercial Applications

(ADD) 515 IEEE Recommended Practice for the Testing, Design, Installation and Maintenance of Electrical Resistance Heat Tracing for Industrial Applications

(ADD) Underwriters Laboratories (UL)

(ADD) United States Coast Guard (USCG)

October 2009

2 of 5

Example of changes:

- Added additional Industry Standards that were used as reference



Integration of General Specifications:

ELC-LA-12.01-BKK
ELC-DU-12.01 (January 2005)
[General Electrical Design]

(DELETE) 2.3 Government Agencies

- Federal Aviation Administration (FAA)
- Federal Communications Commission (FCC)

10.0 MOTORS

3. All motors 3 HP and larger (offshore applications) and 25 HP and larger (onshore applications) shall be equipped with space heaters.

(REPLACE WITH)

3. All motors 3 HP and larger shall be equipped with space heaters operating on 120 VAC, 1 Phase, 60 Hz.

Change due to Area Specific requirements

13.0 WIRING METHODS

1. The only pre-approved, allowable wiring method shall be type MC cable with a gas/vapor tight continuous corrugated aluminum sheath with an overall PVC jacket in cable tray as described in API RP 14F or UL 1309 listed marine shipboard cable with overall impervious sheath over bronze basket weave armor as described in API RP 14F in cable tray.

(REPLACE WITH)

1. The only pre-approved, allowable wiring method shall be type MC or MC-HL cable with a gas/vapor tight continuous corrugated aluminum sheath with an overall PVC jacket in cable tray as described in API RP 14F or UL 1309 listed marine shipboard cable with overall impervious sheath over bronze basket weave armor as described in API RP 14F in cable tray.

Change due to technical improvement/experience

3. MC cable terminations shall be made with properly sized Hawke brass terminators with nickel plated threads. EYS type seal fittings in conjunction with standard cable terminators are not permitted.

(REPLACE WITH)

3. MC or MC-HL cable terminations shall be made with properly sized Hawke brass terminators with nickel plated threads. EYS type seal fittings in conjunction with standard cable terminators are not permitted.

4. In general, type TC or PLTC cables shall not be used.

- a. All cables, including instrument cables, shall be type MC cables with 600 volt, 194°F (90°C) rated insulation.

(REPLACE WITH)

- a. All cables, including instrument cables, shall be type MC or MC-HL cables with 600 volt, 194°F (90°C) rated insulation.

Example of changes:

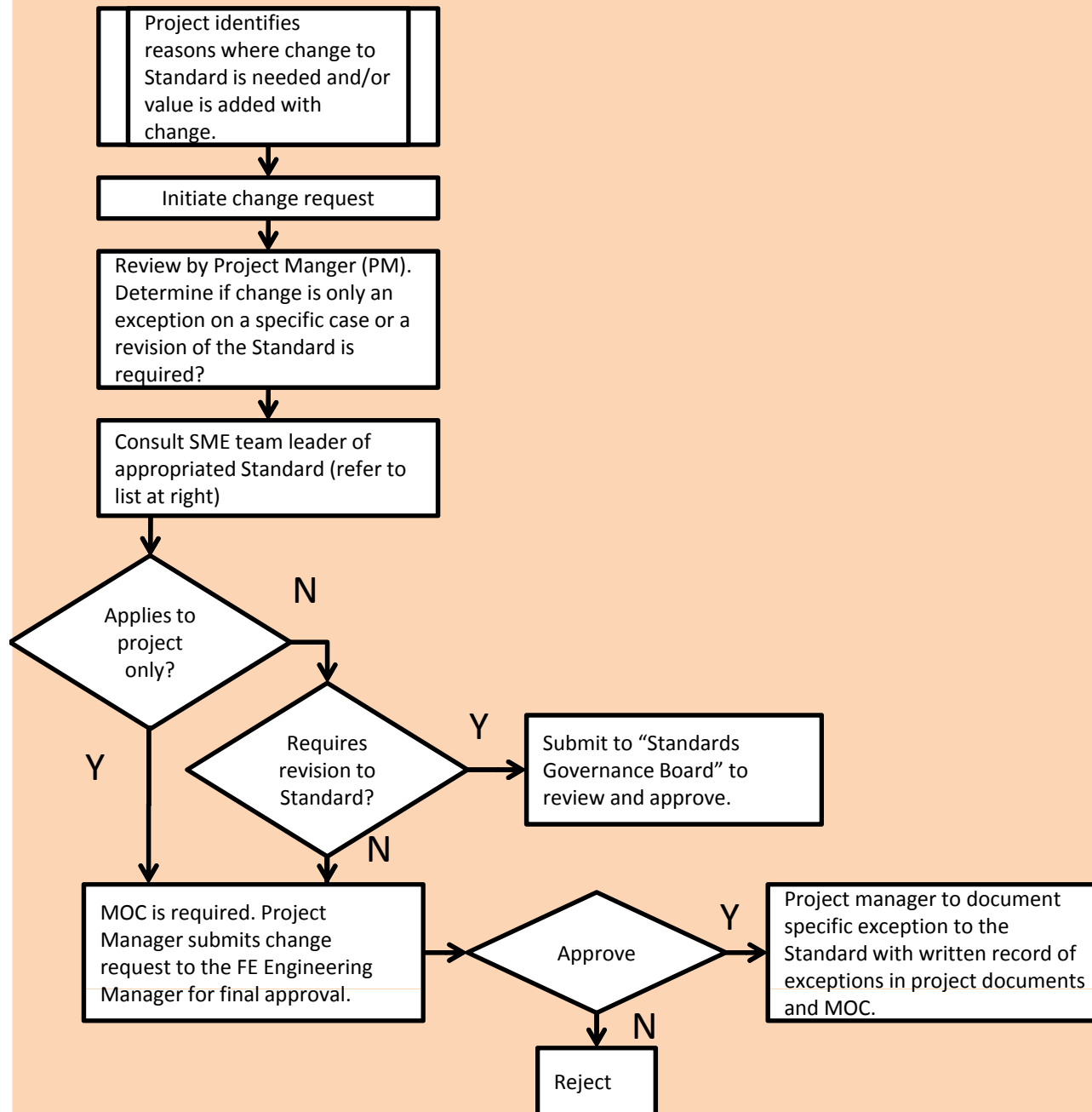
- Deleted US Government Requirements that are specific to US operations
- Added additional details for space heaters for motors
- Allowed for the use of MC or MC-HL cable versus allowing only MC cable



Deviations From Standards

- Standards will not be the best solution in all situations. Good Engineering judgment should always be applied.
- A plan/process should be in place in case a deviation to a Standard is necessary.
- Deviations should be documented & tracked.
 - Repeated deviations may highlight the need to revise a Standard
- Extra caution should be exercised when deviating from Standards
 - A detailed review of the change by Subject Matter Experts and Management should occur before the deviation is approved.
 - A change management system (i.e. – MOC) should be used to document the deviation.

Chevron Thailand – Engineering Standards Deviation Procedure (Revision 2)



SME team leader

Surasie I. – Electrical and Instrument
Songpan S. – Material and Corrosion
Sunthan S. – Mechanical Equipments
Tongchai T. – Civil & Structural
Pipeline, Piping
John Edmed – Safety

FE Engineering Manager

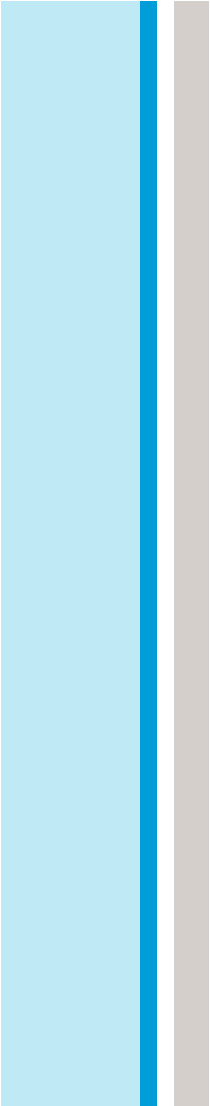
Pat Toomey

Standards Governance Board

Boonchai C.
Pat Toomey (Standards Board Contact)
Sarithpong S.
Ad Hoc members as required



V. Resources (Access to Standards)





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The purpose of this site is to promote sharing the FE Combined General Standards (CGS) with their addendum aligned with GOT offshore facilities and to provide a location for storing the information of the filtered 8 key function of GOT Offshore Facilities General Standards which are reference for any new project or brown filed modification.

FE - Combined General Standards (CGS)

1. [Electrical and Instrument](#)
2. [Material & Corrosion](#)
3. [Mechanical Equipments](#)
4. [Civil & Structural](#)
5. [Miscellaneous](#)
6. [Pipeline](#)
7. [Piping](#)
8. [Safety \(HES\)](#)

Function	Topic	CES	CES Addendum	Attachment	Last Revision	SME Owner	Next Revision
1. Electrical and Instrument (ISA)						Surasie I.	
	General Electrical Design	ELC-DU-12.01	ELC-LA-12.01-BKK	DS	Nov-09	Teeraj S.	Nov-10
	General Requirements for Installation of Electrical Facilities	ELC-SU-12.02	ELC-LA12.02-BKK	-	Nov-09	Teeraj S.	Nov-10

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- Useful Links**
- [Chevron Engineering Standards \(CES\) - Global Link](#)
 - [Chevron Engineering Standards \(CES\) - Offshore Facilities](#)
 - [CTEP Engineering Standards](#)

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Announcements

- **ATIS** – If you are involved in network operations, administration, maintenance, provisioning, or troubleshooting, the Alliance for Telecommunications Industry Solutions (ATIS) provide telecommunications standards that support the interoperability of networks, network equipment and customer premise equipment. ATIS standards are continually addressing new technology, including critical standards on IPTV, Home Networking (HNET) and Service Oriented Networks (SONs). These standards are often used in conjunction with other IHS Standards Expert collections such as ETSI, IEC, IETF, INCITS, IPC, ISO, ITU, JEDEC, TIA. For more information on these collections, please refer to our list of [Standards](#) on IHS.com and refer to the [ATIS](#) page for more information

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External (Vendor) Website

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	ASTM - Construction	PETROCHEM - ICBO
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API - Environmental and Safety	ASTM - Historical - 1986-1996	PETROCHEM - ICEA
API - Exploration and Production	ASTM - Historical	PETROCHEM - IEEE
API - Historical - 1986-1996	ASTM - Metals	PETROCHEM - IESNA
API - Historical	ASTM - Miscellaneous	PETROCHEM - ISA
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API - Measurement - Marketing	ASTM - Rubber and Electrical Insulating Materials	PETROCHEM - NFPA
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API - Refining	PETROCHEM - ABMA	PETROCHEM - SSPC
API - Transportation, Marketing, and Safety	PETROCHEM - ACI	PETROCHEM - UL
API Select	PETROCHEM - AGA	PIP - Analyzers
ASME - BPVC 2001 w/Addendas (2002-2003), Code Cases, Interps	PETROCHEM - AGMA	PIP - Civil/Structural/Architectural (CSA)
ASME - BPVC 2004 w/Addendas (2005-2006), Code Cases, Interps	PETROCHEM - ANSI	PIP - Coatings
ASME - BPVC 2007 Code Forward - Code Cases: Boilers and Pressure Vessels	PETROCHEM - ASCE	PIP - Document Management
ASME - BPVC 2007 Code Forward Section I	PETROCHEM - ASHRAE	PIP - Electrical
ASME - BPVC 2007 Code Forward Section II	PETROCHEM - ASME	PIP - Insulation
ASME - BPVC 2007 Code Forward Section II (M)	PETROCHEM - ASSE/SAF	PIP - Machinery
ASME - BPVC 2007 Code Forward Section IID	PETROCHEM - ASTM	PIP - Pipe Support Details
ASME - BPVC 2007 Code Forward Section IID	PETROCHEM - AWS	PIP - Piping and Instrumentation Diagram Documentation (P&ID)
ASME - BPVC 2007 Code Forward Section IX	PETROCHEM - AWWA	PIP - Piping Engineering and Complementary Practices
ASME - BPVC 2007 Code Forward Section V	PETROCHEM - BHMA	PIP - Piping Material Specifications
ASME - BPVC 2007 Code Forward Section VIII	PETROCHEM - CTI	PIP - Process Control (PC)
ASME - BPVC 2007 Code Forward Section X	PETROCHEM - DNV	PIP - Refractory
ASME - BPVC Interpretations	PETROCHEM - EIA	PIP - Valve Descriptions
ASME - BPVC Referenced Standards	PETROCHEM - GPA	PIP - Vessel Practices



Questions???