

IECEx World Symposium:

A Capital Idea

SEPTEMBER 27, 2017 | WASHINGTON, D.C.



Offshore Experience

And changing regulations....

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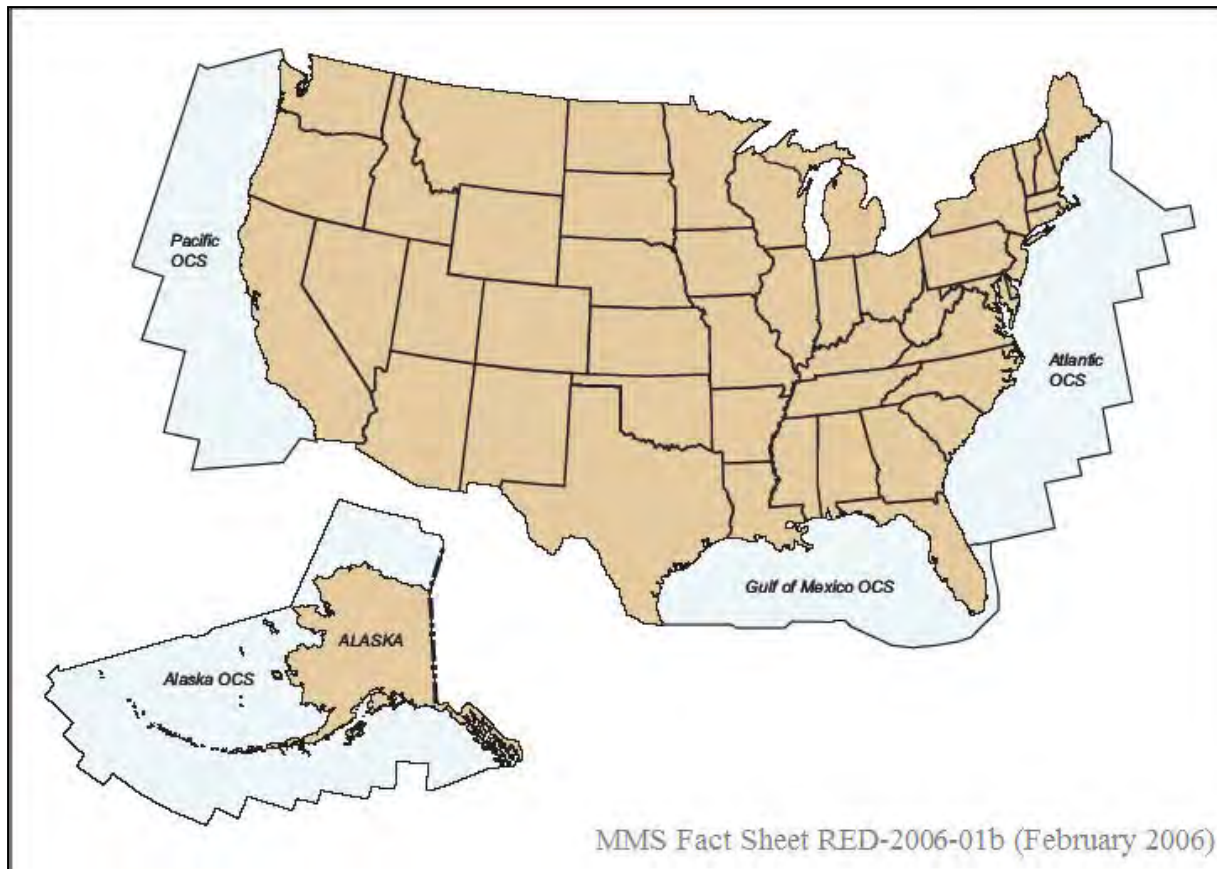


Offshore - North America

IECEX traction



The Outer Continental Shelf



There are more than 3000 facilities located on the OCS that are involved in the collection and treatment of oil and gas collected from oil and gas well

*86 billion barrels of oil
420 trillion cu. ft. of gas*



Regulators

❖ The U.S. Coast Guard



❖ BSEE – Bureau of Safety and Environmental Enforcement





Regulatory Frameworks

- ❖ The two groups talk about collaboration on regulations but the output is still not fully aligned.
- ❖ The USCG has released regulatory information regarding IECEEx
- ❖ BSEE are working on their strategy

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MOU Summary

<u>MOU / MOAs:</u>	<u>Title:</u>	<u>Effective Date:</u>	<u>Responsible Office:</u>	
			<u>BSEE:</u>	<u>USCG:</u>
MOU	Memorandum of Understanding between BSEE and USCG	November 27, 2012	Interagency Coordinator	Vessel and Facility Operating Standards Division (CG-OES-2)
MOA OCS-02	Civil Penalties	January 10, 2017	Safety & Enforcement Division.	Office of Investigations & Casualty Analysis (CG-INV)
MOA OCS-03	Oil Discharge Planning, Preparedness and Response	January 18, 2017	Oil Spill Preparedness Division	Office of Incident Management & Preparedness (CG-MER)
MOA OCS-04	Floating OCS Facilities	January 28, 2016	Offshore Safety Improvement Branch	Vessel and Facility Operating Standards Division (CG-OES-2)
MOA OCS-05	Incident Notifications and Investigations	January 18, 2017	Investigations Div.	Office of Investigations & Casualty Analysis (CG-INV)
MOA OCS-06	Offshore Renewable Energy Installations on the OCS	July 27, 2011	Offshore Safety Improvement Branch	Marine Transportation Systems (CG-SPW)
MOA OCS-07	Safety and Environmental Management Systems (SEMS) and Safety Management Systems (SMS)	January 10, 2017	Offshore Safety Improvement Branch	Vessel and Facility Operating Standards Division (CG-OES-2)
MOA OCS-08	Mobile Offshore Drilling Units (MODU)	June 4, 2013	Offshore Safety Improvement Branch	Vessel and Facility Operating Standards Division (CG-OES-2)
MOA OCS-09	Fixed OCS Facilities	September 19, 2014	Offshore Safety Improvement Branch	Vessel and Facility Operating Standards Division (CG-OES-2)



Standards related agreements

MOU	TITLE	EFFECTIVE	BSEE OFFICE	USCG OFFICE
MOA OCS-04	Floating OCS Facilities	Jan 28, 2016	Offshore Safety Improvement Branch	Vessel and Facility Operating Standards Division (CG-OES-2)
MOA OCS-07	Safety and Environmental Management Systems (SEMS) and Safety Management Systems (SMS)	Jan 10, 2017	Offshore Safety Improvement Branch	Vessel and Facility Operating Standards Division (CG-OES-2)
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Challenges

- ❖ Differing pieces of legislation, across two different regulatory bodies...
- ❖ This is currently a moving target for engineering stakeholders in this region.



Elephant in the room

- ❖ Equipment approved through the ATEX scheme



- ❖ The North American market dislikes a possible option in this scheme

Self certification by a manufacturer



USCG - Set the expectation

- ❖ The USCG recognizes that equipment certified under the ATEX scheme could have been through third party approvals
- ❖ BUT, the supporting document to their new regulation says:

The Coast Guard.. Will not accept ATEX certification because evidence of full testing to the applicable harmonized 60079 series of standards by a third-party laboratory is not guaranteed



The legal vehicle

46 CFR 111.105-7 - Approved equipment.

eCFR

Authorities (U.S. Code)

Beta! The text on the eCFR tab represents the unofficial eCFR text at ecf.gov.

§ 111.105-7 Approved equipment.

When this subpart or NFPA NEC 2002 (incorporated by reference; see [46 CFR 110.10-1](#)) states that an item of electrical equipment must be approved, or when IEC 60079-0 (incorporated by reference; see [46 CFR 110.10-1](#)) states that an item of electrical equipment must be tested or approved in order to comply with the IEC 60079 series (as defined in § 111.105-1 and incorporated by reference; see [46 CFR 110.10-1](#)), that item must be -

(a) Listed or certified by an independent laboratory as approved for use in the hazardous locations in which it is installed, or

(b) Purged and pressurized equipment that meets NFPA 496 (incorporated by reference; see [46 CFR 110.10-1](#)) or IEC 60079-2.

[CGD 94-108, [61 FR 28284](#), June 4, 1996, as amended by USCG-2003-16630, [73 FR 65200](#), Oct. 31, 2008]



Incorporation by reference

IEC 60079-0 (incorporated by reference;

- ❖ Incorporation by reference into a Code of Federal Regulation means that this document becomes a legal requirement.

In this case: 46 CFR.110.10.1

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April 2nd 2018

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Parts 140 and 143

46 CFR Parts 110 and 111

[Docket No. USCG-2012-0850]

RIN 1625-AC00

Electrical Equipment in Hazardous Locations

AGENCY: Coast Guard, DHS.

ACTION: Final rule.

DATES: This final rule is effective April 30, 2015.

SUMMARY: The Coast Guard is issuing regulations applicable to newly constructed mobile offshore drilling units (MODUs), floating outer continental shelf (OCS) facilities, and vessels other than offshore supply vessels (OSVs) that engage in OCS activities. The regulations expand the list of acceptable national and international explosion protection standards and add the internationally accepted independent third-party certification system, the International Electrotechnical Commission System for Certification to Standards relating to Equipment for use in Explosive Atmospheres (IECEX), as an accepted method of testing and certifying electrical equipment intended for use in hazardous locations. The regulations also provide owners and operators of existing U.S. MODUs, floating OCS facilities, vessels other than OSVs, and U.S. tank vessels that carry flammable or combustible cargoes, the option of following this compliance regime as an alternative to the requirements contained in existing regulations.

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Pushed back..

Table 1—Changes Between NPRM and Final Rule

Subject	Stage		Impact
	NPRM	Final rule	
<i>Affected Population</i>	U.S. and foreign vessels and floating OCS facilities that are new to the OCS or newly built	Under the final rule, only vessels and facilities constructed after April 2, 2018 will be subject to the rule	Allows existing vessels and facilities as well as those currently under contract or construction to avoid potentially costly retrofit/recertification costs.
<i>Implementation Date</i>	Affected population required to comply by the effective date, which is 30 days after final rule is published	Changed to 3 years after effective date of the rule	Allows owners and operators to avoid recertification costs for vessels or facilities currently under contract or construction.

**Notice of
Proposed
RuleMaking**



What drove the change?

- ❖ A key finding of the Coast Guard's investigation of the MODU DEEPWATER HORIZON explosion, fire, and sinking emphasized the importance of proper electrical equipment installations in hazardous locations during oil drilling exploration on U.S. and foreign MODUs.
- ❖ The Coast Guard, therefore, reviewed the existing regulations for hazardous locations; specifically, the requirements for electrical equipment testing and certification and the standards applicable to U.S. and foreign MODUs, floating OCS facilities, and vessels that engage in OCS activities.



Anything missing?

Electrical Equipment Inspection and Maintenance Requirements

Five comments recommended that the Coast Guard establish standards for the design, installation, inspection, and maintenance of electrical equipment in hazardous locations. Two comments suggested requiring an onboard electrical equipment register that contains information regarding electrical equipment and its inspection, maintenance, and operational history. The commenters also suggest this information could be reviewed by visiting Coast Guard marine inspectors or third-party inspection personnel and could become part of a company's

quality system. We agree that competency and accurate recordkeeping are critical to safety, but this recommendation is outside the scope of this rulemaking.

- ❖ US based compliance is heavily based on **PRODUCT** compliance
- ❖ There was an opportunity to leverage the competency requirements of the IECEx standards



What is happening?

- ❖ Due to the transient nature of floating oil and gas equipment - The IECEX scheme is a popular choice.
- ❖ We already have IECEX biased facilities appearing into the OCS
- ❖ There is a flurry of inquiries about the scheme and related training



It's a great thing!

- ❖ North American NFPA70 Article 500 and Article 505 equipment is still fully accepted under the new rules

(Class/Div - Class/Zone)

- ❖ The most positive output is

The cultural shift in stakeholders taking an interest in Explosion Protected equipment overall.



Who covers what?

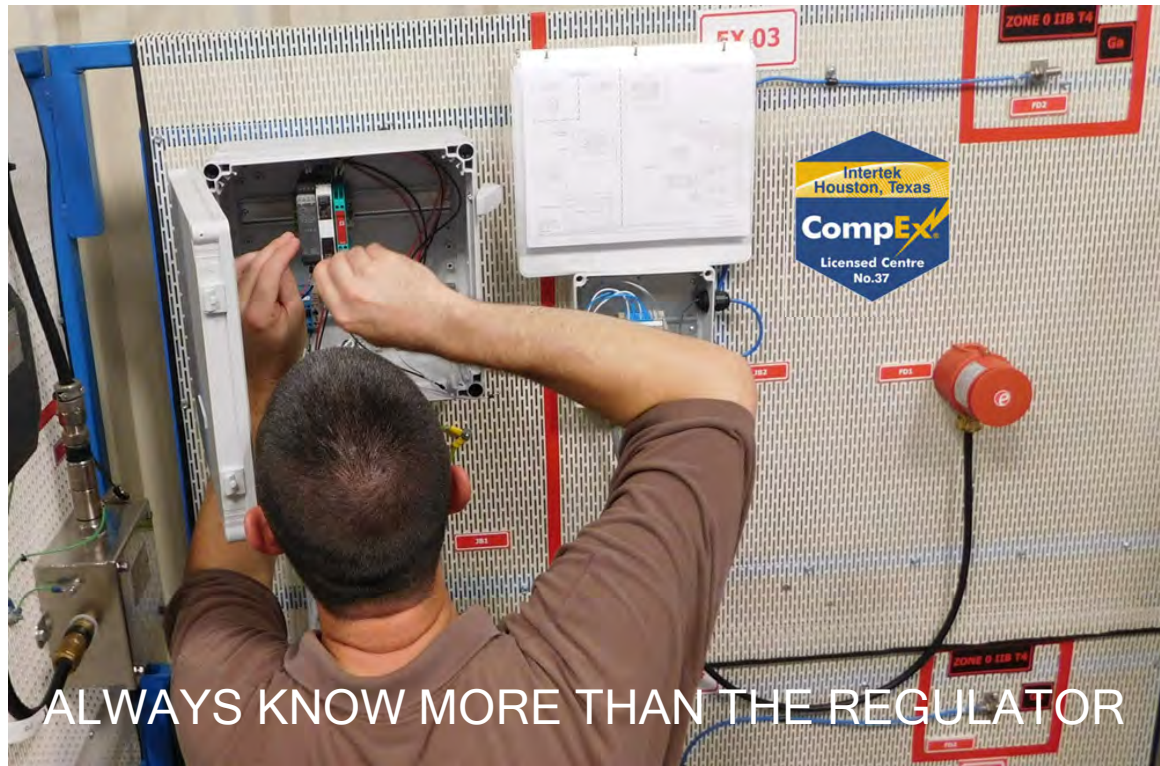
- ❖ BSEE and the USCG have closely aligned jurisdictional and regulatory responsibilities
- ❖ The two organizations collaborate extensively to reduce redundancy and ensure consistency and clarity for the regulated community....
- ❖ The two organizations work closely together under an overarching Memorandum of Understanding and several memoranda of agreement related to specific issues that touch on the organizations' shared regulatory space

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Readiness



ALWAYS KNOW MORE THAN THE REGULATOR

- Lieutenants
- Lieutenant Commander
- Commanders
- Civilian Inspectors
- Technicians

...we have yet to see which way BSEE will go - a study is underway..
IECEX Mechanical is not on the radar for the US Coast Guard... yet