



Bureau of Safety and Environmental Enforcement

BSEE DRAFT BAST Determination Process (BDP)-Overview

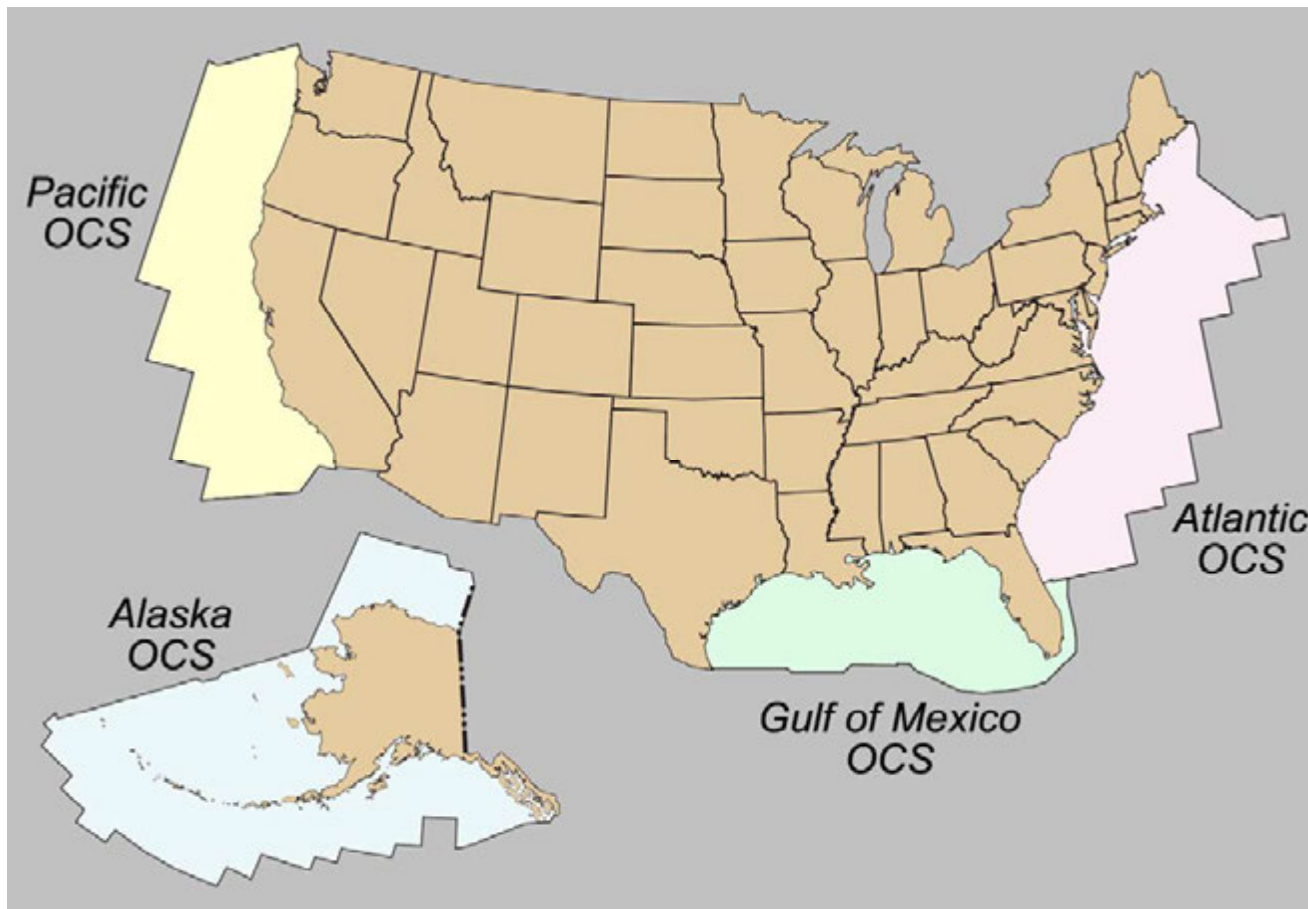
Doug Morris, Joseph Levine, Michael Else

November 12, 2015

Houston, TX

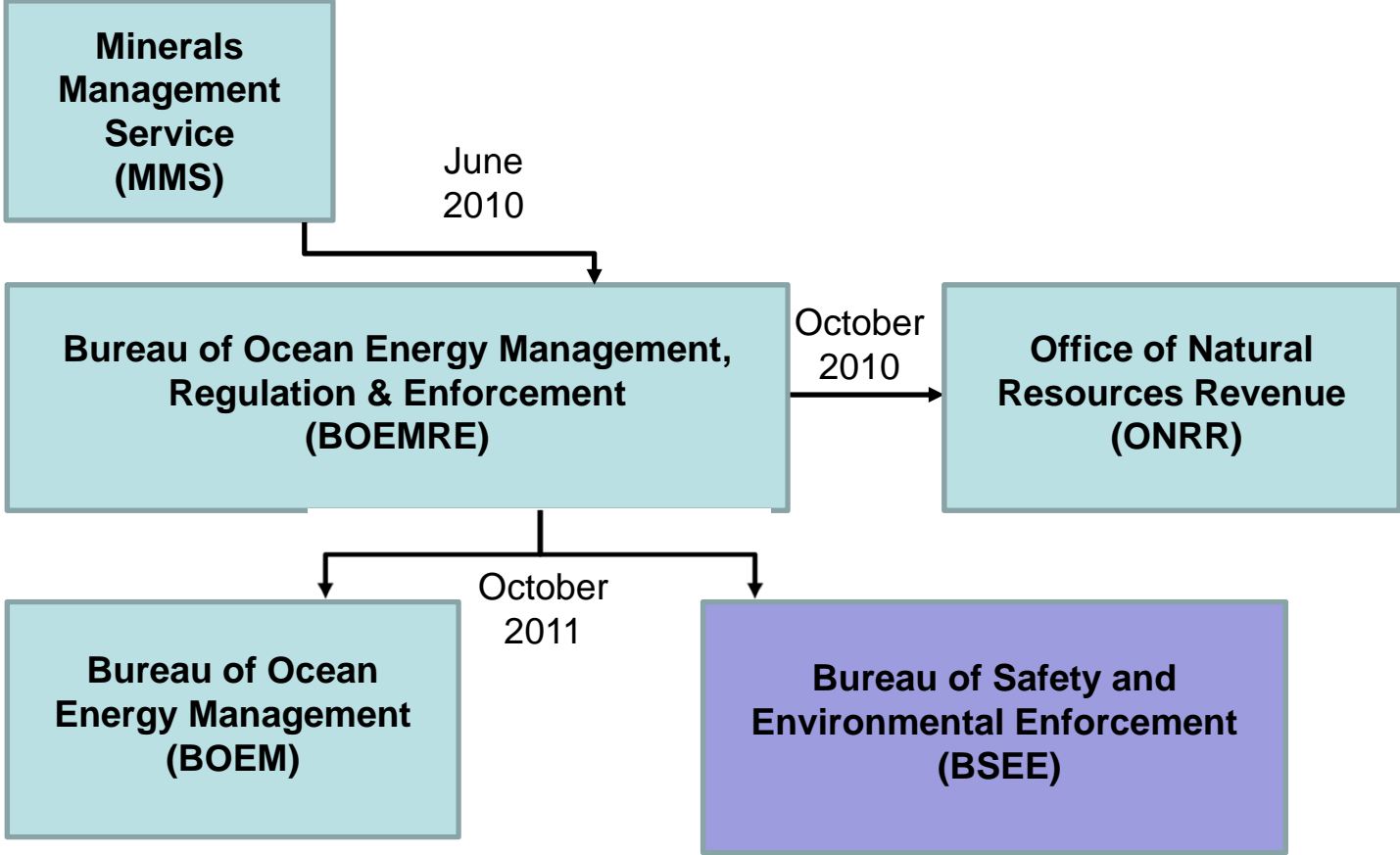
“To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.”

Federal Jurisdiction



Offshore facilities that handle, store, or transport oil

Organizational History



BSEE employees

Staffing: 800 employees

200 engineers

107 inspectors

Locations

Washington, DC and Sterling, VA

Regional offices

Gulf of Mexico – New Orleans, LA & Houston, TX

Pacific – Camarillo, CA

Alaska – Anchorage, AK

What BAST?

Outer
Continental
Shelf
Lands Act
(OCSLA)

*“..on all new drilling and production operations and, wherever practicable, on existing operations, the use of the best available and safest technologies which the Secretary determines to be economically feasible, wherever failure of equipment would have a significant effect on safety, health, or the environment, except where the Secretary determines that the incremental benefits are clearly insufficient to justify the incremental costs of utilizing such technologies.”
(43 U.S.C. 1347(b))*

Other Similar Statutes

Clean Water Act

Best Control Technology (BCT)

Best Available Technology (BAT)

Clean Air Act

Best Available Control Technology

European Union Directives

Best Available Techniques

Development of BAST Process

Deepwater Horizon investigations

Ocean Energy Safety Advisory Committee - Federal Advisory Committee Act

Identify and prioritize technologies;

Include expertise from all sectors;

Not endorse specific products but provide a basis for establishing appropriate performance standards;

Focus on technologies, equipment, and/or processes that are most critical for safe operation;

Evolve as new technologies develop.

Application of BAST

U.S. Geological Survey process – 1980

Various versions of BAST regulatory language

BAST requirement for drilling operations

Program Objectives

Compliance with statutory mandate

Focus on technological solutions to safety issues

Focus on safety critical equipment issues

Establish performance levels based on evaluation of available technology

Consistent and verifiable testing

Transparent process

Stakeholder engagement

Satisfies cost/benefit

BAST process will NOT result in:

A prescriptive technology

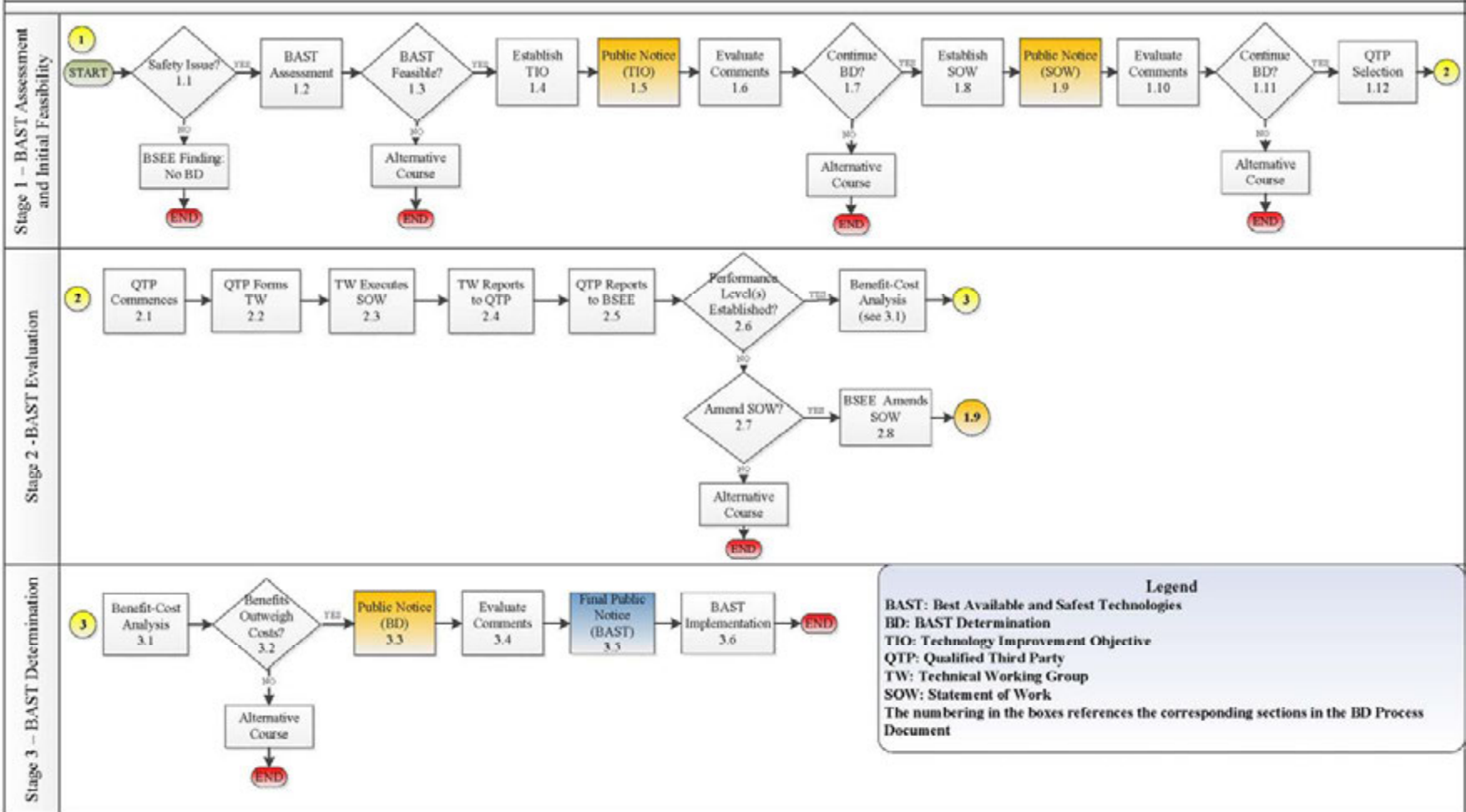
An automatic phase-out of existing technology

Automatic review of existing systems and technology

BAST Draft Determination Process Flowchart

Figure A: BSEE DRAFT BAST DETERMINATION PROCESS FLOWCHART

Last Rev Date: October 15, 2015



BAST Determination Process

Overview

- BSEE evaluates circumstances leading to a BD
- BSEE crafts a Technology Improvement Objective (TIO)
- BSEE establishes Statement of Work (SOW)
- BSEE issues Public Notices requesting comments
- BSEE selects Qualified Third Party (QTP)

- QTP manages evaluation
- QTP forms Technical Workgroups (TW)
- TW executes SOW
- BSEE reviews findings from QTP & TW

- BSEE conducts economic Benefit-Cost Analysis (BCA)
- BSEE issues Public Notice requesting comments
- BSEE issues Final Public Notice
- BAST requirement needs to be implemented on the OCS

BAST Determination Process

Stage 1 - BAST Assessment and Initial Feasibility

Annual assessment by Director to determine if safety issues (incidents, accidents, near misses) warrant BD

If a Safety issue has been identified, BSEE conducts an assessment to determine if a BD could resolve such an issue by evaluating the following:

- **Technology Failures**
- **Improvements in Safety**
- **Availability of Technology**
- **BSEE Resources**
- **Initial Economic Feasibility**

BAST Determination Process

Stage 1 - BAST Assessment and Initial Feasibility

BSEE develops a TIO which articulates the safety issue in the form of a question stating what HSE improvement the agency is seeking and solicits comments through one of the following:

- **Notice to Lessees (NTL)**
- **www.BSEE.gov**
- **Federal Register**
- **Public Forum**

BAST Determination Process

Stage 1 - BAST Assessment and Initial Feasibility

BSEE issues SOW which includes the TIO, tasks, timeline, and solicits comments

BSEE contracts one or more QTP to implement SOW

Who can be a QTP?

- **OESI**
- **Standard Development Organizations (SDO)**
- **Certifying Entities**
- **National/Private Labs**

BAST Determination Process

Stage 2 – BAST Evaluation

QTP
responsibilities
include:

Form TW(s) to evaluate solutions to SOW

Identify scope of testing/additional data needed by TW

Provide oversight of third party testing/statistical analysis

Develop budgets/timelines

Perform outreach to industry

Review TW work, reports, & ensures SOW is addressed

Provide BSEE with TW final report

TW composed of individuals with appropriate technical expertise for task at hand

BAST Determination Process

Stage 2 – BAST Evaluation

TW develops the Functional (Operational) Requirements (**FoR**)

FoR may include:

- physical requirements*
- environmental conditions*
- maintenance concerns*
- quality issues*

BAST Determination Process

Stage 2 – BAST Evaluation

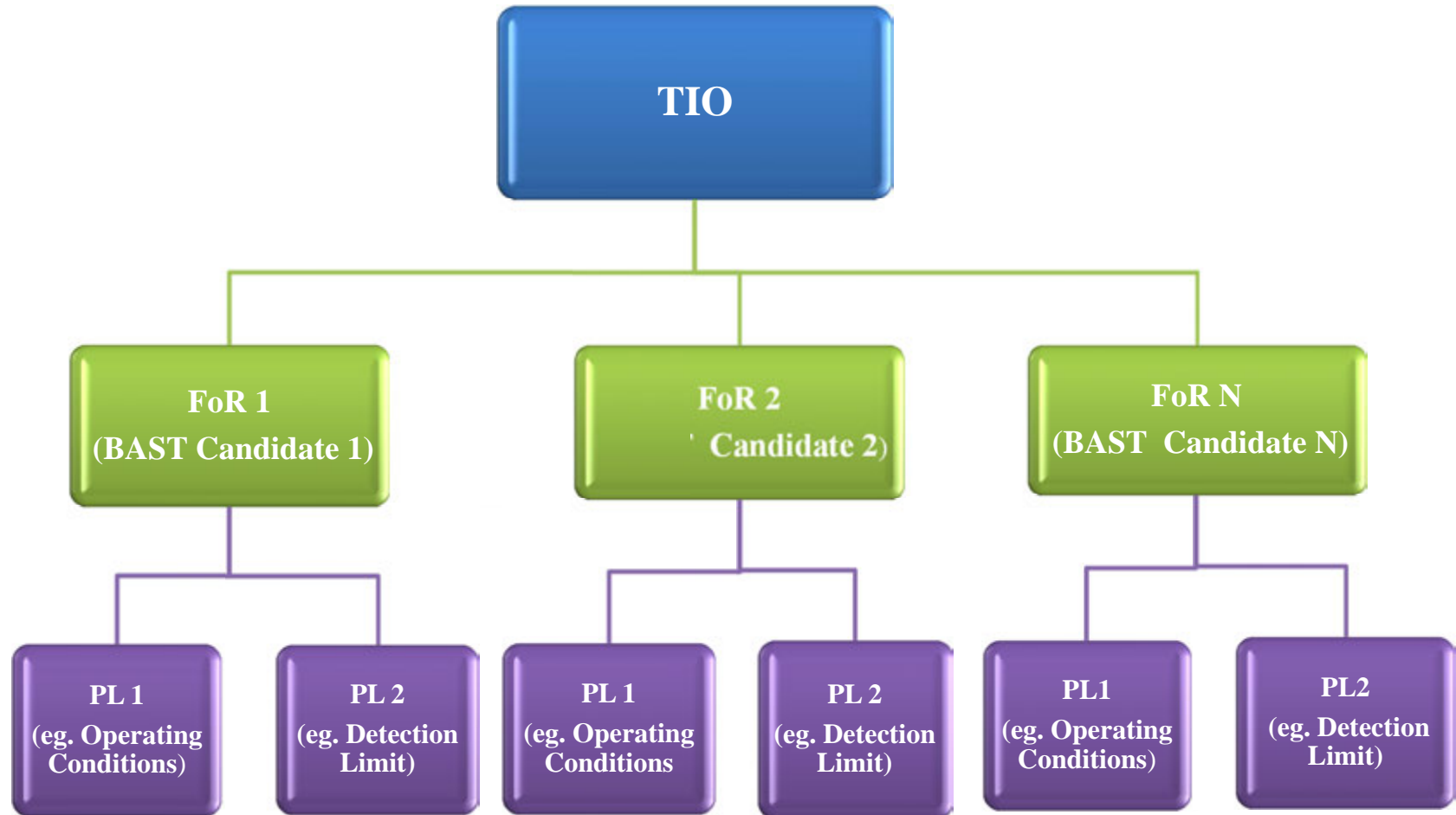
TW Establishes Performance Levels (**PL**)

PL *specifies how well a technology executes its' intended function* as determined thru testing and/or evaluation of operational history

PL must demonstrate repeatability & reproducibility

TW compares/assesses **PL** of various technologies that meet **FOR**

TIO, FoR, and PL Relationship



BAST Determination Process

Stage 3 – BAST Determination

BSEE performs a BCA consistent with OCSLA

If Director determines that implementation of proposed PL meets BCA then the Agency solicits comments through Public Notice

Public Notice includes the proposed TIO, PL, and BAST implementation schedule

BAST Determination Process

Stage 3 – BAST Determination

After evaluating comments from Public Notice BSEE determines if it should proceed with BD implementation.

If BSEE decides to implement a BD the agency will release a final decision to this effect.

After a BD is effective, operators will be required to use technology that meets specified PL for new and, wherever practicable existing operations.

Operators may request waiver for new BAST requirement(s) for existing operations by submitting the appropriate documentation to BSEE.

BAST Determination Process

Alternative Course Methods: Addressing Technology Failures Outside of the BD Process

Issue BSEE “Safety Alert” or similar Industry “Alert/Notice”,

Development by BSEE or Industry of revised maintenance, inspection, and/or operational procedures,

BSEE or Industry R&D,

Development by Industry of new/revised standards or incorporation of such in BSEE regulations,

Implementation by BSEE of conditions of approval for use in plans/permits,

Development by BSEE of new/revised regulations

BDP Summary

Takeaways

Three distinct stages

Performance based

Transparent process – 3 Public Notices requesting comments plus a final notice announcing BAST determination

Triggers – domestic/international safety issues

Technology driven

BAST Determination Process Example

National Transportation Safety Board Review

Loss of engine power on turbine-powered helicopters due to the inadvertent ingestion of vented methane gas and other APGs

NTSB Safety Recommendations:

- ❑ BSEE/USCG collaboration to develop systems and procedures to mitigate risk of gas discharge ingestion by helicopters near offshore platforms
- ❑ After appropriate mitigations are developed, require operators to implement these systems and procedures



BAST Determination Process Example

Contract: Pricewaterhouse Coopers (PwC)

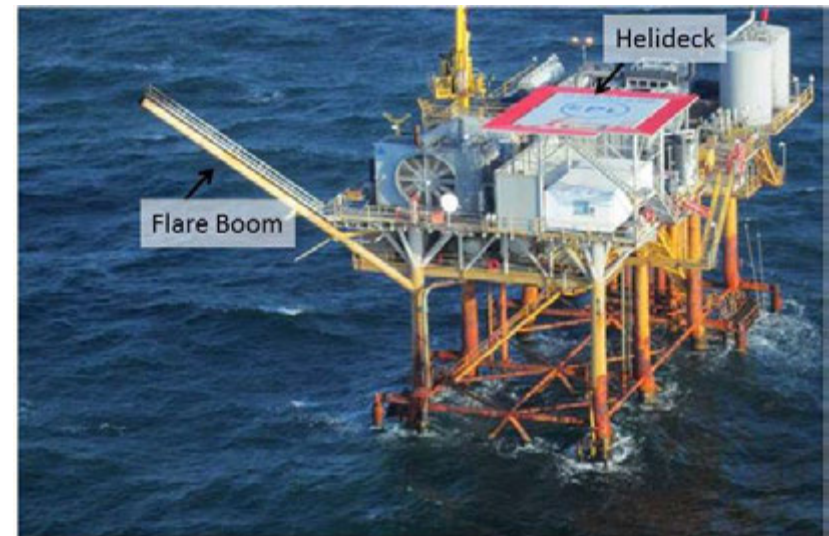
TAP Project #733: Aviation Safety Support Services

Task 5: Study Effects of Combustible Gas on Helo Operations on or near offshore helidecks

- C1–C5 gases flammable at atmospheric conditions
- Concentration parameters and effects of ingestion

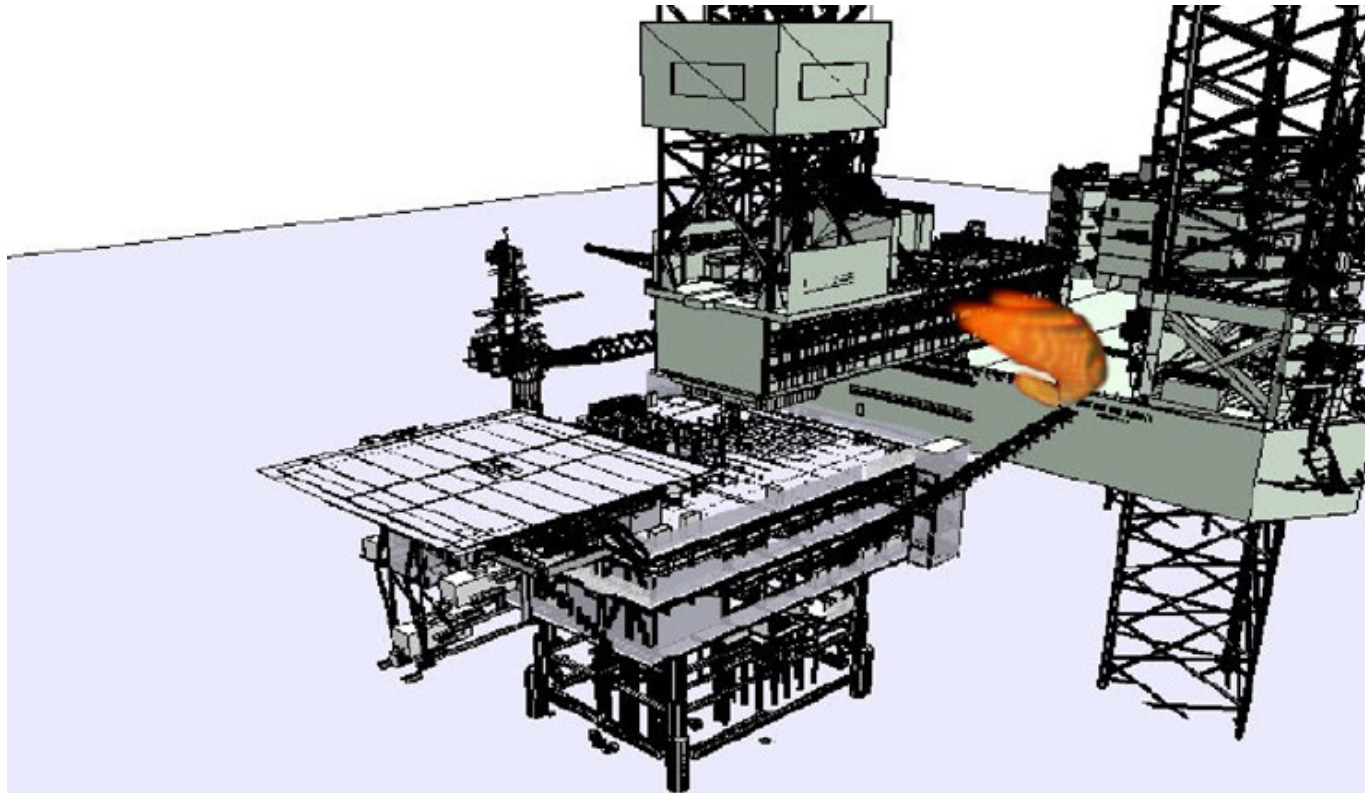
Status:

- Report under peer review
- Oct '15 HSA Conference
- Preliminary Findings ...



BAST Determination Process Example

Visible Flare during Helicopter Approach

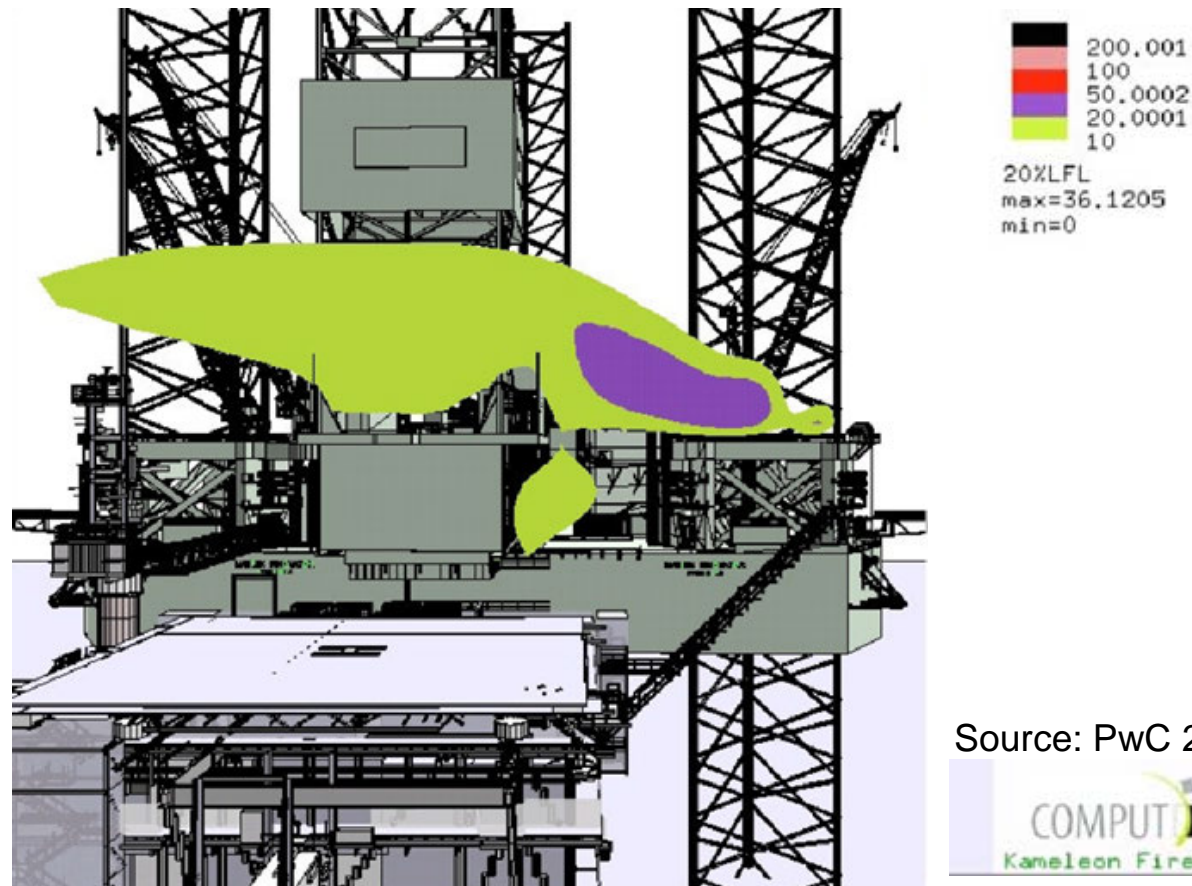


Source: PwC 2015



BAST Determination Process Example

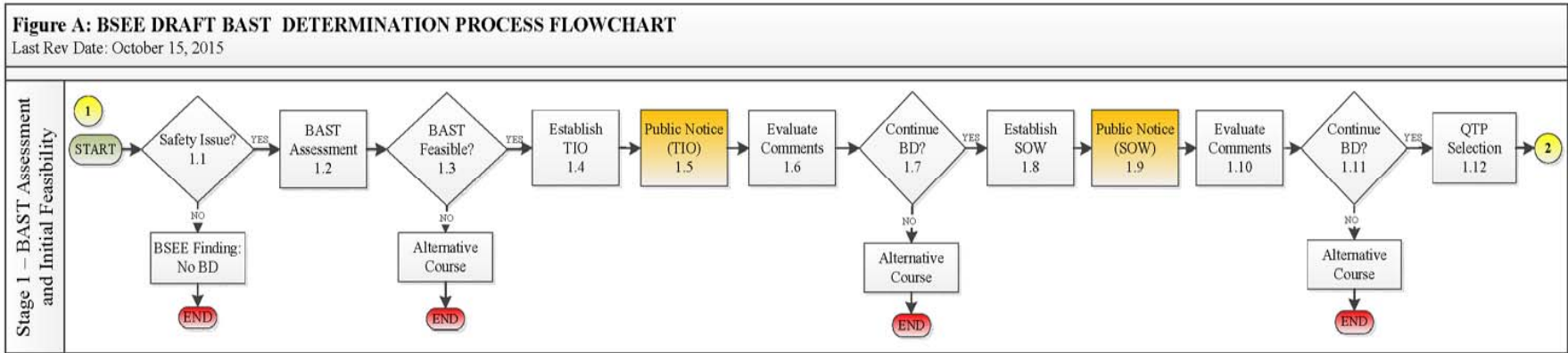
Methane Gas 20% LFL* - Unignited Blowdown



*LFL = Lower Flammable Limit

BAST Determination Process Example

STAGE 1: BAST ASSESSMENT AND INITIAL FEASIBILITY



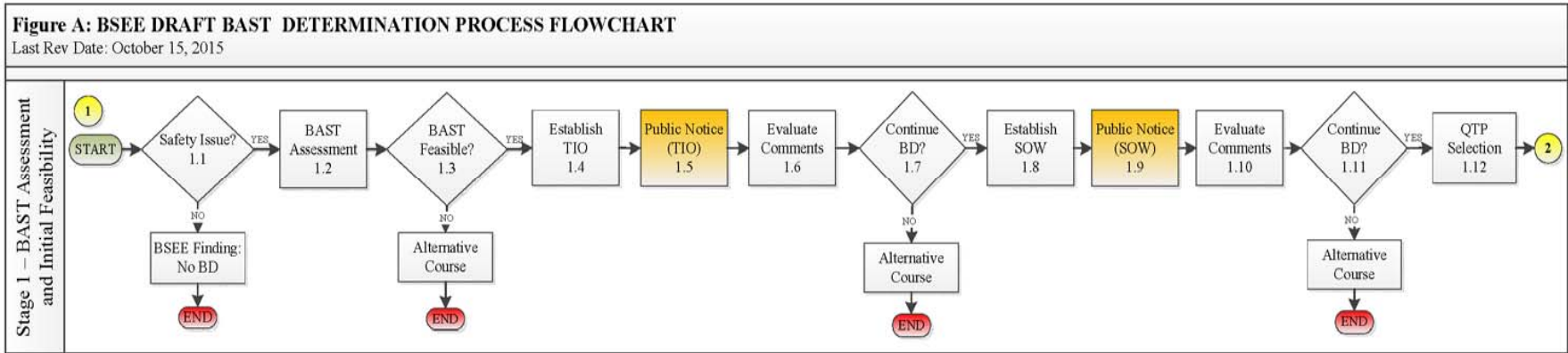
Step 1.1 - Methane ingestion by helicopters on approach to offshore platforms may result in accidents

Step 1.2

- Require engines to be resistant to methane ingestion
- Redesign platforms (e.g., no release near helidecks)
- Install methane sensing devices to warn of unsafe conditions

BAST Determination Process Example

STAGE 1: BAST ASSESSMENT AND INITIAL FEASIBILITY



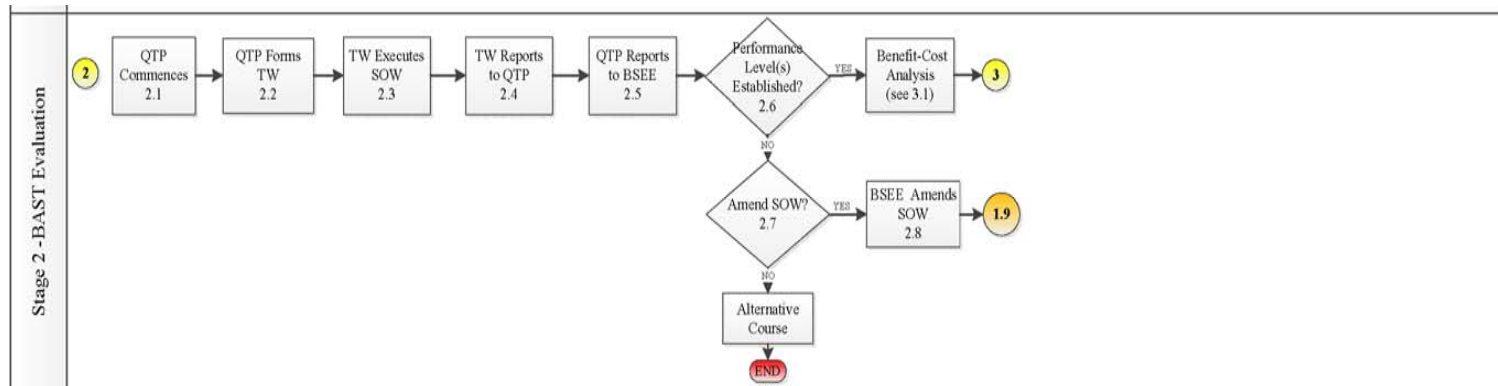
Step 1.3

- Redesign engines/platforms not feasible near term
- Methane sensing tech is available/feasible

Step 1.4 - What are the lowest levels of methane that can be accurately/reliably measured within XX feet of a helideck?

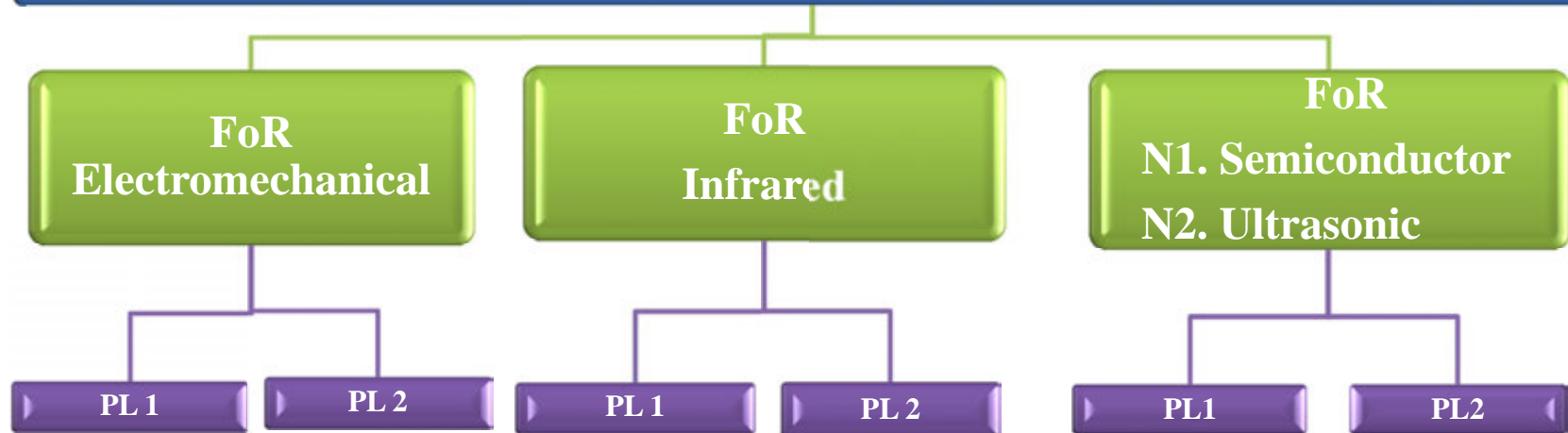
BAST Determination Process Example

STAGE 2: BAST EVALUATION



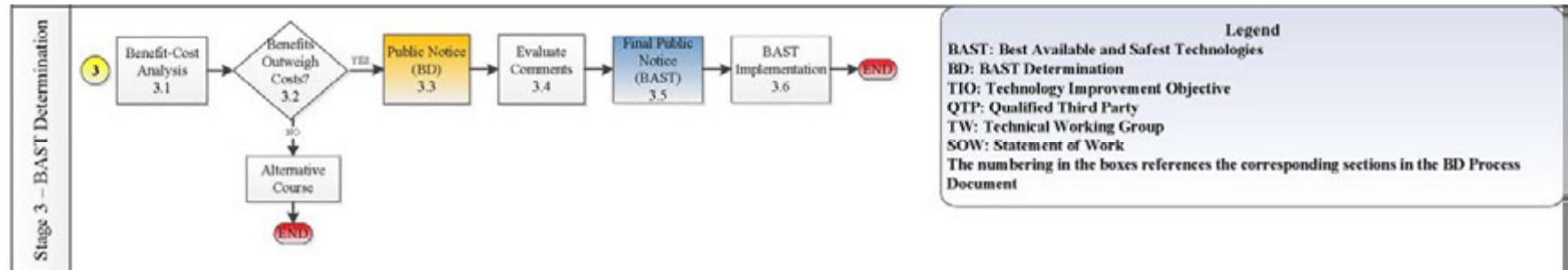
Step 2.3

TIO : Determine Lowest Measurable Level of Methane Near Helideck



BAST Determination Process Example

STAGE 3: BAST DETERMINATION



Comments or Questions?

BSEE Website: www.bsee.gov

Joseph.Levine@bsee.gov



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