INITIAL STATEMENT OF REASONS

FOR
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA STATE LANDS COMMISSION

REGARDING PROPOSED CHANGES TO
THE 2019 CALIFORNIA BUILDING CODE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2

CHAPTER 31F – MARINE OIL TERMINALS
CHAPTER 35 – REFERENCED STANDARDS

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

GENERAL STATEMENT OF PURPOSE, PROBLEM, RATIONALE and BENEFITS:

The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Act) of 1990, as amended, authorizes the California State Lands Commission (herein called "Commission") to regulate marine oil terminals in order to protect public health, safety and the environment. The statutory authority for related regulations is contained in California Public Resources Code Section 8750 through 8760. The Marine Environmental Protection Division (Division) acts on behalf of the Commission in adoption and enforcement of such regulations.

Chapter 31F – Marine Oil Terminals of the California Building Code (CBC) is commonly referred to as the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) and addresses building regulations for marine oil terminals in accordance with the Act. Since originally becoming effective in February 2006, Chapter 31F has been revised three (3) times, in the 2010, 2013 and 2016 CBC triennial cycles. Since the 2016 CBC triennial cycle, the Commission has identified areas within Chapter 31F that require clarification and reorganization in order to assist and improve regulatory compliance.

The proposed regulatory actions herein will provide greater consistency and clarity for code users and include the following:

- Refinement, reorganization and relocation of provisions to improve continuity.
- Merging of many mooring and berthing requirements in Section 3105F.
- Expansion of the seismic provisions for nonstructural components, nonbuilding structures and building structures in Section 3104F, to incorporate up-to-date technical standards and provide greater clarity, specificity and continuity.
- Consolidation of the nonstructural components, nonbuilding structures and building structures provisions for: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) nonbuilding structures and building structures structural assessment in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-reference in Sections 3108F, 3109F, 3110F and 3111F, as appropriate.

- Amending the seismic structural provisions regarding the Substitute Structure Method in Section 3104F.2.3.2.2 to incorporate up-to-date technical standards.
- Enhancement of the illumination provisions in proposed Section 3111F.8 to address built provisions and industry practices.
- Alignment of these building provisions with other California marine oil terminal regulations, including:

  (1) *California Code of Regulations (CCR), Title 2, Division 3, Chapter 1, Article 5 – Marine Terminals Inspection and Monitoring (2 CCR 2300 et seq.)*

  (2) *California Code of Regulations (CCR), Title 2, Division 3, Chapter 1, Article 5.5 – Marine Terminal Oil Pipelines (2 CCR 2560 et seq.)*
- Update of some references cited and increased cross-reference to CBC Chapter 35 – Referenced Standards, as appropriate.
- Codification of non-substantive, editorial and formatting refinements.

DIVISION 1
SECTION 3101F [SLC]
INTRODUCTION

1.1. ***3101F.2 Purpose.*** *The purpose of this code is to establish minimum engineering, inspection and maintenance criteria for MOTs in order to prevent oil spills and to protect public health, safety and the environment. This code does not specifically address terminal siting, systems onboard vessels, processing facilities, or operational requirements. Relevant provisions from existing codes, industry standards, recommended practices, regulations and guidelines have been incorporated directly or through reference, as part of this code.*

Where there are differing requirements between this code and/or references cited herein, the choice of application shall be subject to Division approval ~~of the Division~~.

In circumstances where ~~new~~ technologies ~~are~~ proposed for use are not covered by this code and/or references cited herein, ~~equivalent~~ prevention of oil spills and equivalent or better protection of ~~to~~ the public health, safety and the environment must be demonstrated, and the choice of application shall be subject to Division approval.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3101F.2 is modified for clarity and consistency purposes to better articulate the purpose of this code. These proposed amendments do not change the purpose of the existing regulations.

1st paragraph: "*systems onboard vessels, processing facilities*" are added to clarify the list of items not addressed by or in this code, as this is beyond the scope of applicability of building code provisions and/or the Commission's statutory authority.

2nd paragraph: The text "*to Division approval ~~of the Division~~*" is modified for consistency with phrasing utilized elsewhere in this code.

3rd paragraph: The third paragraph is updated for clarity, accuracy and consistency with phrasing utilized elsewhere in this section. The "new" terminology is removed to clarify that any technology may be permitted, provided such technologies equivalently satisfy the purpose of this code.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These proposed amendments do not change the purpose of the existing regulations. Therefore, no significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

1.2. ***3101F.3 Applicability.*** *…*

Existing (E) requirements apply to MOTs that were ~~are~~ in operation on the date this code became effective (February 6, 2006) ~~is adopted~~….

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3101F.3 is modified for clarity. The existing *"this code is adopted"* language was codified in the January 31, 2005 Supplement to the 2001 CBC, and therefore, refers to the original date that the Chapter 31F regulations were adopted in the CBC. However, "adopted" is an ambiguous term since adoption of Chapter 31F rulemaking requires the dual approval of the California State Lands Commission and California Building Standards Commission, in separately held public hearings. Therefore, this language is replaced with "*this code became effective (February 6, 2006)*", which is a date clearly documented in the Chapter 31F rulemaking records. Furthermore, no MOTs in California are known to have commenced operations during the 2004-2006 Chapter 31F rulemaking timeframe. Therefore, these proposed amendments do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

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The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These proposed amendments do not change the intent, purpose or applicability of the existing regulations. Therefore, no significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

1.3. ***3101F.6 Oil spill exposure classification.*** *…*

…

V_F *= Flowing v~~V~~olume of potential exposed oil [bbl]*

Q_C *= Maximum c~~C~~argo t~~T~~ransfer r~~R~~ate [bbl/hr]*

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In Section 3101F.6, the definition of "V_F" is updated for clarity, and the definition of "Q_C" has editorial corrections for consistency. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

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- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

1.4. ***3101F.10 Symbols.***

DWT = Dead weight tons

Q_C = Maximum cargo transfer rate [bbl/hr]

V_F = Flowing volume of potential exposed oil [bbl]

V_S = Stored volume of potential exposed oil [bbl]

V_T = Total volume of potential exposed oil [bbl]

Δt = ESD closure and activation time (if applicable) [sec]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The proposed *Section 3101F.10 Symbols* is added to summarize the symbols utilized in Section 3101F for ease of reference and consistency with the *"Symbols"* sections in Sections 3103F thru 3107F. The symbols and definitions provided are consistent with those presented in Section 3101F.6. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

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- The expansion of businesses currently doing business with the State of California.

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- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

1.5. ***3101F.11~~0~~ References.*** *…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered due to the addition of the proposed *Section 3101F.10 Symbols*. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

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  No businesses will be created or eliminated by these amendments to this code.

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  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 2
SECTION 3102F
AUDIT AND INSPECTION

2.1. ***3102F.1.5 Baseline assessment.*** *…*

All fire, piping, mechanical and electrical systems shall be documented as to location, capacity, operating limits and physical conditions in the equipment layout diagram(s).

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The terminology *"in the equipment layout diagram(s)"* is added for clarity and consistency with the existing regulatory intent and industry practice. Equipment layout diagrams are already a standard submittal with submissions under the current Code. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

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- The creation or elimination of jobs within the State of California.

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  No businesses will be created or eliminated by these amendments to this code.

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- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.2. ***3102F.3.2 Overview.*** *…*

…

An audit is not considered complete until the audit report is received (in electronic and hard copy formats) by the Division.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The terminology *"(in electronic and hard copy formats)"* is added for clarity and consistency with current practice under the existing. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

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- The creation or elimination of jobs within the State of California.

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  No businesses will be created or eliminated by these amendments to this code.

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  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.3. *TABLE 31F-2-3 SCOPE OF UNDERWATER INSPECTION ~~LEVELS OF EFFORT~~ [2.2]*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In the 2016 CBC, the titles of existing Table 31F-2-2 and Table 31F-2-3 are both erroneously published as *"**UNDERWATER INSPECTION LEVELS OF EFFORT [2.2]**"*. Therefore, the Table 31F-2-3 title is corrected. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

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- The creation or elimination of jobs within the State of California.

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  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

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  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.4. Update footnote for "***TABLE 31F-2-4 ASSESSMENT RATINGS***" as follows:

1. *…*
2. *…*
3. *ICAR = Inspection Condition Assessment Ratings [2.2]; Ratings shall be assigned comparing the observed condition to the as-built ~~original~~ condition.*
4. *…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The terminology *"original"* is updated to *"as-built"* for clarity and consistency with industry and code terminology, such as utilized in the *"Purpose"* defined for Level I inspections in Table 31F-2-2. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

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CONSIDERATION OF REASONABLE ALTERNATIVES

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ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

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ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.5. Update footnote for "***TABLE 31F-2-7C***" as follows:

…

9. Ratings shall be assigned comparing the observed condition to the as-built ~~original~~ condition.

10. …

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The terminology *"original"* is updated to *"as-built"* for clarity and consistency with industry and code terminology, such as utilized in the *"Purpose"* defined for Level I inspections in Table 31F-2-2. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

No jobs will be created or eliminated by these amendments to this code.

☐ The creation of new businesses or the elimination of existing businesses within the State of California.

No businesses will be created or eliminated by these amendments to this code.

☐ The expansion of businesses currently doing business with the State of California.

No business expansions will be affected by these amendments to this code.

☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.6. ***3102F.3.6.1 Terminal operating limits.*** *The physical boundaries of the facility shall be defined by the berthing system operating limits, along with the vessel size limits and environmental conditions.*

The audit shall include ~~a~~ "~~Statement of~~ Terminal Operating Limits~~,~~" (TOLs) diagrams, which ~~must~~ provide a concise statement of the purpose of each berthing system in terms of operating limits for representative vessel size ranges and mooring configurations approved to call and/or conduct transfer operations at the MOT. This description shall ~~must at least~~ include, the minimum and maximum vessel sizes, including Length Overall (LOA), beam, and maximum draft with associated displacement (see Figure~~.~~ 31F-2-1).

In establishing limits for both the minimum and maximum vessel sizes, due consideration shall be given to water depths, dolphin spacing, fender system limitations, manifold height and hose/loading arm reach, with allowances for tidal fluctuations, surge and drift.

Maximum wind, current or wave conditions, or combinations thereof, shall be clearly defined as limiting conditions for vessels at each berth, both with and without active product transfer.

The TOLs shall be explicitly presented to facilitate implementation by the MOT operator, such as through incorporation in the MOT's Operations Manual (2 CCR 2385 [2.1]). The TOLs shall allow for direct comparison of operating limits and output from monitoring systems and instrumentation (i.e., anemometers, current meters, tension monitoring systems, velocity monitoring systems). Design and implementation considerations shall include, but not be limited to:

1. Units of measurement (i.e., English vs. System International units)

2. Directionality (i.e., current restrictions "to", wind restrictions "from", true or magnetic north)

3. Parameters of monitoring systems and instrumentation (i.e., duration/averaging of readings, elevation/depth of readings, distance/location of readings)

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3102F.3.6.1 is modified and expanded for clarity and consistency purposes to better articulate the Terminal Operating Limits (TOLs) requirements of this code.

2nd paragraph: In general, this paragraph is revised for clarity and consistency with the existing intent of this code. "Terminal Operating Limits (TOLs)" is the commonly utilized and industry accepted terminology for this topic; therefore, "*Statement of*" is removed. The statement "*for representative vessel size ranges and mooring configurations approved to call and/or conduct transfer operations at the MOT*" is added to: (a) provide the *"vessel size ranges"* terminology to articulate that each TOL diagram represents a range of vessel sizes, and (b) add reference to mooring configurations (i.e., port vs. starboard side, mooring line arrangements). The last sentence is reorganized and revised for consistency with the terminology utilized in the Figure 31F-2-1 TOLs example.

5th paragraph: In existing practice, engineers perform mooring and berthing analyses (per Section 3105F) for each vessel size range and mooring configuration permitted at the MOT, to confirm code compliance. Upon completion of these analyses, input and output parameters and limitations are summarized in the associated TOLs diagrams (or drawings). These TOLs diagrams are then handed to the MOT's operations staff for implementation. At this stage, Division Engineering and Operations staff have witnessed some MOT operators struggle to enforce the TOLs due to ambiguity (i.e., missing details such as units of measurement and directionality) and inconsistencies with the MOT's monitoring systems and instrumentation (i.e., correction/conversion factors not properly applied). Therefore, this paragraph is added to provide a performance-based explanation of how engineering TOLs diagrams shall be prepared and presented by the engineer-of-record to facilitate operational monitoring and enforcement. This is beneficial to both the engineer-of-record and MOT operator.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on Article 5 (2 CCR 2385) [2.1] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating resolution of inconsistencies and effective operational monitoring and enforcement of TOLs, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

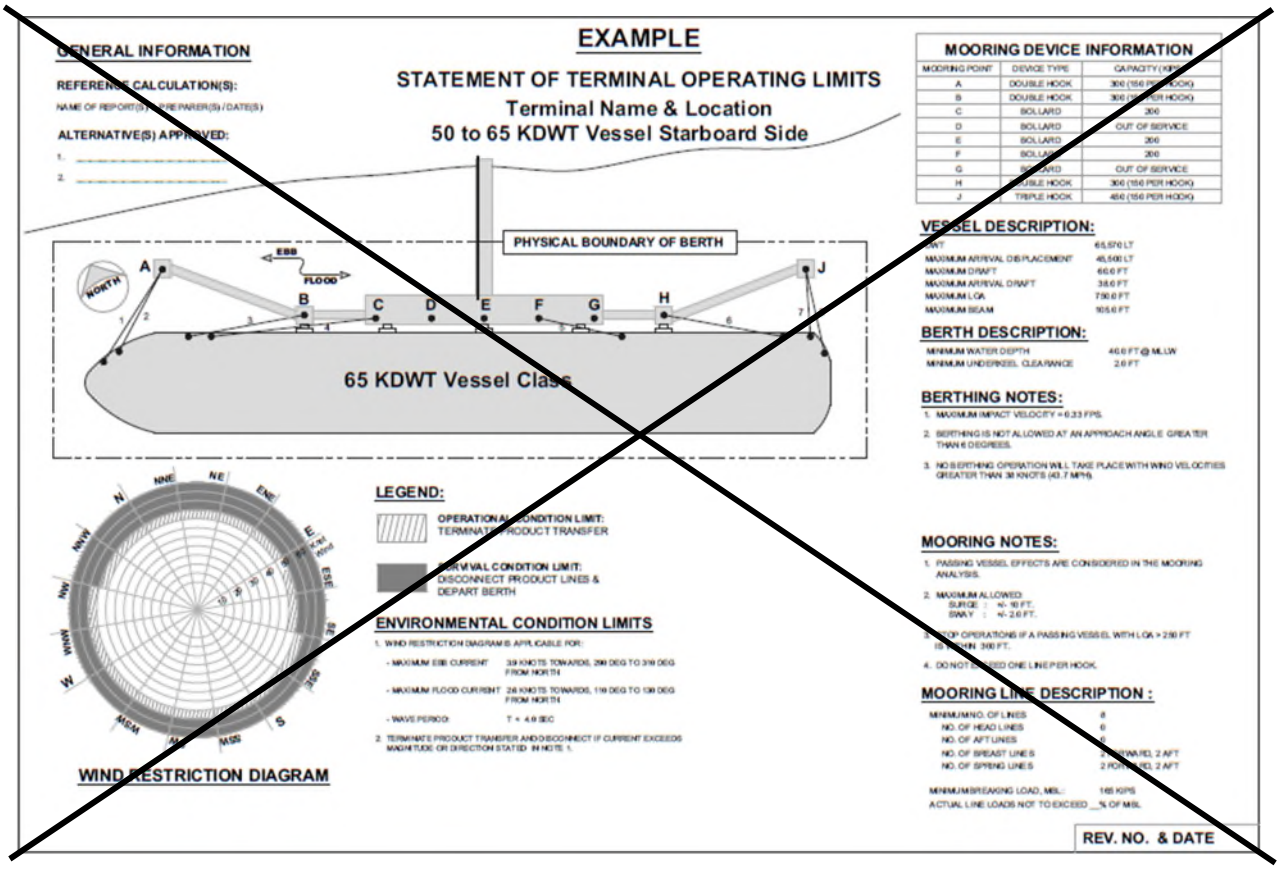
ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

The existing code requires each MOT operator to have Terminal Operating Limits (TOLs) diagrams for each vessel size range and mooring configuration permitted to call and/or conduct transfer operations at the MOT. The proposed amendments to this code simply provide clarity and explanation of parameters that should have already been considered in the generation of each MOT's existing TOLs. In some cases, minor modifications in the presentation of the TOLs diagrams may be appropriate to address these parameters; however, the validity of the foundational mooring and berthing analyses would not be impacted. Conversely, the MOT operator may be able to address some items via monitoring systems and instrumentation adjustments (i.e., changing equipment location, specification of bin monitored, data processing updates). And resolution of these inconsistencies, will result in safer operations with reduced potential for oil spills and risk to public health, safety and the environment. Therefore, the benefits of these proposed amendments to this code are great, and the associated cost is believed to be negligible.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.7. Remove entirely Figure 31F-2-1:



~~FIGURE 31F-2-1~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Figure 31F-2-1 is removed and replaced with a revised Figure 31F-2-1, as addressed in the next Express Term.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.8. Replace Figure 31F-2-1:

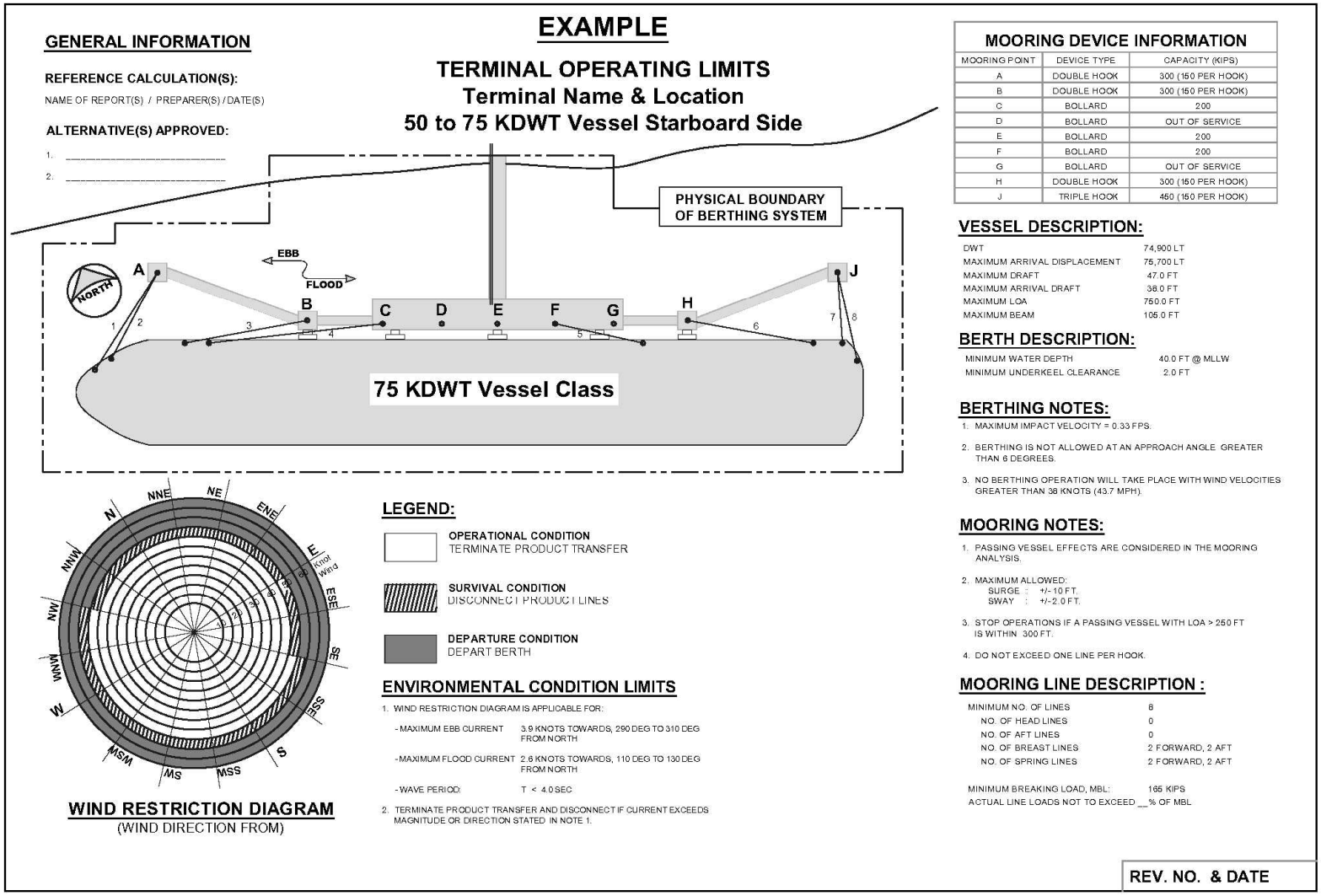


FIGURE 31F-2-1

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Figure 31F-2-1 is updated for clarity and consistency with the proposed amendments to Sections 3102F.3.6.1 and 3103F.5.2.1 (including subsections) and this code, including the following:

Title: "Terminal Operating Limits (TOLs)" is the commonly utilized and industry accepted terminology for this topic; therefore, "Statement of" is removed.

Physical Boundary of Berth: The dashed lines marking the "PHYSICAL BOUNDARY OF BERTHING SYSTEM" are adjusted to better convey the complexity of possible berthing system configurations, consistent with the berthing system definition in existing Section 3102F.1.3.

Vessel Size Range: The maximum vessel size is updated to 75 kDWT, to present a more common vessel size range than in the existing diagram.

Vessel Description: The "DWT", "MAXIMUM ARRIVAL DISPLACEMENT" AND "MAXIMUM DRAFT" values provided under the "VESSEL DESCRIPTION" are updated to represent a plausible example of maximum 75 kDWT vessel parameters.

Wind Restriction Diagram – Directionality: "(WIND DIRECTION FROM)" is added below the "WIND RESTRICTION DIAGRAM" (i.e., wind rose) to reduce ambiguity and emphasize the importance of consistency in wind directionality (i.e., conventions used in wind limits vs. MOT's monitoring systems and instrumentation).

Wind Restriction Diagram – Conditions: The wind restriction diagram legend is enhanced by splitting the "survival condition" and "departure condition" limits. MOT operators have requested clarity regarding the survival condition requirements of: (a) disconnect vs. departure conditions, and (b) the departure time stated as *"If the wind rises above these levels, the vessel must depart the berth; it shall be able to depart within 30 minutes (see 2 CCR 2340) [3.4]"*. Therefore, the proposed amendments split the existing *Section 3103.5.2.1.2 Survival condition* for clarity into two sections, revised *Section 3103.5.2.1.2 Survival condition* and proposed *Section 3103.5.2.1.3 Departure condition*. And this example TOLs diagram is updated for consistency with this proposed code language. It shall also be noted that the hatch patterns are reassigned for visual clarity; however, the validity of the foundational mooring and berthing analyses would not be impacted, so the boundaries between conditions would not change and this is non-substantive.

Therefore, this figure is enhanced to provide a performance-based example of how engineering TOLs diagrams shall be prepared and presented by the engineer-of-record to facilitate operational monitoring and enforcement. This is beneficial to both the engineer-of-record and MOT operator.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating resolution of inconsistencies and effective operational monitoring and enforcement of TOLs, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

The existing code requires each MOT operator to have Terminal Operating Limits (TOLs) diagrams. The proposed amendments to this code simply provide clarity and consistency with the proposed code (i.e., by splitting the existing "survival condition" wind zone for "disconnect product lines and depart berth" into "survival condition" and "departure condition"), reflecting the differences in associated operational actions. In some cases, minor modifications in the presentation of the TOLs diagrams may be appropriate to address these parameters; however, the validity of the foundational mooring and berthing analyses would not be impacted. Conversely, the MOT operator may be able to address some items via operational safeguards such as deploying additional insurance or safety mooring lines. And resolution of this ambiguity will result in safer operations with reduced potential for oil spills and risk to public health, safety and the environment. Therefore, the benefits of these proposed amendments to this code are great, and the associated cost is believed to be negligible.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.9. ***3102F.3.6.4 Mechanical and electrical systems.*** *An evaluation of all mechanical and electrical systems and components shall be performed in accordance with Sections 3108F through 3111F of these standards. ~~If a pipeline stress analysis is required (see Section 3109F.3), f~~F**orces and imposed seismic displacements resulting from the structural analysis shall be considered** **in the pipeline stress analyses (Section 3109F.3), and the piping/pipelines shall be assigned SSARs in Table 31F-2-7B**. Mechanical and electrical component deficiencies shall be assigned ratings from Table 31F-2-5.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3102F.3.6.4 is revised for clarity and completeness and does not impact the purpose or applicability of the existing code section. The revised sentence provides clarity that piping/pipelines shall be assigned Seismic Structural Assessment Ratings (SSARs) in Table 31F-2-7B (i.e., Executive Summary Table ES-1B), based on the results of the pipeline stress analyses, which includes appropriate consideration of seismic forces and displacements. These SSARs are already common established practice under the existing code. The existing examples provided in Table 31F-2-7B identifies *"30" Crude line"*. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.10. ***3102F.3.8 Documentation and reporting.*** … [Correct font style to bold for *"**Table of contents**"*]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The font style for *"**Table of contents**"* is an editorial correction for consistency and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

2.11. ***3102F.4 Post-event notification and inspection.*** *A post-event inspection is a focused inspection following a significant, potentially damage-causing event such as an earthquake, storm, vessel impact, fire, explosion, construction incident, or tsunami. The primary purpose is to assess the integrity of structural, mechanical and electrical systems. This assessment will determine the operational status and/or any remedial measures required.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3102F.4 is modified for clarity with the addition of: (a) "*notification and*" in the title consistent with the existing section content (ref. *Section 3102F.4.1 Notification and action plan*), and (b) "*construction incident*" in the text as another example of an external hazard event. Because tit has been common industry practice to consider construction incidents as requiring a post-event inspection, these changes are non-substantive and clarifying in nature.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 3
SECTION 3103F
STRUCTURAL LOADING CRITERIA

3.1. ***3103F.4.2 Design earthquake motion parameters.*** *The earthquake ground motion parameters of peak ground acceleration, spectral acceleration and earthquake magnitude are modified for site amplification and near fault directivity effects. The resulting values are the Design Peak Ground Acceleration (DPGA), Design Spectral Acceleration (DSA) and Design Earthquake Magnitude (DEM).*

For Site Classes A through E (Section 3103F.4.2.1), peak ground and design spectral accelerations shall ~~may~~ be obtained from:

1. *U.S. Geological Survey (USGS) published data as discussed in Section 3103F.4.2.2, or*
2. *A site-specific probabilistic seismic hazard analysis (PSHA) as discussed in Section 3103F.4.2.3.*

Site-specific PSHA is required for Site Class F.

…

The appropriate probability levels associated with DPGA and DSA for different seismic performance levels are provided in Table 31F-4-1. Deterministic earthquake motions, which are used only for comparison to the probabilistic results, are addressed in Section 3103F.4.2.7 ~~3103F.4.2. 7~~.

…

[Note: Double underline denotes language which is underlined in the existing code.]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In this section, "*may*" is updated to "*shall*" for clarity of the existing regulatory requirement, since these are the two industry-accepted options for determining seismic accelerations. The editorial error in the *Section 3103F.4.2.7* cross-reference is corrected. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.2. ***3103F.4.2.1 Site classes.*** *The following Site Classes, defined in Section 3106F.2.1, shall be used in developing values of DSA and DPGA: …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In this section, the cross-reference to *Section 3106F.2.1* is corrected for accuracy. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.3. ***3103F.4.2.2 Earthquake motions from USGS maps.*** *Earthquake ground motion parameters can be obtained directly from the US Seismic Design Maps tool available at the USGS website (http://earthquake.usgs.gov~~/designmaps/us/application.php~~) for the site condition(s) appropriate for the MOT site and the selected probability of exceedance. For this purpose, select the ASCE/SEI 41 [3.1] ~~"2013 ASCE 41"~~ as the design code reference document ~~(based on 2008 USGS hazard data available), "Custom" under the Earthquake Hazard Level option~~, and specify the appropriate custom parameters, including but not limited to, location, required Probability of Exceedance (in 50 years), and appropriate Site Soil Classification(s) for the MOT site. The USGS tool directly provides the peak ground and spectral accelerations for the selected hazard level and site condition(s).*

… If needed, the data for appropriate probability of exceedance may be obtained using the procedure described in Chapter 1 of FEMA 356 [3.2]~~[3.1]~~, and corrected for the MOT site as discussed in Section 3103F.4.2.4 or Section 3103F.4.2.5.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3103F.4.2.2 is modified to accommodate the development of the US Seismic Design Maps tool, as the USGS continues to implement updates to address the latest code revisions. These proposed amendments benefit users by providing a conformable standard, do not change the purpose and applicability of the existing regulations, and include:

(a) USGS Website: The USGS website hyperlink is updated to the general USGS website where users can find the latest US Seismic Design Maps tool for retrieval of seismic design parameter values. This eliminates the potential for confusion if the US Seismic Design Maps tool hyperlink is modified.

(b) Design Code Reference Document: The reference document to be utilized in the US Seismic Design Maps tool is updated to generally reference the version of ASCE/SEI 41 [3.1] adopted in this code, as identified by the addition of reference *[3.1]*. The proposed amendment includes update to the latest edition of ASCE/SEI 41-17.

(c) Custom Features of US Seismic Design Maps Tool: The custom features language is revised to be more flexible, eliminating the potential for confusion as the US Seismic Design Maps tool jargon is modified in the future. However, the proposed language maintains the requirement to adequately consider the same custom parameters.

(d) The FEMA 356 reference is renumbered.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The Commission staff relied on ASCE/SEI 41 [3.1] to revise this section of this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.4. ***3103F.4.2.4 Simplified evaluation of site amplification effects.*** *…*

For a given site class, the following procedure from Chapter 1 of FEMA 356 [3.2]~~[3.1]~~ presents…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The FEMA 356 reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.5. ***3103F.4.2.5 Site-specific evaluation of amplification effects.*** *…*

In general, an equivalent linear analysis using, for example, SHAKE91 [3.3][~~3.2~~] is acceptable when…

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The SHAKE91 reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.6. ***3103F.4.2.6 Directivity effects.*** *…*

1. *Directivity effects may be reflected in the spectral acceleration values in a deterministic manner by using well established procedures such as that described in Somerville, et al. [3.4]~~[3.3]~~. …*

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The Somerville, *et al.* reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.7. ***3103F.4.2.7 Deterministic earthquake motions.*** *…*

For comparison, the values of peak ground accelerations and spectral accelerations may be obtained from the USGS maps ~~[3.1]~~, corresponding to the Maximum Considered Earthquake (MCE). In this case, the median values of peak ground acceleration and spectral acceleration values shall be 2/3 (see Section 1.6 of FEMA 356 [3.2]~~[3.1]~~) of the values shown on the USGS maps.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The FEMA 356 reference in the 1st sentence is removed since it is superfluous, and the FEMA 356 reference in the 2nd sentence is renumbered. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.8. ***3103F.4.2.9 Design Spectral Acceleration for various damping values.*** *Design Spectral Acceleration (DSA) values at damping other than 5 percent shall be obtained by using a procedure given in Chapter 1 of FEMA 356 [3.2]~~[3.1]~~, …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The FEMA 356 reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.9. ***TABLE 31F-3-5 VALUES OF B_S AND B_1 [3.2]~~[3.1]~~***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The FEMA 356 reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.10. ***3103F.5.1 General.*** *…*

The vessel's moorings shall be strong enough to hold during all expected environmental and passing vessel conditions ~~of surge, current and weather and long enough~~ to adequately accommodate ~~allow adjustment for~~ changes in draft, surge, sway, yaw ~~drift~~ and tide ~~(2 CCR 2340) [3.4]~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3103F.5.1 is modified for clarity and to accurately articulate engineering standards for mooring loads on vessels and to provide the two primary events that must be accounted for by the user. Reference to Article 5 (2 CCR 2340) is removed since this operational reference is not relevant since that references an operational regulation, not a building standard. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.11. ***3103F.5.2 Wind loads.*** *Wind loads on a vessel, moored at a MOT, shall be determined using procedures described in this section. Wind speed measured at an elevation of 33 feet (10 meters) above the water surface, with duration of 30 seconds shall be used to determine the design wind speed and wind limits for moored vessels. If these conditions are not met, adjustment factors shall be applied per Sections 3103F.5.2.2. ~~Wind loads shall be calculated for each of the load cases identified in Section 3105F.2.~~*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3103F.5.2 is reorganized and modified for clarity and accuracy, including:

New Language: The text from the 1st paragraph of existing Section 3103F.5.2.2 is relocated to this section, with minor modifications. These modifications include the addition of "*…and wind limits for moored vessels…*" and to reference Section 3103F.5.2.2, to emphasize the importance of establishing consistent wind speed measurement standards for input/output of mooring analyses and operational implementation.

Removed Language: The last sentence is removed and relocated with minor modifications to proposed Section 3103F.5.2.2.

Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.12. ***3103F.5.2.1 Design wind speed.*** *For new MOTs, the 25-year return period shall be used to establish the design wind speed for each direction. The design wind speed is the maximum wind speed of 30-second duration used in the mooring analysis (see Section 3105F). The 30-second duration wind speed shall be determined from the annual maximum wind data. Average annual summaries cannot be used. Maximum wind speed data for a minimum of eight directions (45-degree increments) shall be obtained. If other duration wind data is available, it shall be adjusted to a 30-second duration, in accordance with Equation (3-12).*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3103F.5.2.1 is reorganized and modified for clarity and accuracy. Text from the 3rd paragraph in existing Section 3103F.5.2.1.2 is relocated to this section, with rearrangement of sentence order and minor modification with the addition of "*For new MOTs …*" These modifications reflect the fact that a 25-year return period wind study shall be prepared and used to establish the mooring analysis input parameter of "design wind speed". This clarifies that existing MOTs do not need a 25-year return period wind study to establish their wind limits. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.13. ***3103F.5.2.2 Wind limits for moored vessels.*** *Wind loads shall be calculated for each of the load cases identified in Section 3105F.2. Wind velocity limits for moored vessels shall be presented in the Terminal Operating Limits (see Section 3102F.3.6.1 and Figure 31F-2-1) for each of the conditions given below.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3103F.5.2 is reorganized and modified for clarity and accuracy. This section has been added to clarify how wind limits for moored vessels are established and presented in Terminal Operating Limits (TOLs). The 1st sentence is relocated from existing Section 3103F.5.2. The 2nd sentence is added to provide cross-reference to Section 3102F.3.6.1 and Figure 31F-2-1. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.14. ***3103F.5.2.21.1 Operational ~~Operating~~ condition.*** *The operational ~~operating~~ condition is defined as the wind envelope in which a vessel may conduct transfer operations~~. It is~~, as determined from the mooring analysis (Section 3105F). Transfer operations shall cease~~, at an existing MOT,~~ when the wind exceeds the maximum velocity of the envelope.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, existing Section 3103F.5.2.1.1 is modified for clarity and brevity. The section is renumbered, and the terminology "operating" is updated to "operational" for consistency with standard industry language. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.15. ***3103F.5.2.21.2 Survival condition.*** *The survival condition is defined as the state wherein a vessel can remain safely moored at the berth during severe winds; however, loading arms and hoses shall be disconnected (see Sections 3110F.2 and 3110F.3 regarding movement limits of loading arms and hoses, respectfully). The survival condition is the wind zone between the operational condition and the departure condition (defined in Section 3103F.5.1.3). In this wind zone, the vessel must prepare to depart the berth.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, existing Section 3103F.5.2.1.2 is modified for clarity. The section is renumbered. Additionally, MOT operators have requested clarity regarding the survival condition requirements of: (a) disconnect vs.

departure conditions, and (b) the departure time stated as *"If the wind rises above these levels, the vessel must depart the berth; it shall be able to depart within 30 minutes (see 2 CCR 2340) [3.4]"*. Therefore, the proposed amendments split the existing *Section 3103.5.2.1.2 Survival condition* for clarity into two sections, revised *Section 3103.5.2.1.2 Survival condition* and proposed *Section 3103.5.2.1.3 Departure condition*, including:

Survival Condition: The proposed language is modified to define the survival condition as the zone between the "operational condition" and the "departure condition", within which the vessel is safely moored but product lines should be disconnected, and preparations made for vessel departure (if necessary). Cross-references to Sections 3110F.2 and 3110F.3 are added to enhance the discussion of considerations for movement limits of loading arms and hoses. The remainder of the existing *Section 3103.5.2.1.2 Survival condition* language is transferred to the proposed *Section 3103.5.2.1.3 Departure condition*. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

Departure Condition: See Express Term regarding the proposed *Section 3103.5.2.1.3 Departure condition* for discussion.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

No businesses will be created or eliminated by these amendments to this code.

☐ The expansion of businesses currently doing business with the State of California.

No business expansions will be affected by these amendments to this code.

☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating resolution of inconsistencies and effective operational monitoring and enforcement of TOLs, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

The existing code requires each MOT operator to have Terminal Operating Limits (TOLs) diagrams which define the "survival condition" wind zone for disconnect product lines and depart berth. The proposed amendments to this code simply provide clarity by splitting this into "survival condition" and "departure condition", reflecting the differences in associated operational actions. In some cases, minor modifications in the presentation of the TOLs diagrams may be appropriate to address these parameters; however, the validity of the foundational mooring and berthing analyses would not be impacted. Conversely, the MOT operator may be able to address some items via operational safeguards such as deploying additional insurance or safety mooring lines. And resolution of this ambiguity will result in safer operations with reduced potential for oil spills and risk to public health, safety and the environment. Therefore, the benefits of these proposed amendments to this code are great, and the associated cost is believed to be negligible.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.16. ***3103F.5.2.2.3 Departure condition.*** *The departure condition is defined as the wind state above which a vessel can no longer remain safely moored at the berth during severe winds, as determined from the mooring analysis (Section 3105F). For a new MOT~~s~~, the departure ~~survival~~ condition threshold is the maximum wind velocity, for a 30-second gust and a 25-year return period, obtained from historical data. ~~For an existing MOT, a reduced survival condition threshold is acceptable (see Figure 31F-2-1).~~ If the wind rises above these levels, the vessel must depart the berth~~; it shall be able to depart within 30 minutes (see 2 CCR 2340) [3.4]~~.*

~~The 30-second duration wind speed shall be determined from the annual maximum wind data. Average annual summaries cannot be used. Maximum wind speed data for eight directions (45-degree increments) shall be obtained. If other duration wind data is available, it shall be adjusted to a 30-second duration, in accordance with Equation (3-21). The 25-year return period shall be used to establish the design wind speed for each direction. In order to simplify the analysis for barges (or other small vessels), they may be considered to be solid free-standing walls (Chapter 29 of ASCE/SEI 7 [3.5]). This will eliminate the need to perform a computer assisted mooring analysis.~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3103F.5.2.2.3 is added for clarity. MOT operators have requested clarity regarding the survival condition requirements of: (a) disconnect vs. departure conditions, and (b) the departure time stated as *"If the wind rises above these levels, the vessel must depart the berth; it shall be able to depart within 30 minutes (see 2 CCR 2340) [3.4]"*. Therefore, the proposed amendments split the existing *Section*

3103.5.2.1.2 Survival condition for clarity into two sections, revised *Section 3103.5.2.1.2 Survival condition* and proposed *Section 3103.5.2.1.3 Departure condition*, including:

Survival Condition: See Express Term regarding the proposed revised *Section 3103.5.2.1.3 Departure condition* for discussion.

Departure Condition: The proposed language is transferred in part from the existing *Section 3103.5.2.1.2 Survival condition* and modified. The modifications include providing the definition of "departure condition" as the wind state above which a vessel can no longer remain safely moored at the berth and must depart the berth. Reference to Article 5 (2 CCR 2340) is removed since this operational reference is not necessary. Cross-references to Section 3105F is added for clarity. The existing language in the last paragraph is relocated in part to revised Sections 3103F.5.2.1 and 3105F.2, due to the general reorganization of *Section 3103F.5.2 Wind loads*. The following superfluous sentences are also removed: (a) *"For an existing MOT, a reduced survival condition threshold is acceptable (see Figure 31F-2-1)."*, and (b) *"If other duration wind data is available, it shall be adjusted to a 30-second duration, in accordance with Equation (3-21)."*. These proposed amendments provide clarity, but do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating resolution of inconsistencies and effective operational monitoring and enforcement of TOLs, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

The existing code requires each MOT operator to have Terminal Operating Limits (TOLs) diagrams which define the "survival condition" wind zone for disconnect product lines and depart berth. The proposed amendments to this code simply provide clarity by splitting this into "survival condition" and "departure condition", reflecting the differences in associated operational actions. In some cases, minor modifications in the presentation of the TOLs diagrams may be appropriate to address these parameters; however, the validity of the foundational mooring and berthing analyses would not be impacted. Conversely, the MOT operator may be able to address some items via operational safeguards such as deploying additional insurance or safety mooring lines. And resolution of this ambiguity will result in safer operations with reduced potential for oil spills and risk to public health, safety and the environment. Therefore, the benefits of these proposed amendments to this code are great, and the associated cost is believed to be negligible.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.17. ***3103F.5.2.3~~2~~ Wind speed corrections.*** *…*

…

If wind data is available over land only, the following equation shall be used to convert the wind speed from over-land to over-water conditions [3.5]~~[3.6]~~: …

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered, and the Pile Buck reference is renumbered. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.18. ***FIGURE 31F-3-1 WIND SPEED CONVERSION FACTOR [3.5]~~[3.6]~~***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The Pile Buck reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.19. ***3103F.5.2.~~43~~ Static wind loads on vessels.*** *The OCIMF MEG3 [3.6]~~[3.7]~~ shall be used to determine the wind loads for all tank vessels.*

Alternatively, wind loads for any type of vessel may be calculated using the guidelines in Ferritto et al. [3.7]~~[3.8]~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered, and the OCIMF MEG3 and Ferritto *et al.* references are renumbered. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.20. ***3103F.5.3 Current loads****. ~~Environmental loads induced by currents at MOTs shall be calculated as specified in this subsection.~~*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing language in this section is removed since it is superfluous. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.21. ***3103F.5.3.1 Design current velocity.*** *Maximum ebb and flood currents, annual river runoffs and controlled releases shall be considered when establishing the design current velocities for both existing and new MOTs.*

Local current velocities may be obtained from NOAA [3.8]~~[3.9]~~ or other sources, but must be supplemented by site-specific data, if the current velocity is higher than 1.5 knots.

Site-specific data shall be obtained by real time measurements over a one-year period. If this information is not available, a safety factor of 1.25 shall be applied to the best available data until real time measurements are obtained.

If the facility is not in operation during annual river runoffs and controlled releases, the current loads may be adjusted.

Operational dates need to be clearly stated in the definition of the ~~t~~Terminal ~~o~~Operating ~~l~~Limits (see Section 3102F.3.6.1 and Figure 31F-2-1).

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The NOAA reference is renumbered. Typographical errors in "Terminal Operating Limits" are corrected. The existing cross-reference to Section 3102F.3.6.1 is corrected and a cross-reference to Figure 31F-2-1 is added. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

No business expansions will be affected by these amendments to this code.

☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.22. ***FIGURE 31F-3-2 CURRENT VELOCITY CORRECTION FACTOR (p. 23 [3.6]~~[3.7]~~)***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The OCIMF MEG3 reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.23. ***3103F.5.3.3 Static current loads.*** *The OCIMF MEG3 [3.6][~~3.7~~] or the UFC 4-159-03 [3.9][~~3.10~~] procedures shall be used to determine current loads for moored tank vessels.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The OCIMF MEG3 and UFC 4-159-03 references are renumbered. The UFC 4-159-03 reference is also updated to the latest edition. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-159-03 [3.9] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.24. ***3103F.5.4 Wave loads.*** *…*

… The Froude-Krylov method discussed in Chakrabarti's Chapter 7 [3.10]~~[3.11]~~ may be used to calculate the wave excitation forces, …

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The Chakrabarti reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.25. ***3103F.5.5 Passing vessels.*** *…*

…Either method of Kriebel [3.11]~~[3.12]~~ or Wang [3.12]~~[3.13]~~ may be used to determine forces on a moored vessel. Kriebel's recent wave tank study improves on an earlier work of Seelig [3.13]~~[3.14]~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing references *[3.12]* thru *[3.14]* are renumbered to *[3.11]* thru *[3.13]*, respectively. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

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No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.26. ***3103F.5.7 Tsunamis.*** *…*

… For the Ports of Los Angeles and Long Beach, one of these recent studies focused on near field tsunamis with predicted return periods of 5,000 to 10,000 years [3.14]~~[3.15]~~. …

The run-up value for Port Hueneme was obtained from an earlier study by Synolakis et al. [3.15]~~[3.16]~~.

…These results are deterministic and are based on the most severe seismic sources that could reasonably impact MOTs in the San Francisco Bay [3.16]~~[3.17]~~…. Further details are available in [3.16]~~[3.17]~~.

… Loads from tsunami-induced waves can be calculated for various structural configurations [3.17]~~[3.18]~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing references *[3.15]* thru *[3.18]* are renumbered to *[3.14]* thru *[3.17]*, respectively. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

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ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.27. ***TABLE 31F-3-6 TSUNAMI RUN-UP VALUES (ft) AND CURRENT SPEEDS (ft/sec) IN THE SAN FRANCISCO BAY AREA (AFTER [3.16]~~[3.17]~~)***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The Borrero reference is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.28. ***3103F.6.1 General.*** *…The terms and equations below are based on those in UFC 4-152-01 [3.18][~~3.19~~] and PIANC [3.19][~~3.20~~].*

...

W = Total weight of vessel and cargo in pounds [long tons × 2240] ~~[long tons H 2240]~~

…

F_A = ... For new berthing systems, F_A shall be determined in accordance with Section 5-1.5.3 of UFC 4-152-01 [3.18][~~3.19~~] or PIANC Section 4.2.8 [3.19][~~3.20~~].

…

The approximate displacement of the vessel (when only partially loaded) at impact, DT, can be determined from an extension of an equation from Gaythwaite [3.20][~~3.21~~]:

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing references *[3.19]* thru *[3.21]* are renumbered to *[3.18]* thru *[3.20]*, respectively. The UFC 4-152-01 reference is also updated to the latest edition. And a typographical error in the definition of "*W*" is corrected. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [3.18] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

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ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.29. ***3103F.6.3 Geometric coefficient (C_g).*** *… Generally, 0.95 is recommended for the impact point at or beyond the quarter points of the ship, and 1.0 for broadside berthing in which contact is made along the straight side [3.18]~~[3.19]~~.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-152-01 reference is renumbered and updated to the latest edition. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [3.18] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.30. ***3103F.6.5 Configuration coefficient (C_c).*** *…*

…

For berths with different conditions, C_c may be interpolated between these values [3.18]~~[3.19]~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-152-01 reference is renumbered and updated to the latest edition. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [3.18] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.31. ***3103F.6.6 Effective mass or virtual mass coefficient (C_m).*** *…*

…

The value of C_m for use in design should be a minimum of 1.5 and need not exceed 2.0 [3.18]~~[3.19]~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-152-01 reference is renumbered and updated to the latest edition. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [3.18] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.32. ***3103F.7.2 Wind loads.*** *Chapter 29 of the ASCE/SEI 7 [3.21][~~3.5~~] shall be used to establish minimum wind loads on the structure. …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The ASCE/SEI 7 reference is renumbered. The existing ASCE/SEI 7-10 reference is also updated to the latest edition ASCE/SEI 7-16. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI [3.21] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.33. ***3103F.8 Load combinations.*** *As a minimum, each component of the structure shall be analyzed for all applicable load combinations given in Table 31F-3-10 or Table 31F-3-11, depending on component type. For additional load combinations, see UFC 4-152-01 [3.18]~~[3.19]~~.*

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

The UFC 4-152-01 reference is renumbered and updated to the latest edition. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [3.18] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.34. ***TABLE 31F-3-10 LRFD LOAD FACTORS FOR LOAD COMBINATIONS [3.18][~~3.19~~]***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-152-01 reference is renumbered and updated to the latest edition. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [3.18] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.35. ***TABLE 31F-3-11 SERVICE OR ASD LOAD FACTORS FOR LOAD COMBINATIONS [3.18][3.19]***

…

2. Increase in allowable stress shall not be used with these load combinations unless it can be demonstrated that such increase is justified by structural behavior caused by rate or duration of load. See ASCE/SEI 7 [3.21][3.5]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-152-01 and ASCE/SEI 7 references are renumbered and updated to the latest editions. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [3.18] and ASCE/SEI 7 [3.21] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.36. ~~***3103F.9 Safety factors for mooring lines.*** *Safety factors for different material types of mooring lines are given in Table 31F-3-12. The safety factors should be applied to the minimum number of lines specified by the mooring analysis, using the highest loads calculated for the environmental conditions. The minimum breaking load (MBL) of new ropes is obtained from the certificate issued by the manufacturer. If nylon tails are used in combination with steel wire ropes, the safety factor shall be based on the weaker of the two ropes.*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

The existing Section 3103F.9 is relocated to the proposed Section 3105F.7 (*Section 3105F.7 Safety factors for mooring lines* in the proposed 2019 CBC), for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.37. Remove entirely:

~~*TABLE 31F-3-12*~~
~~*SAFETY FACTORS FOR ROPES [3.7]*~~

Steel Wire Rope	*1.82*
Polyamide	*2.22*
Other Synthetic	*2.00*
Polyamide Tail for Wire Mooring Lines	*2.50*
Other Synthetic Tail for Wire Mooring Lines	*2.28*
Polyamide Tail for Synthetic Mooring Lines	*2.75*
Other Synthetic Tail for Synthetic Mooring Lines	*2.50*
Joining Shackles	*2.00*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Table 31F-3-12 is relocated to the new Table 31F-5-3 (*Table 31F-5-3 SAFETY FACTORS FOR ROPES [5.4]* in proposed 2019 CBC), for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.38. ***~~3103F.10 Mooring hardware (N/E).~~*** *~~Mooring hardware shall include but not be limited to bollards, quick release hooks, other mooring fittings and base bolts. All mooring hardware shall be clearly marked with their safe working loads (or allowable working loads) [3.7]. The certificate issued by the manufacturer normally defines the safe working loads of this hardware.~~*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3103F.10 is relocated to the proposed Section 3105F.8 (*Section 3105F.8 Mooring hardware (N/E)* in the proposed 2019 CBC), for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.39. ~~***3103F.10.1 Quick release hooks.*** *For new MOTs or berthing systems, a minimum of three quick-release hooks are required for each breasting line location for tankers greater than or equal to 50,000 DWT. At least two hooks at each location shall be provided for breasting lines for tankers less than 50,000 DWT. Remote release may be considered for emergency situations.*~~

~~*All hooks and supporting structures shall withstand the minimum breaking load (MBL) of the strongest line with a safety factor of 1.2 or greater. Only one mooring line shall be placed on each quick release hook (N/E).*~~

~~*For multiple quick release hooks, the minimum horizontal load for the design of the tie-down shall be:*~~

~~$F_d = 1.2 \times MBL \times [1+0.75\,(n-1)]$ (3-21)~~

~~F_d = Minimum factored demand for assembly tie-down.~~

~~n = Number of hooks on the assembly.~~

~~*The capacity of the supporting structures must be larger than* F_d *(See Section 3107F.5.3).*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3103F.10.1 is relocated to the proposed Section 3105F.8.1 (*Section 3105F.8.1 Quick release hooks* in the proposed 2019 CBC), for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.40. ~~***3103F.10.2 Other fittings.*** *Other fittings include cleats, bitts and bollards.*~~

~~*If the allowable working loads for existing fittings are not available, the values listed in Table 31F-3-13 may be used for typical sizes, bolt patterns and layout. The allowable working loads are defined for mooring line angles up to 60 degrees from the horizontal. The combination of vertical and horizontal loads must be considered.*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3103F.10.2 is relocated to the proposed Section 3105F.8.2 (*Section 3105F.8.2 Other fittings* in the proposed 2019 CBC), for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.41. Remove entirely:

~~***TABLE 31F-3-13***~~
~~***ALLOWABLE WORKING LOADS***~~

~~*TYPE OF FITTINGS*~~	~~*NO. OF BOLTS*~~	~~*BOLT SIZE (in)*~~	~~*WORKING LOAD (kips)*~~
30 in. Cleat	*4*	*1 1/8*	*20*
42 in. Cleat	*6*	*1 1/8*	*40*
Low Bitt	*10*	*1 5/8*	*60 per column*
High Bitt	*10*	*1 ¾*	*75 per column*
44 ½ in. Fit. Bollard	*4*	*1 ¾*	*70*
44 ½ in. Fit. Bollard	*8*	*2 ¼*	*200*
48 in. Fit. Bollard	*12*	*2 ¾*	*450*

~~*Note: This table is modified from Table 6-11 of UFC 4-159-03 [3.10]*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Table 31F-3-13 is relocated to the new Table 31F-5-4 (*Table 31F-5-4 ALLOWABLE WORKING LOADS* in the proposed 2019 CBC), for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.42. ~~***3103F.10.3 Base bolts.*** *Base bolts are subjected to both shear and uplift. Forces on bolts shall be determined using the following factors:*~~

~~*1. Height of load application on bitts or bollards.*~~

~~*2. Actual vertical angles of mooring lines for the highest and lowest tide and vessel draft conditions, for all sizes of vessels at each particular berth.*~~

~~*3. Actual horizontal angles from the mooring line configurations, for all vessel sizes and positions at each particular berth.*~~

~~*4. Simultaneous loads from more than one vessel.*~~

~~*For existing MOTs, the deteriorated condition of the base bolts and supporting members shall be considered in determining the capacity of the fitting.*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3103F.10.3 is relocated to the proposed Section 3105F.8.3 (*Section 3105F.8.3 Base bolts* in the proposed 2019 CBC), for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.43. ***3103F.9~~11~~ Miscellaneous loads.*** *…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered due to the relocation of existing Sections 3103F.9 thru 3103F.10.3 to proposed Sections 3105F.7 thru 3105F.8.3, for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.44. ***3103F.10~~2~~ Symbols.*** *…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered due to the relocation of existing Sections 3103F.9 thru 3103F.10.3 to proposed Sections 3105F.7 thru 3105F.8.3, for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

3.45. ***3103F.11~~3~~ References.*** *…*

[3.1] American Society of Civil Engineers (ASCE), 2017, ASCE/SEI 41-17 (ASCE/SEI 41), "Seismic Evaluation and Retrofit of Existing Buildings," Reston, VA.

[3.2~~1~~] Federal Emergency Management Agency (FEMA), Nov. 2000, FEMA 356, "Prestandard and Commentary for the Seismic Rehabilitation of Buildings," Washington, D.C.

[3.3~~2~~] Idriss, I.M. and Sun, J.I., 1992, "User's Manual for SHAKE91, A Computer Program for Conducting Equivalent Linear Seismic Response Analyses of Horizontally Layered Soil Deposits," Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA.

[3.4~~3~~] Somerville, Paul G., Smith, Nancy F., Graves, Robert W., and Abrahamson, Norman A., 1997, "Modification of Empirical Strong Ground Motion Attenuation Relations to Include the Amplitude and Duration Effects of Rupture Directivity", Seismological Research Letters, Volume 68, Number 1, pp.199-222.

~~[3.4] California Code of Regulations (CCR), Title 2, Division 3, Chapter 1, Article 5 – Marine Terminals Inspection and Monitoring (2 CCR 2300 et seq.).~~

~~[3.5] American Society of Civil Engineers (ASCE), 2010, ASCE/SEI 7-10 (ASCE/SEI 7), "Minimum Design Loads for Buildings and Other Structures," Reston, VA.~~

[3.5~~6~~] Pile Buck Inc., 1992, "Mooring Systems, A Pile Buck Production," Jupiter, FL.

[3.6~~7~~] Oil Companies International Marine Forum (OCIMF), 2008, "Mooring Equipment Guidelines (MEG3)," 3rd ed., London, England.

[3.7~~8~~] Ferritto, J., Dickenson, S., Priestley N., Werner, S., Taylor, C., Burke, D., Seelig, W., and Kelly, S., 1999, "Seismic Criteria for California Marine Oil Terminals," Vol. 1 and Vol. 2, Technical Report TR-2103-SHR, Naval Facilities Engineering Service Center, Port Hueneme, CA.

[3.8~~9~~] National Oceanic and Atmospheric Administration, Contact: National PORTS Program Manager, Center for Operational Oceanographic Products and Services, 1305 EW Highway, Silver Spring, MD 20910.

[3.9~~10~~] Department of Defense, 3 October 2005 (Change 2, 23 June 2016) ~~(Revised 1 September 2012)~~, Unified Facilities Criteria (UFC) 4-159-03, "Design: Moorings," Washington, D.C.

[3.10~~11~~] Chakrabarti, S. K., 1987, "Hydrodynamics of Offshore Structures," Computational Mechanics.

[3.11~~12~~] Kriebel, David, "Mooring Loads Due to Parallel Passing Ships," Technical Report TR-6056-OCN, US Naval Academy, 30 September 2005.

[3.12~~13~~] Wang, Shen, August 1975, "Dynamic Effects of Ship Passage on Moored Vessels," Journal of the Waterways, Harbors and Coastal Engineering Division, Proceedings of the American Society of Civil Engineers, Vol. 101, WW3, Reston, VA.

[3.13~~14~~] Seelig, William N., 20 November 2001, "Passing Ship Effects on Moored Ships," Technical Report TR-6027-OCN, Naval Facilities Engineering Service Center, Washington, D.C.

[3.14~~15~~] Moffatt & Nichol, April 2007, "Tsunami Hazard Assessment for the Ports of Long Beach

and Los Angeles – FINAL REPORT," prepared or the Ports of Long Beach and Los Angeles.

[3.15~~16~~] Synolakis, C., "Tsunami and Seiche," Chapter 9 in Earthquake Engineering Handbook, Chen, W., Scawthorn, C. S. and Arros, J. K., editors, 2002, CRC Press, Boca Raton, FL.

[3.16~~17~~] Borrero, Jose, Dengler, Lori, Uslu, Burak and Synolakis, Costas, June 2006, "Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay," Report for the Marine Facilities Division of the California State Lands Commission.

[3.17~~18~~] Camfield, Frederick E., February 1980, "Tsunami Engineering," U.S. Army, Corps of Engineers, Coastal Research Center, Special Report No. 6.

[3.18~~19~~] Department of Defense, 24 January 2017 ~~28 July 2005 (Revised 1 September 2012), "Design: Piers and Wharves,"~~ Unified Facilities Criteria (UFC) 4-152-01, "Design: Piers and Wharves," Washington, D.C.

[3.19~~20~~] Permanent International Association of Navigation Congresses (PIANC), 2002, "Guidelines for the Design of Fender Systems: 2002," Brussels.

[3.20~~21~~] Gaythwaite, John, 2004, "Design of Marine Facilities for the Berthing, Mooring and Repair of Vessels," American Society of Civil Engineers, Reston, VA.

[3.21] American Society of Civil Engineers (ASCE), 2016, ASCE/SEI 7-16 (ASCE/SEI 7), "Minimum Design Loads and Associated Criteria for Buildings and Other Structures," Reston, VA.

[3.22] Simiu, E. and Scanlan, R., 1978, "Wind Effects on Structures: An Introduction to Wind Engineering," Wiley-Interscience Publications, New York.

Authority: Sections 8750 through 8760, Public Resources Code.

Reference: Sections 8750, 8751, 8755 and 8757, Public Resources Code.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The new ASCE/SEI 41 reference *[3.1]* is added since it is utilized in the revised *Section 3104F.4.2.2 Earthquake motions from USGS maps*, to provide additional resources for consultation. The existing Article 5 (2 CCR *2300 et seq.*) reference *[3.4]* is removed since it is no long utilized in the revised *Section 3103F.5.1 General* and *Section 3103F.5.2.1.2 Survival condition*. The existing ASCE/SEI 7 reference *[3.5]* is relocated to reference *[3.21]*, so that references are presented in the order of citation in Section 3103F. The existing UFC 4-159-03 (reference *[3.10]* dated "1 September 2012"), UFC 4-152-01 (reference *[3.19]* dated "1 September 2012") and ASCE/SEI 7-10 references (*[3.5]*) are also updated to the latest editions available UFC 4-159-03 (reference *[3.9]* dated "23 June 2016"), UFC 4-152-01 (reference *[3.18]* dated "24 January 2017") and ASCE/SEI 7-16 references (*[3.21]*). These changes result in renumbering of most of the references. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 41 [3.1], UFC 4-159-03 [3.9], UFC 4-152-01 [3.18] and ASCE/SEI 7 [3.21] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 4
SECTION 3104F
SEISMIC ANALYSIS AND STRUCTURAL PERFORMANCE

4.1. ***3104F.1.1 Purpose.*** *The purpose of this section is to establish minimum standards for seismic analysis and structural performance. Seismic performance is evaluated at two criteria levels. Level 1 requirements define a performance criterion to ensure MOT functionality. Level 2 requirements safeguard against major ~~structural~~ damage, ~~or~~ collapse or major oil spill.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3104F.1.1 is modified to define a purpose consistent with the seismic performance criteria in Section 3104F.2.1 and the addition of the proposed revised *Section 3104F.5 Nonstructural components, nonbuilding structures and building structures.* The terminology *"structural"* is removed since the Level 2 performance criteria is expanded to apply to nonstructural components, nonbuilding structures and building structures, in addition to MOT structures. The terminology *"or major oil spill"* is added for consistency with the Level 2 performance criteria. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.2. ***3104F.1.2 Applicability.*** *Section 3104F applies to all new and existing MOTs ~~structures~~. Structures supporting loading arms, pipelines, oil transfer and storage equipment, critical ~~nonstructural~~ systems and vessel mooring structures, such as mooring and breasting dolphins are included. Catwalks and similar components that are not part of the lateral load carrying system and do not support oil transfer equipment may be excluded.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3104F.1.2 is modified to define applicability consistent with the seismic performance criteria in Section 3104F.2.1 and the addition of the proposed revised *Section 3104F.5 Nonstructural components, nonbuilding structures and building structures.* The terminology *"structures"* is removed since Section 3104F is expanded to apply to all MOT components and structures (i.e., MOT structures, nonstructural components, nonbuilding structures and building structures). The terminology *"nonstructural"* is removed for consistency with the refined definition of "critical systems" defined in the proposed *Section 3104F.5.1 General*. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.3. ***3104F.1.3 Configuration classification of MOT structure.*** *Each MOT structure shall be designated as regular or irregular based on torsional irregularity criteria presented in ASCE/SEI 7 [4.1]. An MOT structure is defined to be irregular when maximum displacement at one end of the MOT structure transverse to an axis is more than 1.2 times the average of the displacement at the two ends of the MOT structure, as described in Figure 31F-4-1. For MOTs with multiple segments separated by expansion joints, each segment shall be designated as regular or irregular using criteria in this section. Expansion joints in this context are defined as joints that separate each structural segment in such a manner that each segment will move independently during an earthquake.*

~~*If a MOT is divided into seismically isolated sections, an evaluation of the relative movement of pipelines and supports shall be considered, including phase differences (Section 3109F.3).*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3104F.1.3 is modified for clarity and reorganization related to the proposed revised *Section 3104F.5 Nonstructural components, nonbuilding structures and building structures.* The terminologies *"of MOT structure"* and *"structure"* are added since Section 3104F.1.3 specifically applies to MOT structures, as opposed to Section 3104F that is expanded to apply to all MOT components and structures (i.e., MOT structures, nonstructural components, nonbuilding structures and building structures). The existing last paragraph is relocated to Section 3109F.3 since this requirement primarily requires assessment by the pipeline stress analyst with information provided by the structural analyst. While requiring no mark-ups, the ASCE/SEI 7 [4.1] reference is updated to the latest edition. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 7 [4.1] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.4. ***3104F.2.1 Seismic Performance Criteria ~~Design earthquake motions.~~*** *Two levels of ~~design~~ seismic performance shall be considered, except for critical systems (Section 3104F.5.1). These levels are defined as follows:*

Level 1 Seismic P~~p~~erformance: *…*

Level 2 Seismic P~~p~~erformance:

- *Controlled inelastic ~~structural~~ behavior with repairable damage*
- *Prevention of ~~structural~~ collapse*
- *Temporary loss of operations, restorable within months*
- *Prevention of major spill (≥ 1200 bbls)*

The Level 1 and Level 2 seismic performance criteria are defined in Table 31F-4-1.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.2.1 is modified for clarity and consistency based on proposed enhancement of Section 3104F to explicitly address MOT structures, nonstructural components, nonbuilding structures and

building structures. The title is updated to *"Seismic Performance Criteria"* for clarity and consistency with the Table 31F-4-1 title. The *"design"* terminology is removed for accuracy since the seismic performance levels apply during all seismic evaluations (i.e., design, strengthening). Minor editorial corrections are made to the Levels 1 and 2 subtitles. The terminology *"structural"* is removed since Section 3104F is expanded to apply to all MOT components and structures (i.e., MOT structures, nonstructural components, nonbuilding structures and building structures). A sentence is added at the end of this section to provide cross-reference to Table 31F-4-1 for seismic performance criteria. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.5. ***3104F.2.3.2 Nonlinear static demand procedure.*** *...*

...

The target displacement demand of the structure, Δ_d, shall be calculated from: ~~by multiplying the spectral response acceleration, S_A, corresponding to the effective elastic structural period, T_e (see Equation (4-2) or Equation (4-8)), by $T_e^2/4\pi^2$.~~

$$\Delta_d = S_A\left(T_e^2/4\pi^2\right) \qquad \text{(4-1)}$$

where:

T_e = effective elastic structural period defined in Equation (4-3) or Equation (4-9)

S_A = spectral response acceleration corresponding to T_e

If $T_e<T_0$, where T_0 is the period corresponding to the peak of the acceleration response spectrum, a refined analysis (see Section 3104F.2.3.2.1 or 3104F.2.3.2.2) shall be used to calculate the displacement demand. In the refined analysis, the target node displacement demand may be computed from the Coefficient Method (Section 3104F.2.3.2.1) ~~of ASCE/SEI 41 [4.3] that is based on the procedure presented in FEMA 440 [4.6],~~ or the Substitute Structure Method (Section 3104F.2.3.2.2) ~~presented in Priestley et al. [4.4]~~. Both of these methods utilize the pushover curve developed in Section 3104F.2.3.1.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

Section 3104F.2.2 is modified for brevity, clarity and consistency with this code. These changes are editorial and non-substantive.

Equation (4-1): In the 2016 CBC, this equation was erroneously written into the text instead of being formatted as an equation. Therefore, the existing text is converted to equation format with *Equation (4-1)* and symbol definitions assigned.

Methods: The existing language is amended to provide direct cross-references to the Coefficient Method and Substitute Structure Method requirements in Sections 3104F.2.3.2.1 and 3104F.2.3.2.2, respectively. The associated references are removed and/or relocated to these representative sections for brevity.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.6. ***3104F.2.3.2.1 Coefficient Method.*** *The Coefficient Method is based on the procedures presented in ASCE/SEI 41 [4.3] and FEMA 440 [4.4] ~~procedure~~.*

…

The target displacement shall be calculated from:

$$\Delta_d = C_1 C_2 S_A \frac{T_e^2}{4\pi^2} \qquad \text{(4-2)}\ \sout{\text{(4-1)}}$$

…

$$T_e = 2\pi\sqrt{\frac{m}{k_e}} \qquad \text{(4-3)}\ \sout{\text{(4-2)}}$$

…

$$C_1 = 1 + \frac{\mu_{strength} - 1}{aT_e^2} \qquad \text{(4-4)}$$

$$\sout{C_1 = 1 + \frac{\mu_{strenght} - 1}{\alpha T_e^2}} \qquad \sout{\text{(4-3)}}$$

where:

a ~~α~~ = *Site class factor*

…

$\mu_{strength}$ = *ratio of elastic strength demand to yield strength coefficient calculated in accordance with Equation (4-6)~~(4-5)~~. The Coefficient Method is not applicable where* $\mu_{strength}$ *exceeds* $\mu_{\max}$ *computed from Equation (4-7)~~(4-6)~~.* $\mu_{strength}$ *shall not be taken as less than 1.0.*

…

$$C_2 = 1 + \frac{1}{800}\left(\frac{\mu_{strength} - 1}{T_e}\right)^2 \qquad \text{(4-5)}\ \sout{\text{(4-4)}}$$

…

$$\mu_{strength} = \frac{mS_A}{F_y} \qquad \text{(4-6)}\ \sout{\text{(4-5)}}$$

where:

F_y = *effective yield strength of the structure in the direction under consideration from the idealized pushover curve.*

…

$$\mu_{\max} = \frac{\Delta_d}{\Delta_y} + \frac{\left|\alpha_e\right|^{-h}}{4} \qquad \text{(4-7)}\ \sout{\text{(4-6)}}$$

…

$$h = 1 + 0.15 \ln T_e \sout{\text{, and}} \qquad \text{(4-8)}$$

α_e *= effective negative post-yield slope ratio which shall be computed from:*

$$\alpha_e = \alpha_{P-\Delta} + \lambda\left(\alpha_2 - \alpha_{P-\Delta}\right) \qquad \text{(4-9)}\ \sout{\text{(4-7)}}$$

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3104F.2.3.2.1 is modified for clarity and accuracy with this code. These changes are editorial and non-substantive.

References: The FEMA 440 reference is relocated to this section from existing Section 3104F.2.3.2. While requiring no mark-ups, the ASCE/SEI 41 [4.3] reference is updated from the latest edition.

Editorial modifications: (a) reorganization of sentence structure, (b) update of reference numbering to present in chronological order, (c) equation renumbering, (d) correction of error in symbolism for "a"site class factor, and (e) the addition of *"effective"* in the definition of *"F_y"* for consistency with the terminology utilized in *Section 3104F.2.3.2.1 Substitute Structure Method*.

Equation (4-8): In the 2016 CBC, this equation was erroneously written into the text instead of being formatted as an equation. Therefore, the existing text is converted to equation format with *Equation (4-8)* assigned.

Ratio of Elastic Strength: The proposed language includes clarification of the minimum limit of: *"*$\mu_{strength}$ *shall not be taken as less than 1.0."* While this is typically understood, it is helpful to be explicit.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 41 [4.3] and FEMA 440 [4.4] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.7. ***3104F.2.3.2.2 Substitute Structure Method.*** *The Substitute Structure Method is based on the procedure presented in Priestley et al. [4.5][~~4.4~~] and ASCE/COPRI 61 [4.2]. ~~and~~ This method is ~~briefly~~ summarized below.*

1. *Idealize the pushover curve from nonlinear pushover analysis, as described in Section 3104F.2.3.2.1, and estimate the effective yield strength ~~force~~, F_y, and yield displacement, Δ_y.*
2. *Compute the effective elastic lateral stiffness, k_e, as the effective yield strength ~~force~~, F_y, divided by the yield displacement, Δ_y.*
3. *Compute the structural period in the direction under consideration from:*

$$T_e = 2\pi\sqrt{\frac{m}{k_e}} \qquad \text{(4-10)}\text{~~(4-8)~~}$$

where:

m = *seismic mass as defined in Section 3104F.2.3*

k_e = *effective elastic lateral stiffness in direction under consideration*

4. *Determine target displacement,* Δ_d *, of the effective linear elastic system from:*

$$\Delta_d = S_A \frac{T_e^2}{4\pi^2} \qquad \text{(4-11)}\text{~~(4-9)~~}$$

where:

S_A = *the 5% damped spectral displacement corresponding to the linear elastic structural period,* T_e

Select the initial estimate of the displacement demand as $\Delta_{d,i} = \Delta_d$ *.*

5. *The ductility level,* $\mu_{\Delta,i}$ ~~μ_Δ~~*, is found from* $\Delta_{d,i}/\Delta_y$ ~~Δ_d/Δ_y~~*. Use the appropriate relationship between ductility and damping, for the component undergoing inelastic deformation, to estimate the effective structural damping,* $\xi_{eff,i}$ ~~ξ_{eff}~~*. In lieu of more detailed analysis,* ~~*the relationship shown in Figure 31F-4-5 or*~~ *Equation (4-12)*~~*(4-10)*~~ *may be used for concrete and steel piles connected to the deck through dowels embedded in the concrete. Note that the idealized pushover curves in Figure 31F-4-4 shall be utilized in Figure 31F-4-5, which illustrates the iterative procedure.*

$$\xi_{eff,i} = 0.05 + \frac{1}{\pi}\left(1 - \frac{1-\alpha_1}{\sqrt{\mu_{\Delta,i}}} - \alpha_1\sqrt{\mu_{\Delta,i}}\right) \qquad \text{(4-12)}$$

~~$$\xi_{eff} = 0.05 + \frac{1}{\pi}\left(1 \quad \frac{1-r}{\sqrt{\mu_\Delta}} \quad r\sqrt{\mu_\Delta}\right) \qquad \text{(4-10)}$$~~

where:

α_1 ~~r~~ = *ratio of second slope over elastic slope (see Figures 31F-4-4 and 31F-4-5* ~~*31F-4-7*~~*)*

Equation (4-12)~~*(4-10)*~~ *for effective damping was developed by Kowalsky et al. [4.6]*~~*[4.5]*~~ *for the Takeda hysteresis model of system's force-displacement relationship.*

6. *Compute the force,* $F_{d,i}$ *, on the force-deformation relationship associated with the estimated displacement,* $\Delta_{d,i}$ *(see Figure 31F-4-5).*

7. *Compute the effective stiffness,* $k_{eff,i}$ *, as the secant stiffness from:*

$$k_{eff,i} = \frac{F_{d,i}}{\Delta_{d,i}} \qquad \text{(4-13)}$$

8. *Compute the effective period,* $T_{eff,i}$ *, from:*

$$T_{eff,i} = 2\pi\sqrt{\frac{m}{k_{eff,i}}} \qquad \text{(4-14)}$$

where:

m = seismic mass as defined in Section 3104F.2.3

9. For the effective structural period, $T_{eff,i}$, and the effective structural damping, $\xi_{eff,i}$, compute the spectral acceleration $S_A(T_{eff,i}\xi_{eff,i})$ from an appropriately damped design acceleration response spectrum.

10. Compute the new estimate of the displacement, $\Delta_{d,j}$, from:

$$\Delta_{d,j} = \frac{T_{eff,i}^2}{4\pi^2} S_A\left(T_{eff,i}, \xi_{eff,i}\right) \qquad (4\text{-}15)$$

11. Repeat steps 5 to 10 with $\Delta_{d,i} = \Delta_{d,j}$ until displacement, $\Delta_{d,j}$, computed in step 10 is sufficiently close to the starting displacement, $\Delta_{d,i}$, in step 5 (Figure 31F-4-5).

~~6. From the acceleration response spectra, create elastic displacement spectra, S_D, using Equation (4-11) for various levels of damping.~~

$$S_D = \frac{T^2}{4\pi^2} S_A \qquad (4\text{-}11)$$

~~7. Using the curve applicable to the effective structural damping, ξ_{eff}, find the effective period, T_d (see Figure 31F-4-6).~~

~~8. In order to convert from a design displacement response spectra to another spectra for a different damping level, the adjustment factors in Section 3103F.4.2.9 shall be used.~~

~~9. The effective secant stiffness, k_{eff}, can then be found from:~~

$$k_{eff} = \frac{4\pi^2}{T_d^2} m \qquad (4\text{-}12)$$

~~where:~~

~~m = seismic mass as defined in Section 3104F.2.3~~

~~T_d = effective structural period~~

~~10. The required strength, F_u, can now be estimated by:~~

$$F_u = k_{eff} \Delta_d \qquad (4\text{-}13)$$

~~11. F_u and Δ_d can be plotted on the force-displacement curve established by the pushover analysis. Since this is an iterative process, the intersection of F_u and Δ_d most likely will not fall on the force-displacement curve and a second iteration will be required. An adjusted value of Δ_d, taken as the intersection between the force-displacement curve and a line between the origin and F_u and Δ_d, can be used to find μ_Δ.~~

~~12. Repeat the process until a satisfactory solution is obtained (see Figure 31F-4-7).~~

~~13. From pushover data, calculate the displacement components of an element along the two axis of the system.~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

In general, Section 3104F.2.3.2.2 is revised to improve convergence behavior of the Substitute Structure Method. A recent study demonstrated that the existing Section 3104F.2.3.2.2 method in the 2016 CBC does not converge when the first estimate of the displacement demand is taken as that of the initial linear elastic 5%-damped system. Therefore, the proposed revision uses a slightly different version of the Substitute Structure Method, which is adopted in ASCE 61-14 [4.2]. The revised version provides similar seismic demand as the current method and converges consistently based on current state-of-the-knowledge in nonlinear procedure. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

Introduction: The ASCE/COPRI 61 reference is added to this section as reference for the revised Substitute Structure Method. Editorial modifications include reorganization of sentence structure and update of reference numbering to present in chronological order.

Steps 1 thru 3: Editorial modifications include equation renumbering and update of terminology when referring to *"F_y"* for consistent use in this code.

Steps 4 & 5: Editorial modifications include: (a) equation renumbering, (b) update of terminology when referring to *"Δ_d"* and *"S_A"* for consistent use in this code, (c) minor reorganization of sentence structure, and (d) update of symbols and figure references consistent with the revised Substitute Structure Method. Note that the ratio of second slope over elastic slope is updated to *"α_1"* for consistency with the terminology utilized in the *Section 3104F.2.3.2.1 Coefficient Method* and *Figure 31F-4-4*. For clarity, a sentence is added regarding the iterative relationship: *"Note that the idealized pushover curves in Figure 31F-4-4 shall be utilized in Figure 31F-4-5, which illustrates the iterative procedure."*

Steps 6 thru 13: Most of the revisions to the Substitute Structure Method are implemented beginning at step 6, with the number reduced from 13 steps to 11 steps.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/COPRI 61 [4.2] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The revised Substitute Structure Method procedure is equivalent to the existing prescriptive standard. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

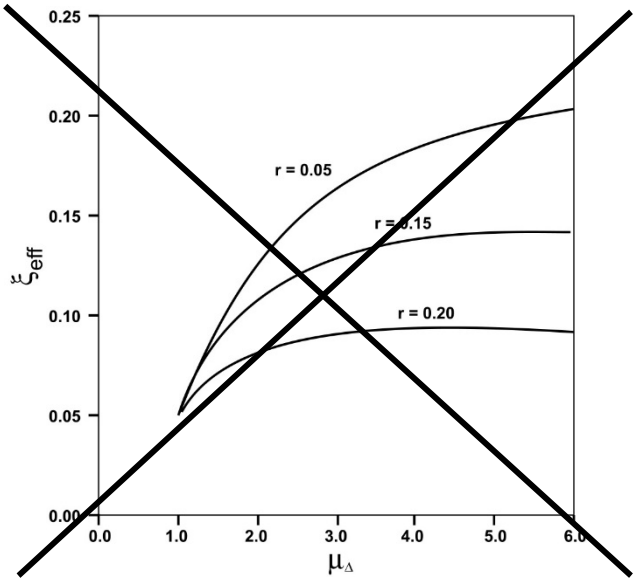
ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic structural analysis using Substitute Structure Method procedure is not impacted by these procedural modifications.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.8. Remove entirely:



~~***FIGURE 31F-4-5***~~

~~***RELATION BETWEEN DUCTILITY, μ_Δ, AND EFFECTIVE DAMPING, ξ_{eff} [4.5]***~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Figure 31F-4-5 is removed since it is no longer applicable based on revisions to the *Section 3104F.2.3.2.2 Substitute Structure Method*. This proposed amendment does not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.9. Add new Figure 31F-4-5:

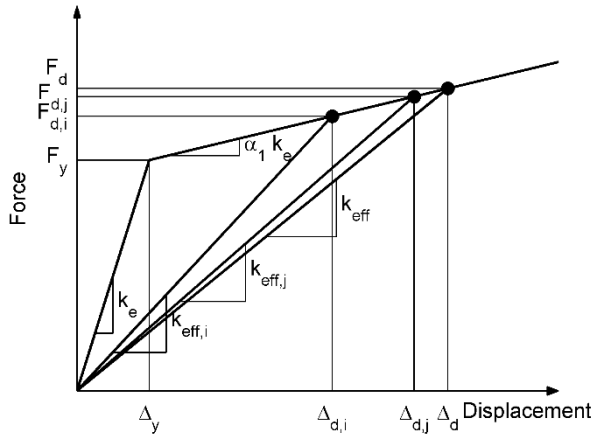


FIGURE 31F-4-5
EFFECTIVE STIFFNESS FOR SUBSTITUTE STRUCTURE METHOD

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The new Figure 31F-4-5 is added to illustrate the iterative process utilized in the revised *Section 3104F.2.3.2.2 Substitute Structure Method*. This proposed amendment does not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The revised Substitute Structure Method procedure is equivalent to the existing prescriptive standard. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

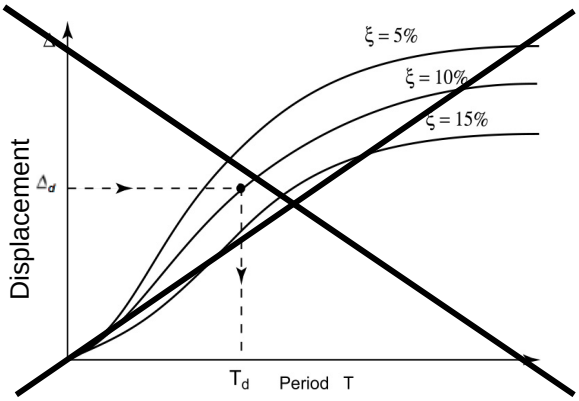
ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic structural analysis utilizing the Substitute Structure Method procedure is not impacted by these procedural modifications.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.10. Remove entirely:



~~FIGURE 31F-4-6~~
~~DESIGN DISPLACEMENT RESPONSE SPECTRA~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Figure 31F-4-6 is removed since it is no longer applicable based on revisions to the *Section 3104F.2.3.2.2 Substitute Structure Method*. This proposed amendment does not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.11. Remove entirely:

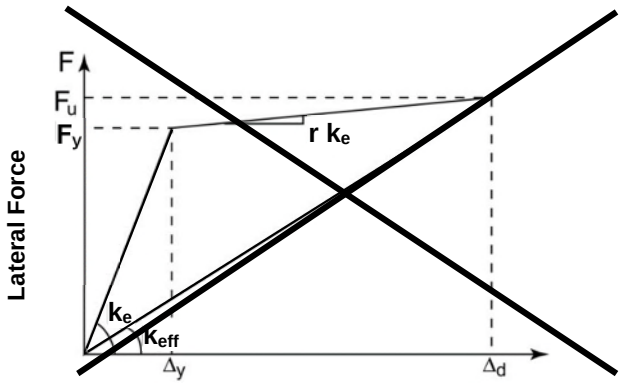


FIGURE 31F-4-7
EFFECTIVE LATERAL STIFFNESS (ADAPTED FROM [4.4])

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Figure 31F-4-7 is removed since it is no longer applicable based on revisions to the *Section 3104F.2.3.2.2 Substitute Structure Method*. This proposed amendment does not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.12. ***3104F.2.3.3 Linear modal demand procedure.*** *…*

…

The lateral stiffness of the linear elastic response model shall be based on the initial stiffness of the nonlinear pushover curve as shown in Figure 31F-4-6 ~~31F-4-8~~ (also see Section 3106F.9). The p-y springs shall be adjusted based on the secant method approach. Most of the p-y springs will typically be based on their initial stiffness; no iteration is required.

If the fundamental period is $T<T_0$, where T_0 is the period corresponding to the peak of the acceleration response spectrum, the displacement demand from the linear modal analysis shall be amplified to account for nonlinear system behavior by an amplification factor. The amplification factor shall be equal to either $C_1 \times C_2$ per Section 3104F.2.3.2.1, or the ratio of the final target displacement and the initial elastic displacement of Equation (4-11) ~~(4-9)~~ per Section 3104F.2.3.2.2.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Figure 31F-4-8* and *Equation (4-9)* numbering is updated to *Figure 31F-4-6* and *Equation (4-11)*. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.13. ***FIGURE 31F-4-6 ~~31F-4-8~~ STIFFNESS FOR LINEAR MODAL ANALYSIS***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Figure 31F-4-8* is renumbered *Figure 31F-4-6*. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.14. ***3104F.4.2 Combination of orthogonal seismic effects.*** *The design displacement demand at an element, δ_d, shall be calculated by combining the longitudinal, δ_x, and transverse, δ_y, displacements in the horizontal plane (Figure 31F-4-7 ~~31F-4-9~~):*

$$\delta_d = \sqrt{\delta_x^2 + \delta_y^2} \qquad \text{(4-16)}\text{~~(4-14)~~}$$

where:

$$\delta_x = \delta_{xy} + 0.3\delta_{xx} \qquad \text{(4-17)}\text{~~(4-15)~~}$$

and

$$\delta_y = 0.3\delta_{yx} + \delta_{yy} \qquad \text{(4-18)}\text{~~(4-16)~~}$$

OR

$$\delta_y = \delta_{yx} + 0.3\delta_{yy} \qquad \text{(4-19)}\text{~~(4-17)~~}$$

and

$$\delta_x = 0.3\delta_{xy} + \delta_{xx} \qquad \text{(4-20)}\text{~~(4-18)~~}$$

whichever results in the greater design displacement demand.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Equation (4-14)* thru *Equation (4-18)* are renumbered *Equation (4-16)* thru *Equation (4-20)*. The existing *Figure 31F-4-9* is also renumbered *Figure 31F-4-7*. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.15. ***FIGURE 31F-4-7 ~~31F-4-9~~ PLAN VIEW OF WHARF SEGMENT UNDER X AND Y SEISMIC EXCITATIONS***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Figure 31F-4-9* is renumbered *Figure 31F-4-7*. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.16. ***3104F.4.3 P-Δ Effects.*** *The P-Δ effect (i.e., the additional moment induced by the total vertical load multiplied by the lateral deck deflection) shall be considered unless the following relationship is satisfied (see Figure 31F-4-8 ~~31F-4-10~~):*

$$\frac{V}{W} \geq 4\frac{\Delta_d}{H} \qquad \text{(4-21)}\text{~~(4-19)~~}$$

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Figure 31F-4-10* is also renumbered *Figure 31F-4-8*. The existing *Equation (4-19)* is renumbered *Equation (4-21)*. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.17. *FIGURE 31F-4-8 ~~31F-4-10~~ P-Δ EFFECT*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Figure 31F-4-10* is renumbered *Figure 31F-4-8*. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.18. ***3104F.4.5 Shear key forces.*** *…*

$V_{sk} = 1.5(e/L_l)V_{\Delta T}$ *(4-22)~~(4-20)~~*

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Equation (4-20)* is renumbered *Equation (4-22)*. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.19. ***3104F.5 Nonstructural components, nonbuilding structures and building structures.*** *Nonstructural components, nonbuilding structures and building structures at MOTs shall be assessed for Level 2 seismic performance (see Section 3104F.2.1). Consideration shall be given to the adequacy and condition of supports and attachments (or anchorage), strength, flexibility, relative displacement, P-delta effects, and seismically-induced interaction with other components and structures.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

This section is added to introduce the high-level concept of seismic requirements for nonstructural components, nonbuilding structures and building structures. Note that the existing *Section 3104F.5 Nonstructural components* is addressed in Express Term #4.23. This proposed amendment does not change the intent, purpose or applicability of the existing regulations.

Title: The existing Section 3104F.5 vaguely groups all components and structures permanently attached to MOT structures or ground into the category of "nonstructural components". This use of the terminology "nonstructural components" is inconsistent with industry and national standards (i.e., ASCE/SEI 7) and hence misleading. Therefore, this proposed section is titled *"**Nonstructural components, nonbuilding structures and building structures**"* for clarity, specificity and consistency with industry and national standards.

1st sentence: This sentence is added to clarify that all nonstructural components, nonbuilding structures and building structures shall be assessed for Level 2 earthquake, utilizing the Section 3104F.2.1 seismic performance criteria.

2nd sentence: This sentence provides a broad overview of engineering considerations that shall be addressed in the evaluation, design and strengthening of nonstructural components, nonbuilding structures and building structures. While the depth of discussion of these concepts may vary in the proposed amendments to this code, adequately addressing each factor is essential to rational evaluation and good engineering practice.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.20. ***3104F.5.1 General.*** *Nonstructural components are mechanical, electrical and architectural components that may be required to resist the effects of earthquake, such as piping/pipelines, loading arms, lifting equipment (winches and cranes), spill prevention equipment, pumps, instrumentation and storage cabinets, and lighting fixtures.*

Nonbuilding structures are self-supporting structures that carry gravity loads and that may be required to resist the effects of earthquake (with the exception of building structures, such as control rooms), including but not limited to, gangways, hose towers and racks.

Critical systems are nonstructural components, nonbuilding structures or building structures that shall remain operational or whose failure could impair emergency operations following an earthquake, to prevent major oil spills and to protect public health, safety and the environment. A seismic assessment of the survivability and continued operation (related to personnel safety, oil spill prevention or response) during a Level 2 earthquake (see Table 31F-4-1) shall be performed for critical systems, including but not limited to, fire protection, emergency shutdown and electrical power systems.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

Section 3104F.5.1 General is added to provide general definitions, descriptions and examples of nonstructural components, nonbuilding structures, building structures, and critical systems. Note that the existing *Section 3104F.5.1 Contribution to global response* is addressed in Express Term #4.24. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

1st paragraph: Provides a definition for and examples of *"nonstructural components"*. This definition is consistent with industry and national standards (i.e., ASCE/SEI 7). The examples are consistent with nonstructural components discussed in existing Sections 3108F, 3110F and 3111F.

2nd paragraph: Provides definitions for and examples of *"nonbuilding structures"*, and by default, *"building structures"*. These definitions are consistent with industry and national standards (i.e., ASCE/SEI 7). The examples are consistent with nonbuilding structures and building structures discussed in existing Section 3104F.5 (misrepresented as "nonstructural components") and scattered throughout this code.

3rd paragraph: The definition for and examples of *"critical systems"* are scattered throughout the existing code. Therefore, this paragraph is added to provide a consolidated definition for and examples of *"critical systems"*. The 1st sentence is added for clarity and is consistent with industry and national standards (i.e., ASCE/SEI 7), as well as the Commission authority (ref. Section 3101F.1). The 2nd sentence is directly relocated from existing Section 3104F.6 as follows: *"A seismic assessment of the survivability and continued operation during a Level 2 earthquake (see Table 31F-4-1) shall be performed for critical systems, including but not limited to, fire protection, emergency shutdown and electrical power systems."* The following language is directly relocated from the existing Section 3110F.11 and merged in the 2nd sentence: *"related to personnel safety, oil spill prevention or response"*.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.21. ***3104F.5.2 Seismic assessment.*** *For existing (E) nonstructural components, nonbuilding structures and building structures and their supports and attachments, seismic assessment shall be performed in accordance with CalARP [4.8] or ASCE Guidelines [4.9], except for piping/pipelines which shall be evaluated per Section 3109F. If required, seismic evaluation and strengthening shall be performed in accordance with this section.*

For new (N) nonstructural components, nonbuilding structures and building structures and their supports and attachments, seismic evaluation and design shall be performed in accordance with this section, except for piping/pipelines which shall be evaluated per Section 3109F.

For evaluation, strengthening and design, seismic forces (demands) shall be obtained from Section 3104F.5. The seismic adequacy of nonstructural components shall be demonstrated through submission of design documentation reviewed and accepted by a registered design professional, or manufacturer's certification that the nonstructural component is seismically qualified by analysis or testing or experience data as specified in ASCE/SEI 7 [4.1]. Structures shall be analyzed in accordance with Section 3107F.5. Supports and attachments shall be assessed in accordance with Sections 3107F.7.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.2 Seismic assessment* provides an overview of the seismic assessment requirements for all nonstructural components, nonbuilding structures and building structures. This section essentially addresses the same requirements presented in existing *Section 3104F.5.2 Seismic assessment* and expands upon them further for clarity. Note that the existing *Section 3104F.5.2 Seismic assessment* is addressed in Express Term #4.25. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

1st paragraph: Specifies how seismic assessment of existing (E) nonstructural components, nonbuilding structures and building structures shall be performed. This paragraph consolidates and replaces previous CalARP and/or ASCE Guidelines references in existing Sections 3104F.6 and 3110F.8. This is consistent with the requirements in existing *Section 3104F.5.2 Seismic assessment* of: *"In general, for nonstructural components, the evaluation procedures of Section 3110F.8 apply."*, except that FEMA 356 is removed since it is outdated.

2nd paragraph: Specifies how seismic assessment of new (N) nonstructural components, nonbuilding structures and building structures shall be performed. This is consistent with the requirements in existing *Section 3104F.5.2 Seismic assessment* of: *"In general, for nonstructural components, the evaluation procedures of Section 3110F.8 apply."*, except that the FEMA 450 method of seismic load calculation is removed since it is outdated and replaced with the Simplified Procedure (proposed Section 3104F.5.4.1.1) and Linear modal demand procedure (proposed Section 3104F.5.4.1.2).

1st & 2nd paragraph: Specify that the seismic assessment of piping/pipelines shall be consistent with Section 3109F, which stipulates industry and national standards for pipeline stress analysis and evaluation of supports and attachments. This is consistent with the requirements in existing *Section 3104F.5.2 Seismic assessment* of: *"For pipelines, the seismic analysis shall be performed in accordance with Section 3109F.3, in lieu of Section 3110F.8. If a pipeline analysis has been performed and support reactions are available, they may be used to determine the forces on the support structure."*

3rd paragraph: Provides as overview of requirements for the evaluation, strengthening and design of nonstructural components, nonbuilding structures and building structures, including reference to: (a) proposed Section 3107F.5 for consolidated structural analysis requirements, and (b) proposed Section 3107F.7 for consolidated supports and attachments (or anchorage) requirements. This paragraph also provide standards on demonstrating the seismic adequacy of nonstructural components, consistently with ASCE/SEI 7 [4.1].

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on CalARP [4.8], ASCE Guidelines [4.9] and ASCE/SEI 7 [4.1] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.22. ***3104F.5.3 Contribution to global response of MOT structures.*** *Nonstructural components, nonbuilding structures and building structures permanently attached to MOT structures, including, but not limited to, pipelines, loading arms, hose towers/racks, raised platforms, control rooms and vapor control equipment, may affect the global structural response. In such cases, the seismic characteristics (mass and/or stiffness) of the nonstructural components, nonbuilding structures and building structures shall be considered in computing global seismic response of the MOT structures. If the seismic response of nonstructural components is determined to be out of phase (e.g. pipelines) with the global structural response, then the mass contribution can be neglected in the seismic structural analysis.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.3 Contribution to global response of MOT structures* is relocated from existing *Section 3104F.5.1 Contribution to global response* and expanded for clarity. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

Title: The existing Section 3104F.5.1 title is expanded to articulate applicability to *"MOT structures"* only.

1st paragraph: This paragraph is expanded to articulate applicability to *"nonbuilding structures and building structures"* and *"permanently attached to MOT structures"*, with other minor modifications for clarity.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.23. ***3104F.5.4 Nonstructural components and nonbuilding structures permanently attached to MOT structures.*** *This section covers nonstructural components and nonbuilding structures having a significant mass and/or ~~a critical~~ importance to the operability and safety of the MOT, and that are permanently attached to MOT structures (e.g., wharves, trestles, dolphins). The weight of nonstructural components and nonbuilding structures shall be included in the dead load of the structure per Section 3103F.2.*

Computation of seismic effects shall consider:

1. *Amplification of acceleration from ground to location of attachment of the nonstructural component or nonbuilding structure to the deck due to flexibility of the MOT structure, and*

2. *Amplification of acceleration due to flexibility of the nonstructural component or nonbuilding structure.*

The following are not covered in this section and shall be assessed using rational approach that includes consideration of strength, stiffness, ductility, and seismic interaction with all other connected components and with the supporting structures or systems, subject to Division approval:

1. *Nonstructural component supported by other nonstructural system permanently attached to MOT structure;*

2. *Nonstructural component or nonbuilding structure supported by other structure permanently attached to MOT structure;*

3. *Nonstructural component or nonbuilding structure attached to multiple MOT structures;*

4. *Nonstructural component or nonbuilding structure attached to structure and ground.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.4 Nonstructural components and nonbuilding structures permanently attached to MOT structures* is based on existing *Section 3104F.5 Nonstructural component*s, as renumbered and expanded for clarity. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

Title: The existing Section 3104F.5 title is expanded to articulate applicability to *"nonstructural components and nonbuilding structures"*, based on clarified "nonstructural component" and "nonbuilding structure" definitions in proposed Section 3104F.5.1. This section title is also enhanced to clarify that it applies to nonstructural components and nonbuilding structures *"permanently attached to MOT structures"*.

1st paragraph: This paragraph is also expanded to articulate applicability to *"nonbuilding structures"*, and *"permanently attached to MOT structures"*, similar to the title modifications. The terminology "*critical"* is removed to eliminate the potential for confusion with *"critical systems"* (as defined in the proposed Section 3104F.5.1).

2nd paragraph: During review of nonstructural components, nonbuilding structures and building structures evaluations, Division staff have observed numerous instances where the engineer-of-record fails to account for amplification of seismic accelerations related to the mounted location and/or flexibility of the components or structures. Therefore, this paragraph is added to emphasize the importance of seismic amplification.

3rd paragraph: This paragraph is added and bulletized to articulate items beyond the scope of the proposed Section 3104F.5 modifications, and therefore, not covered by this section, including components and/or structures stacked on top of structures and/or systems permanently attached to MOT structures.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.24. ~~***3104F.5.1 Contribution to global response.*** *Nonstructural components including, but not limited to pipelines, loading arms, raised platforms, control rooms and vapor control equipment, may affect the global structural response. In such cases, the seismic characteristics (mass and/or stiffness) of the nonstructural components shall be considered. If the seismic response of nonstructural components is out of phase with the global structural response, then the mass contribution can be neglected in the seismic structural analysis.~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The existing *Section 3104F.5.1 Contribution to global response* is relocated and expanded for clarity in proposed *Section 3104F.5.3 Contribution to global response of MOT structures*. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.25. ~~***3104F.5.2 Seismic assessment.*** *In general, for nonstructural components, the evaluation procedures of Section 3110F.8 apply.*~~

~~*For pipelines, the seismic analysis shall be performed in accordance with Section 3109F.3, in lieu of Section 3110F.8. If a pipeline analysis has been performed and support reactions are available, they may be used to determine the forces on the support structure.*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The existing Section 3104F.5.2 is removed due to reorganization. Similar requirements are presented in the proposed *Section 3104F.5.2 Seismic assessment.* The last sentence is relocated directly to the proposed Section 3109F.4.: *"If a pipeline analysis has been performed and support reactions are available, they may be used to determine the forces on the support structure."* Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.26. ~~***3104F.6 Nonstructural critical systems assessment.*** *A seismic assessment of the survivability and continued operation during a Level 2 earthquake (see Table 31F-4-1) shall be performed for critical systems such as fire protection, emergency shutdown and electrical power systems. The assessment shall consider the adequacy and condition of anchorage, flexibility and seismically-induced interaction. For existing systems, seismic adequacy may be assessed per CalARP [4.8].*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The existing Section 3104F.6 is removed due to reorganization. Similar requirements are presented in proposed amendments, including:

1st sentence: The following language is directly relocated to proposed Section 3104F.5.1: *"A seismic assessment of the survivability and continued operation during a Level 2 earthquake (see Table 31F-4-1) shall be performed for critical systems, including but not limited to, fire protection, emergency shutdown and electrical power systems."*

2nd sentence: The language is modified and relocated to proposed Section 3104F.5, since it is globally applicable to the assessment of all nonstructural components, nonbuilding structures and building structures.

3rd sentence: The language is modified and relocated to proposed Section 3104F.5.2, since it is globally applicable to the assessment of all existing (E) nonstructural components, nonbuilding structures and building structures.

Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.27. ***3104F.5.4.1 Seismic loads.*** *This section specifies the procedure to compute seismic loads on nonstructural components and nonbuilding structures permanently attached to a MOT structure.*

The following nonstructural components are exempt from the requirements of this section:

1. *Temporary or movable equipment unless part of a critical system (Section 3104F.5.1);*

2. *Mechanical and electrical components that are attached to the MOT structure and have flexible connections to associated piping and conduit; and either:*

   (a) *The component weighs 400 lb or less, the center of mass is located 4 ft or less above the MOT deck, and the component Importance Factor,* I_p *, is equal to 1.0; or*

   (b) *The component weighs 20 lb or less, or in the case of a distributed system, 5 lb/ft or less.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.4.1 Seismic loads* introduces the procedures for computing seismic loads for nonstructural components and nonbuilding structures permanently attached to MOT structures. The proposed procedures adequately account for amplification of seismic accelerations related to the mounted location and/or flexibility of the components or systems. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

2nd paragraph: Some nonstructural components do not warrant detailed seismic analyses due to factors such as temporary or movable state, flexible connections, weight and/or importance. Therefore, this bulletized paragraph clarifies such exemptions for nonstructural components. These exemptions are similar to Section 13.1.4 of ASCE/SEI 7-16, with modifications for application to MOTs.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.28. ***3104F.5.4.1.1 Simplified Procedure****. The Simplified Procedure may be used to estimate seismic loads on nonstructural components and nonbuilding structures permanently attached to a MOT structure. The Simplified Procedure shall not be used if any of the following apply:*

1. *Mass of the nonstructural component or nonbuilding structure exceeds 25% of the combined mass of the MOT structure plus nonstructural component or nonbuilding structure;*

2. *Multiple nonstructural components or nonbuilding structures of similar type (or natural period) when their combined mass exceeds 25% of the total mass of the MOT structure plus nonstructural components or nonbuilding structures;*

3. *Concrete/Steel MOT structure with irregular configuration (Section 3104F.1.3 and Table 31F-4-2) and high or medium spill exposure classification.*

The horizontal seismic force, F_p, shall be computed as follows [4.10]:

$$F_p = \frac{1.2 S_{XS} a_p I_p W_p}{R_p} \qquad \textit{(4-23)}$$

$$0.3 S_{XS} I_p W_p \le F_p \le 1.6 S_{XS} I_p W_p$$

where:

S_{XS} = spectral acceleration in Section 3103F.4.2.4 or Section 3103F.4.2.5, at 0.2 seconds

a_p = amplification factor for nonstructural component or nonbuilding structure (Table 31F-4-3)

I_p = importance factor for nonstructural component or nonbuilding structure (Table 31F-4-4)

W_p = weight of the nonstructural component or nonbuilding structure

R_p = response modification factor for nonstructural component or nonbuilding structure (Table 31F-4-5)

Alternatively, when dynamic properties of the MOT structure are available, the horizontal seismic force, F_p, may be computed from [4.10]:

$$F_p = \frac{a_p S_A I_p A_x W_p}{R_p} \qquad \text{(4-24)}$$

$$0.3 S_{XS} I_p W_p \le F_p \le 1.6 S_{XS} I_p W_p$$

where:

S_A = spectral acceleration in Section 3103F.4.2.4 or Section 3103F.4.2.5, at the period equal to the fundamental period of the MOT structure, T, in direction under consideration

A_x = torsional amplification factor given by:

$$A_x = \left(\frac{\Delta_m}{1.2\Delta_{avg}} \right)^2 \qquad \text{(4-25)}$$

$$1 \le A_x \le 3$$

where:

Δ_m = maximum displacement at one end of the MOT structure transverse to an axis

Δ_{avg} = average of the displacements at the extreme points of the MOT structure (see Figure 31F-4-1)

The horizontal seismic force, F_p, in the direction under consideration shall be applied at the center of gravity and distributed relative to the mass distribution of the nonstructural component or nonbuilding structure.

The horizontal seismic force, F_p, shall be applied independently in at least two orthogonal horizontal directions in combination with service or operating loads associated with the nonstructural

component or nonbuilding structure, as appropriate. For vertically cantilevered systems, however, F_p shall be assumed to act in any horizontal direction.

The concurrent vertical seismic force, F_v, shall be applied at the center of gravity and distributed relative to the mass distribution of the nonstructural component or nonbuilding structure, as follows:

$$F_v = \pm 0.2 S_{XS} W_p \qquad \textit{(4-26)}$$

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.4.1.1 Simplified Procedure* introduces a straightforward and explicit procedure for computing seismic loads for nonstructural components and nonbuilding structures permanently attached to MOT structures. The loading procedure is based on Chapter 13 of ASCE/SEI 7-16 and modified for application to MOTs.

1st paragraph: This paragraph is added and bulletized to articulate cases for which the Simplified Procedure shall not be used. These exceptions are based on the ASCE/SEI 7-16 standards with modifications for application to MOTs.

Equation (4-23): This equation is a simplification of Equation (13.3-1) in ASCE/SEI 7-16 to account for nonstructural components and nonbuilding structures being supported on top of the MOT structure for which the term $\left(1+2\frac{z}{h}\right)$ = 3.

Equation (4-24): This equation is also a simplification of Equation (13.3-4) in ASCE/SEI 7-16. Specifically, the term a_i in ASCE/SEI 7-16 (which represents acceleration at the point of attachment of the nonstructural component or nonbuilding structure and to be computed form modal analysis) has been replaced by spectral acceleration, S_A, because most MOTs can be idealized as one-story type (or single degree-of-freedom) systems for which a_i is approximately equal to S_A, as demonstrated by Goel [4.10].

Equation (4-26): This equation is equal to the concurrent seismic vertical force presented in Section 13.3.1 in ASCE/SEI 7-16.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] and relied on Goel [4.10] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

The alternative considered by Commission staff are presented in the form of *Equation (4-24)* and *Equation (4-25)* and the *Section 3104F.5.4.1.2 Linear modal demand procedure*.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.29. Add new Table 31F-4-3:

TABLE 31F-4-3
AMPLIFICATION FACTORS FOR
NONSTRUCTURAL COMPONENTS AND NONBUILDING STRUCTURES

COMPONENT OR STRUCTURE	a_p[1,2]
Rigid components or structures (period less than 0.06 seconds)	*1.0*
Rigidly attached components or structures	*1.0*
Flexible components or structures (period longer than 0.06 seconds)	*2.5*
Flexibly attached components or structures	*2.5*

1. A lower value shall not be used unless justified by detailed dynamic analysis, and shall in no case be less than 1.0.

2. If the fundamental period of the MOT structure, T, and the period of the flexible nonstructural component or nonbuilding structure, T_p, is known, a_p may be estimated from Figure 31F-4-9.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

Table 31F-4-3 is added to clarify amplification factors for nonstructural components and nonbuilding structures as identified in proposed *Section 3104F.2.3.2.1 Simplified Procedure*. These factors are consistent with ASCE/SEI 7-16.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] and Goel [4.10] while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

The alternative considered by Commission staff is presented in the 2nd footnote and associated proposed Figure 31F-4-9.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.30. Add new Figure 31F-4-9:

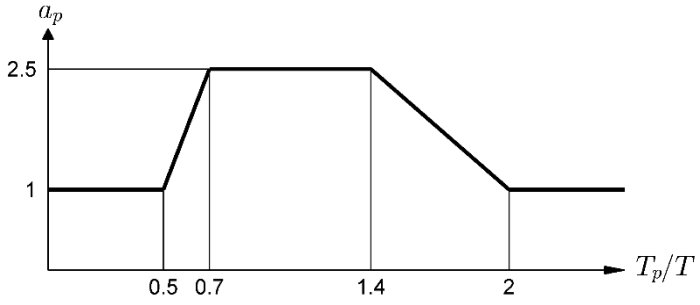


FIGURE 31F-4-9
AMPLIFICATION FACTOR, a_p [4.10]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

Figure 31F-4-9 is added to provide an alternative method of determining amplification factors for nonstructural components and nonbuilding structures as identified in proposed *Section 3104F.5.4.1.1 Simplified Procedure*. This approach is based on Goel [4.10].

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] and relied on Goel [4.10] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

The alternative considered by Commission staff is presented in proposed Table 31F-4-3.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.31. Add new Table 31F-4-4:

TABLE 31F-4-4
IMPORTANCE FACTORS FOR
NONSTRUCTURAL COMPONENTS AND NONBUILDING STRUCTURES

COMPONENT OR STRUCTURE	I_p
Critical[1]	*1.5*
Other	*1.0*

1. See Section 3104F.5.1 for definition of critical system.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

Table 31F-4-4 is added to clarify importance factors for nonstructural components and nonbuilding structures as identified in proposed *Section 3104F.5.4.1.1 Simplified Procedure*. These factors are consistent with ASCE/SEI 7-16.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.32. Add new Table 31F-4-5:

TABLE 31F-4-5
RESPONSE MODIFICATION FACTORS FOR
NONSTRUCTURAL COMPONENTS AND NONBUILDING STRUCTURES

COMPONENT OR STRUCTURE	R_p
Critical[1]	*1.0*
Loading arms	*3.0*
Piping/pipelines (welded)	*12.0*
Piping/pipelines (threaded or flanged)	*6.0*
Pumps	*2.5*
Skids	*2.5*
Tanks and totes	*2.5*
Light fixtures (or luminaires)	*1.5*
Electrical conduits and cable trays	*6.0*
Mooring hardware	*2.5*
Velocity monitoring equipment	*2.5*
Instrumentation or storage cabinets	*6.0*
Cranes	*2.5*
Gangway (column systems)	*3.0*
Gangways (truss systems)	*Use R_p from frame systems*
Hose towers and racks	*Use R_p from frame systems*
Frame systems:	
Steel special concentrically braced frames	*6.0*
Steel ordinary concentrically braced frames	*3.5*
Steel special moment frames	*8.0*
Steel intermediate moment frames	*4.5*
Steel ordinary moment frames	*3.5*
Lightframe wood sheathed with wood structural panels	*6.5*
Lightframe cold-formed steel sheathed with wood structural panels	*6.5*
Lightframe walls with shear panels of other materials	*2.0*
Other	*Subject to Division approval*

1. See Section 3104F.5.1 for definition of critical system.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

Table 31F-4-5 is added to specify response modification factors for typical nonstructural components and nonbuilding structures at MOTs as identified in proposed *Section 3104F.5.4.1.1 Simplified Procedure*. These factors are developed for nonstructural components and nonbuilding structures that are commonly found on MOTs and are not necessarily listed in ASCE/SEI 7-16.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ASCE/SEI 7 [4.1] while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.33. ***3104F.5.4.1.2 Linear modal demand procedure.*** *The linear modal demand procedure (Section 3104F.2.3.3) may always be used and shall be used to estimate seismic forces when the Simplified Procedure (Section 3104F.5.4.1.1) is not permitted. The MOT structure and nonstructural components and/or nonbuilding structures shall be modeled explicitly. The seismic forces obtained from the linear modal demand procedure shall be adjusted for appropriate importance factors and response modification factors as specified in Table 31F-4-4 and Table 31F-4-5.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.4.1.2 Linear modal demand procedure* introduces another procedure for computing seismic loads for nonstructural components and nonbuilding structures permanently attached to MOT structures. This method is always permitted to be used and is required to be used when the proposed *Section 3104F.5.4.1.1 Simplified Procedure* is not permitted. This procedure is similar to the modal demand procedure of existing Section 3104F.2.3.3 for the MOT structure, but explicitly includes modeling of nonstructural component and nonbuilding structure.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The proposed amendments are consistent with the existing industry practice with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

The alternative considered by Commission staff is presented in *Section 3104F.5.4.1.1 Simplified Procedure*, if applicable.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.34. ***3104F.5.4 Nonstructural components and nonbuilding structures permanently attached to the ground.*** *The seismic load shall be computed using the procedures in ASCE/SEI 7 [4.1], except that Level 2 design earthquake motion parameters defined in Section 3103F.4 shall be used in lieu of those specified in ASCE/SEI 7 [4.1].*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.4 Nonstructural components and nonbuilding structures permanently attached to the ground* is based on existing *Section 3104F.5 Nonstructural components*, as modified and expanded for clarity. The section provides a procedure to compute seismic loads on nonstructural components and nonbuilding structures on ground (not MOT), based on ASCE/SEI 7-16 with modification for the MOT application. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 7 [4.1] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.35. ***3104F.5.5 Building structures.*** *For buildings permanently attached to MOT structure, Section 3104F.5.4.1 shall be used to compute seismic loads. Computation of seismic effects shall consider:*

1. *Amplification of acceleration from ground to location of attachment of the building to the deck due to flexibility of the MOT structure, and*

2. *Amplification of acceleration due to flexibility of the building.*

For buildings permanently attached to the ground, seismic loads shall be computed using the procedures in ASCE/SEI 7 [4.1], as amended by the local enforcing agency requirements, subject to Division approval.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3104F.5 is reorganized and expanded significantly (including the addition of multiple subsections) to explicitly address seismic provisions for nonstructural components, nonbuilding structures and building structures. The proposed amendments incorporate up-to-date technical standards, and provide greater clarity, specificity and continuity.

The proposed *Section 3104F.5.5 Building structures* is based on existing *Section 3104F.5 Nonstructural components*, as modified and expanded for clarity. The section provides a procedure to compute seismic loads on building structures on ground or MOT structure, based on ASCE/SEI 7-16 with modification for the MOT application. And since building structures typically require building permits, reference is added to acknowledge local enforcing agency requirements.

During review of nonstructural components, nonbuilding structures and building structures evaluations, Division staff have also observed numerous instances where the engineer-of-record fails to account for amplification of seismic accelerations related to the mounted location and/or flexibility of the components or structures. Therefore, language is added to emphasize the importance of seismic amplification.

These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 7 [4.1] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the ASCE/SEI 7 procedures for seismic assessment. The proposed amendments are consistent with the ASCE/SEI 7 procedures with appropriate modifications for MOT application and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to perform a seismic analysis of a nonstructural component or nonbuilding structure utilizing the proposed procedure is equivalent to the existing procedure.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.36. ***3104F.6~~7~~ Symbols.***

~~a_0~~	=	*Site class factor*
a_p	=	*Amplification factor for nonstructural component or nonbuilding structure*
A_x	=	*Torsional amplification factor*
…		
e	=	…
$F_{d,i}$	=	*Force at step i of iteration*
$F_{d,j}$	=	*Force at step j of iteration*
F_p	=	*Horizontal seismic force on nonstructural component, nonbuilding structure or building structure supported on MOT*
~~F_u~~	~~=~~	~~*Required strength at maximum response*~~
F_v	=	*Vertical seismic force on nonstructural component, nonbuilding structure or building structure supported on MOT*
…		
H	=	…
I_p	=	*Importance factor for nonstructural component or nonbuilding structure*
k_e	=	…
~~k_{eff}~~	~~=~~	~~*Effective secant lateral stiffness*~~
$k_{eff,i}$	=	*Effective secant lateral stiffness at step i of iteration*
$k_{eff,j}$	=	*Effective secant lateral stiffness at step j of iteration*
…		
~~r~~	~~=~~	~~*Ratio of second slope over elastic slope*~~
R_p	=	*Response modification factor for nonstructural component or nonbuilding structure*

S_A	=	…
~~S_D~~	~~=~~	~~*Displacement response spectrum at T*~~
S_{SX}	=	*Spectral acceleration in Section 3103F.4.2.4 or Section 3103F.4.2.5, at 0.2 seconds*
…		
~~T_d~~	~~=~~	~~*Effective structural period*~~
T_e	=	…
$T_{eff,i}$	=	*Effective structural period at step i of iteration*
T_p	=	*Period of flexible nonstructural component or nonbuilding structure*
T_0	=	*Period at peak of the acceleration response spectrum*
…		
W	=	…
W_p	=	*Weight of the nonstructural component or nonbuilding structure*
...		
Δ_d	=	*Target displacement demand*
$\Delta_{d,i}$	=	*Target displacement demand at step i of iteration*
$\Delta_{d,j}$	=	*Target displacement demand at step j of iteration*
...		
~~μ_A~~	~~=~~	~~*Ductility level*~~
$\mu_{\Delta,i}$	=	*Initial ductility level*
...		
~~ξ_{eff} or ξ~~	~~=~~	~~*Effective structural damping*~~
$\xi_{eff,i}$	=	*Effective structural damping at step i of iteration*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is modified to summarize all symbols utilized in Section 3104F for ease of reference and consistency. These symbols and definitions are consistent with those presented in Section 3104F. Editorial corrects are also implemented. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

4.37. ***3104F.7 References.***

[4.1] American Society of Civil Engineers (ASCE), 2016 ~~2010~~, ASCE/SEI 7-16 ~~0~~ (ASCE/SEI 7), "Minimum Design Loads and Associated Criteria for Buildings and Other Structures," Reston, VA.

[4.2] American Society of Civil Engineers (ASCE), 2014, ASCE/COPRI 61-14 (ASCE/COPRI 61), "Seismic Design of Piers and Wharves," Reston, VA.

[4.3] American Society of Civil Engineers (ASCE), 2017 ~~2014~~, ASCE/SEI 41-17 ~~3~~ (ASCE/SEI

41), "Seismic Evaluation and Retrofit of Existing Buildings," Reston, VA.

[4.4] Federal Emergency Management Agency (FEMA), June 2005, FEMA 440, "Improvement of Nonlinear Static Seismic Analysis Procedures," Redwood City, CA.

[4.54] Priestley, M.J.N., Seible, F., Calvi, G.M., 1996, "Seismic Design and Retrofit of Bridges," John Wiley & Sons, Inc., New York.

[4.65] Kowalsky, M.J., Priestley, M.J.N, MacRae, G.A., 1994, "Displacement-Based Design – A Methodology for Seismic Design Applied to Single Degree of Freedom Reinforced Concrete Structures," Report No. SSRP – 94/16, University of California, San Diego.

~~*[4.6] Federal Emergency Management Agency (FEMA), June 2005, FEMA 440, "Improvement of Nonlinear Static Seismic Analysis Procedures," Redwood City, CA.*~~

[4.7] Ferritto, J., Dickenson, S., Priestley N., Werner, S., Taylor, C., Burke, D., Seelig, W., and Kelly, S., 1999, "Seismic Criteria for California Marine Oil Terminals," Vol.1 and Vol.2, Technical Report TR-2103-SHR, Naval Facilities Engineering Service Center, Port Hueneme, CA.

[4.8] CalARP Program Seismic Guidance Committee, December 2013, "Guidance for California Accidental Release Prevention (CalARP) Program Seismic Assessments," Sacramento, CA.

[4.9] American Society of Civil Engineers, 2011, "Guidelines for Seismic Evaluation and Design of Petrochemical Facilities," 2nd ed., New York.

[4.10] Goel, R. K., 2017, "Estimating Seismic Forces in Ancillary Components and Nonbuilding Structures Supported on Piers, Wharves, and Marine Oil Terminals," Earthquake Spectra, https://doi.org/10.1193/041017EQS068M.

Authority: Sections 8750 through 8760, Public Resources Code.

Reference: Sections 8750, 8751, 8755 and 8757, Public Resources Code.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

References ASCE/SEI 41 *[4.1]* and ASCE/SEI 7 *[4.3]* are updated to the latest editions available. The new ASCE Guidelines reference *[4.9]* and Goel reference *[4.10]* are added since they are utilized in the proposed *Section 3104F.5.2 Seismic assessment* and *Section 3104F.5.4.1.1 Simplified Procedure* (respectively), to provide additional resources for consultation. The existing FEMA 440 reference *[4.6]* is relocated to reference *[4.4]*, so that references are presented in the order of citation in Section 3104F, and resulting in renumbering of the subsequent two references. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The Commission staff relied on ASCE/SEI 41 [4.1], ASCE/SEI 7 [4.3], ASCE Guidelines [4.9] and Goel [4.10] to revise this section of this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 5
SECTION 3105F
MOORING AND BERTHING ANALYSIS AND DESIGN

5.1. ***3105F.1.3 Mooring/berthing requirements.*** *Multiple berth MOTs shall use the same environmental input conditions for each berth unless it can be demonstrated that there are significant differences.*

MOTs shall have the following equipment in operation:

1. *An anemometer (N/E).*
2. *A current meter in high velocity current (>1.5 knots) areas (N/E).*
3. *Remote reading tension load devices in high velocity current (>1.5 knots) areas and/or with passing vessel effects for new MOTs.*
4. *Mooring hardware in accordance with Section 3105F.8 ~~3103F.10~~ (N/E).*

Berthing systems shall be in accordance with Section 3105F.4 (N/E).

Monitoring systems and instrumentation shall be implemented considering the parameters in Section 3102F.3.6.1, and shall be installed, maintained and calibrated in accordance with Section 3111F.9.3.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3103F.5.1.3 is modified for clarity. In the 1st sentence, the terminology *"environmental input"* is added to clarify the conditions. The existing Section 3103F.10 cross-reference is updated to Section 3105F.8 (*Section 3105F.8 Mooring hardware (N/E)* in the proposed 2019 CBC), based on consolidation of mooring and berthing provisions in Section 3105F. The last paragraph is added to provide cross-references to regulations regarding monitoring systems and instrumentation in Sections 3102F.3.6.1 and 3111F.9.3. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.2. ***3105F.1.4 New MOTs.*** *… Quick release hooks shall be sized in accordance with Section* *3105F.8* ~~*3103F.10*~~*. …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing cross-reference is updated to reflect relocation of existing *Section 3103F.10 Mooring hardware (N/E)* to the proposed *Section 3105F.8 Mooring hardware (N/E)*. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.3. ***3105F.1.5 Analysis and design of mooring components.*** *… Structural characteristics of the MOT, including type and configuration of mooring fittings such as bollards, bitts, hooks and capstans and material properties and condition, shall be determined in accordance with Sections 3107F.7 ~~3107F.4~~ and 3105F.8 ~~3103F.10~~.*

The analysis and design of mooring components shall be based on the loading combinations and safety factors defined in Sections 3103F.8, 3105F.7 and 3105F.8 ~~through 3103F.10~~, and in accordance with ACI 318 [5.1], AISC 325 [5.2] and ANSI/ AWC NDS [5.3], as applicable.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing cross-references are updated to reflect relocation of existing Sections 3103F.9 thru 3103F.10 to the proposed Sections 3105F.7 thru 3103F.8, for consolidation of mooring and berthing provisions in Section 3105F. The existing Section 3107F.4 cross-reference is corrected to the appropriate proposed *Section 3107F.7 Supports and attachments (or anchorage)* cross-reference. While requiring no mark-ups, the AISC 325 [5.2] and ANSI/AWC NDS [5.3] references are updated to the latest editions. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.4. ***3105F.2 Mooring analyses.*** *A mooring analysis shall be performed for each berthing system, to justify the safe berthing of the various ~~deadweight capacities of~~ vessels ~~expected~~ at the MOT. Review of vessels calling at the MOT shall be performed to identify representative vessel size ranges and mooring configurations. Vessels analyzed shall be representative of the upper bound of each vessel size range defined. The Terminal Operating Limits (TOLs) shall be generated based on the mooring analyses (see Section 3102F.3.6.1 and Figure 31F-2-1).*

The forces acting on a moored vessel shall be determined in accordance with Section 3103F.5. Mooring line and breasting load combinations shall be in accordance with Section 3103F.8.

Two procedures, manual and numerical, are available for performing mooring analyses. These procedures shall conform to either the OCIMF (MEG 3) [5.4] or UFC 4-159-03 [5.5]. The manual procedure (Section 3105F.2.1) may be used for barges. In order to simplify the analysis for barges (or other small vessels), they may be considered to be solid free-standing walls (Chapter 29 of ASCE/SEI 7 [5.6]). This will eliminate the need to perform a computer assisted mooring analysis.

A new mooring assessment shall be performed when conditions change, such as any modification in the mooring configuration, vessel size or new information indicating greater wind, current or other environmental loads.

~~In general, vessels shall remain in contact with the breasting or fendering system. Vessel motion (sway) of up to 2 feet off the breasting structure may be allowed under the most severe environmental loads, unless greater movement can be justified by an appropriate mooring analysis that accounts for potential dynamic effects. The allowable movement shall be consistent with mooring analysis results, indicating that forces in the mooring lines and their supports are within the allowable safety factors. Also, a check shall be made as to whether the movement is within the limitations of the cargo transfer equipment.~~

The most severe combination of the environmental loads and limiting conditions shall be justified based on site-specific evaluation, and considered in the mooring analyses ~~has to be identified for each mooring component~~. At a minimum, the following ~~conditions~~ shall be considered and

documented:

1. *Two current directions (maximum ebb and flood; See Section 3103F.5.3)*

2. *Two tide levels (highest high and lowest low)*

3. *Two vessel loading conditions (ballast and maximum draft at the terminal)*

4. *Eight wind directions (45 degree increments)*

5. *Vessel motion limits (as applicable)* ~~*The maximum allowable extension limits of the loading arms and/or hoses.*~~

6. *Fender properties* ~~*The maximum allowable compression/deflection of the fender system.*~~

7. *Mooring hardware capacities*

8. *Minimum mooring line properties (such as MBL of the weakest line permitted for vessel size range)*

9. *Passing vessel forces*

In general, vessels shall remain in contact with the breasting or fendering system. Vessel motion (sway) of up to 2 feet off the breasting structure may be allowed under the most severe environmental loads, unless greater movement can be justified by an appropriate mooring analysis that accounts for potential dynamic effects. The allowable movement shall be consistent with mooring analysis results, indicating that forces in the mooring lines and their supports are within the allowable safety factors. Also, a check shall be made as to whether the movement is within the limitations of the cargo transfer equipment.

The mooring analyses outputs define the wind load and other limitations.

Upon completion of the mooring analyses, the following shall be checked, as applicable:

1. *The fender system compression/deflection performance.*

2. *Anchorage capacity of each mooring hardware component.*

3. *Capacity of supporting structure(s) exceed each mooring line demand.*

4. *Maximum allowable capacities for mooring lines.*

5. *Vessel motion does not exceed the maximum allowable extension limits of the loading arms and/or hoses.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3105F.2 is modified and expanded for clarity, consistency and accuracy purposes, to better articulate the entire mooring analyses process from the development of input parameters through summary of the analyses output in Terminal Operating Limits (TOLs) and follow-up capacity and performance checks. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

1st & 2nd paragraphs: The existing 1st paragraph is split into separate paragraphs. In the 1st paragraph, language is added to added to emphasize to the engineer-of-record the importance of establishing

operationally practicable mooring analyses input parameters based on review of actual MOT operations. The terminologies *"representative vessel size ranges"* and *"mooring configurations"* are added to articulate that each TOL diagram represents a range of vessel sizes and mooring configurations (i.e., port vs. starboard side, mooring line arrangements). The last sentence is added to clarify the connectivity between mooring analyses and TOLs.

3rd paragraph: The sentence added to the 3rd paragraph is relocated directly from existing Section 3103F.5.2.1.2. This includes the addition of the updated ASCE/SEI 7 [5.6] reference.

5th & 7th paragraphs: The 5th paragraph is relocated to the 7th paragraph of this section, except for the last sentence which is removed since it is superfluous.

6th paragraph: This paragraph and bulletized list is modified and expanded to clarify parameters that shall be considered and documented in mooring analyses. These parameters are consistent with industry practice and the existing regulations.

8th paragraph: This paragraph is added to emphasis that the mooring analyses outputs define the wind load and other limitations.

9th paragraph: This paragraph and bulletized list are added to emphasize the importance of follow-up capacity and performance checks upon completion of mooring analyses.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 7 [5.6] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The proposed amendments are consistent with the existing regulations and industry standard and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating resolution of inconsistencies, more consistent mooring analyses, and effective operational monitoring and enforcement of TOLs, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.5. ***3105F.3.2 Passing vessels.*** *…*

…The guidelines established in ~~the Department of Defense, UFC 4-150-06,~~ Figure 5-17 of UFC 4-150-06 [5.7]~~[5.6]~~ for interior channels may be used. The "vertical bank" in Figure 5-17 of UFC 4-150-06 [5.7]~~[5.6]~~ shall be replaced by the side of the moored vessel when establishing the distance, "L."

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-150-06 reference is renumbered. Editorial modifications are made for consistency and brevity. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.6. ***3105F.3.3 Seiche.*** *…*

…Seiche typically has wave periods ranging from 20 seconds up to several hours, with wave heights in the range of 0.1 to 0.4 ft [5.7]~~[5.6]~~.

…

1. *… Use Chapter 2 of UFC 4-150-06 [5.7]~~[5.6]~~ to calculate the wave period and length for different modes. …*

2. *…*

3. *… Methods outlined in a paper by F.A. Kilner [5.8]~~[5.7]~~ can be used to calculate the vessel motion.*

4. *…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-150-06 and F.A. Kilner references are renumbered. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.7. ***3105F.4 Berthing analysis and design.*** *The analysis and design of berthing components shall be based on the loading combinations and safety factors defined in Sections 3103F.8 and* *3105F.7* ~~*3103F.9*~~*, and in accordance with ACI 318 [5.1], AISC 325 [5.2], and ANSI/AWC NDS [5.3], as applicable.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3103F.9 cross-reference is updated to Sections 3105F.7, to reflect relocation of the section for consolidation of mooring and berthing provisions in Section 3105F. While requiring no mark-ups, the AISC 325 [5.2] and ANSI/AWC NDS [5.3] references are updated to the latest editions. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.8. ***3105F.4.5 Design and selection of new fender systems.*** *For guidelines on new fender designs, refer to UFC 4-152-01 [5.9]~~[5.8]~~ and PIANC [5.10]~~[5.9]~~. Velocity and temperature factors, contact*

angle effects and manufacturing tolerances shall be considered (see Appendices A and B of PIANC [5.10]~~[5.9]~~). Also, see Section 3103F.6.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 4-152-01 and PIANC references are renumbered. The UFC 4-152-01 reference is also updated to the latest edition. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-152-01 [5.9] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.9. ***3105F.6 Offshore moorings.*** *Offshore MOT moorings shall be designed and analyzed considering the site water depth, metocean environment and class of vessels calling per OCIMF MEG3 [5.4] or UFC 4-159-03 [5.5] ~~UFC 4-152-01 [5.8].~~*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing UFC 4-152-01 [5.8] appears to be erroneous, and is corrected to UFC 4-159-03 [5.5], to be consistent with the references cited in the existing offshore mooring subsections, Sections 3105F.6.1 and 3105F.6.2. The UFC 4-159-03 [5.5] reference is also updated to the latest edition. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-159-03 [5.5] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.10. ***3105F.6.2 Design of mooring components.*** *Design of mooring components shall be based on loading combinations and safety factors defined in Sections 3103F.8, 3105F.7 and 3105F.8 ~~through 3103F.10~~ and follow the guidelines provided in either the OCIMF MEG3 [5.4] or UFC 4-159-03 [5.5].*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing cross-references are updated to reflect relocation of existing Sections 3103F.9 thru 3103F.10 to the proposed Sections 3105F.7 thru 3103F.8, for consolidation of mooring and berthing provisions in Section 3105F. While requiring no mark-ups, the UFC 4-159-03 *[5.5]* reference is also updated to the latest edition. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 4-159-03 [5.5] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.11. ***3105F.7 Safety factors for mooring lines.*** *Safety factors for different material types of mooring lines are given in Table 31F-5-3. The safety factors should be applied to the minimum number of lines specified by the mooring analysis, using the highest loads calculated for the environmental conditions. The minimum breaking load (MBL) of new ropes is obtained from the certificate issued by the manufacturer. If nylon tails are used in combination with steel wire ropes, the safety factor shall be based on the weaker of the two ropes.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The proposed Section 3105F.7 is relocated from existing Section 3103F.9 (*Section 3103F.9 Safety factors for mooring lines* in 2016 CBC) with minor modification, for consolidation of mooring and berthing provisions in Section 3105F. The minor modification is update of the existing Table 31F-3-12 citation (*Table 31F-3-12 SAFETY FACTORS FOR ROPES [3.7]* in 2016 CBC) to the new Table 31F-5-3, due to associated relocation to Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.12. Add Table 31F-5-3:

TABLE 31F-5-3
SAFETY FACTORS FOR ROPES [5.4]

Steel Wire Rope	*1.82*
Polyamide	*2.22*
Other Synthetic	*2.00*
Polyamide Tail for Wire Mooring Lines	*2.50*
Other Synthetic Tail for Wire Mooring Lines	*2.28*
Polyamide Tail for Synthetic Mooring Lines	*2.75*
Other Synthetic Tail for Synthetic Mooring Lines	*2.50*
Joining Shackles	*2.00*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The new Table 31F-5-3 is relocated from existing Table 31F-3-12 (*Table 31F-3-12 SAFETY FACTORS FOR ROPES [3.7]* in 2016 CBC) with minor modification, for consolidation of mooring and berthing provisions in Section 3105F. The minor modification is update of the existing OCIMF MEG3 reference number (reference *[3.7]* in 2016 CBC) to the new OCIMF MEG3 reference number (reference *[5.4]*). Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.13. ***3105F.8 Mooring hardware (N/E).*** *Mooring hardware shall include but not be limited to bollards, quick release hooks, other mooring fittings and base bolts. All mooring hardware shall be clearly marked with their safe working loads (or allowable working loads) [5.4]. The certificate issued by the manufacturer normally defines the safe working loads of this hardware.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The proposed Section 3105F.8 is relocated from existing Section 3103F.10 (*Section 3103F.10 Mooring hardware (N/E)* in 2016 CBC) with minor modification, for consolidation of mooring and berthing provisions in Section 3105F. The minor modification is update of the existing OCIMF MEG3 reference number (reference *[3.7]* in 2016 CBC) to the new OCIMF MEG3 reference number (reference *[5.4]*). Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.14. ***3105F.8.1 Quick release hooks.*** *For new MOTs or berthing systems, a minimum of three quick-release hooks are required for each breasting line location for tankers greater than or equal to 50,000 DWT. At least two hooks at each location shall be provided for breasting lines for tankers less than 50,000 DWT. Remote release may be considered for emergency situations.*

All hooks and supporting structures shall withstand the minimum breaking load (MBL) of the strongest line with a safety factor of 1.2 or greater. Only one mooring line shall be placed on each quick release hook (N/E).

For multiple quick release hooks, the minimum horizontal load for the design of the tie-down shall be:

$$F_d = 1.2 \times MBL \times [1 + 0.75\,(n-1)] \qquad (5\text{-}4)$$

where:

F_d *= Minimum factored demand for assembly tie-down.*

n *= Number of hooks on the assembly.*

The capacity of the supporting structures must be larger than F_d *(See Section 3107F.6).*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The proposed Section 3105F.8.1 is relocated from existing Section 3103F.10.1 (*Section 3103F.10.1 Quick release hooks* in 2016 CBC) with minor modifications, for consolidation of mooring and berthing provisions in Section 3105F. The minor modifications include: (a) update of the existing equation number (*Equation (3-21)* in 2016 CBC) to the new equation number (*Equation (5-4)*), (b) addition of "***where:***" between *Equation (5-4)* and the defined factors for consistency with code format, and (c) update of the existing Section 3107F.5.3 reference to Section 3107F.6, based on reorganization of mooring language in Section 3107F. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.15. ***3105F.8.2 Other fittings.*** *Other fittings include cleats, bitts and bollards.*

If the allowable working loads for existing fittings are not available, the values listed in Table 31F-5-4 may be used for typical sizes, bolt patterns and layout. The allowable working loads are defined for mooring line angles up to 60 degrees from the horizontal. The combination of vertical and horizontal loads shall be considered.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The proposed Section 3105F.8.2 is relocated from existing Section 3103F.10.2 (*Section 3103F.10.2 Other fittings* in 2016 CBC) with minor modification, for consolidation of mooring and berthing provisions in Section 3105F. The minor modifications are update of "must" to "shall" and of the existing Table 31F-3-13 citation (*Table 31F-3-13 ALLOWABLE WORKING LOADS* in 2016 CBC) to the new Table 31F-5-4, due to associated relocation to Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.16. Add new Table 31F-5-4:

TABLE 31F-5-4
ALLOWABLE WORKING LOADS

TYPE OF FITTINGS	***NO. OF BOLTS***	***BOLT SIZE (in)***	***WORKING LOAD (kips)***
30 in. Cleat	*4*	*1 1/8*	*20*
42 in. Cleat	*6*	*1 1/8*	*40*
Low Bitt	*10*	*1 5/8*	*60 per column*
High Bitt	*10*	*1 ¾*	*75 per column*
44 ½ in. Fit. Bollard	*4*	*1 ¾*	*70*
44 ½ in. Fit. Bollard	*8*	*2 ¼*	*200*
48 in. Fit. Bollard	*12*	*2 ¾*	*450*

Note: This table is modified from Table 6-11 of UFC 4-159-03 [5.5]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The new Table 31F-5-4 is relocated from existing Table 31F-3-13 (*Table 31F-3-13 ALLOWABLE WORKING LOADS* in 2016 CBC) with minor modifications, for consolidation of mooring and berthing provisions in Section 3105F. The minor modifications are update of the existing UFC 4-159-03 reference number and edition (reference *[3.10]* dated "1 September 2012" in 2016 CBC) to the new UFC 4-159-03 reference (reference *[5.5]* dated "23 June 2016"). Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.17. ***3105F.8.3 Base bolts.*** *Base bolts are subjected to both shear and uplift. Forces on bolts shall be determined using the following factors:*

1. Height of load application on bitts or bollards.

2. Actual vertical angles of mooring lines for the highest and lowest tide and vessel draft conditions, for all sizes of vessels at each particular berth.

3. Actual horizontal angles from the mooring line configurations, for all vessel sizes and positions at each particular berth.

4. Simultaneous loads from more than one vessel.

For existing MOTs, the deteriorated condition of the base bolts and supporting members shall be considered in determining the capacity of the fitting.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The proposed Section 3105F.8.3 is relocated from existing Section 3103F.10.3 (*Section 3103F.10.3 Base bolts* in 2016 CBC) without modification, for consolidation of mooring and berthing provisions in Section 3105F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.18. ***3105F.9~~7~~ Symbols.***

…

F = *…*

F_d = *Minimum factored demand for assembly tie-down*

L = *…*

MBL = *Minimum breaking load*

n = *Number of hooks on the assembly*

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered due to the relocation of existing Sections 3103F.9 thru 3103F.10.3 to proposed Sections 3105F.7 thru 3105F.8.3, for consolidation of mooring and berthing provisions in Section 3105F. The symbols "F_d", "*MBL*" and "*n*" are added to this list of symbols, consistent with their usage in *Equation (5-4)* in the proposed *Section 3105F.8.1*. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

5.19. ***3105F.10~~8~~ References.***

...

[5.2] American Institute of Steel Construction, Inc. (AISC), 2017 ~~2011~~, AISC 325-17~~11~~ (AISC 325), "Steel Construction Manual," 15th ~~14th~~ ed., Chicago, IL.

[5.3] American Wood Council (AWC), 2017 ~~2014~~, ANSI/AWC NDS-2018~~15~~ (ANSI/AWC NDS), "National Design Specification (NDS) for Wood Construction," Washington, D.C.

…

[5.5] Department of Defense, 3 October 2005 (Change 2, 23 June 2016) ~~(Revised 1 September 2012)~~, Unified Facilities Criteria (UFC) 4-159-03, "Design: Moorings," Washington, D.C.

[5.6] American Society of Civil Engineers (ASCE), 2016, ASCE/SEI 7-16 (ASCE/SEI 7), "Minimum Design Loads and Associated Criteria for Buildings and Other Structures," Reston, VA.

[5.7~~6~~] Department of Defense, 12 December 2001 (Change 1, ~~Revised~~ 19 October 2010), Unified Facilities Criteria (UFC) 4-150-06, "Military Harbors and Coastal Facilities" Washington D.C.

[5.8~~7~~] ...

[5.9~~8~~] Department of Defense, 24 January 2017 ~~28 July 2005 (Revised 1 September 2012)~~, Unified Facilities Criteria (UFC) 4-152-01, "Design: Piers and Wharves," Washington, D.C.

[5.10~~9~~] …

Authority: Sections 8750 through 8760, Public Resources Code.

Reference: Sections 8750, 8751, 8755 and 8757, Public Resources Code.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered due to the relocation of existing Sections 3103F.9 thru 3103F.10.3 to proposed Sections 3105F.7 thru 3105F.8.3, for consolidation of mooring and berthing provisions in Section 3105F. The AISC 325 [5.2], ANSI/AWC NDS [5.3], UFC 4-159-03 [5.5] and UFC 4-152-01 [5.9] references are updated to the latest editions available. The ASCE/SEI 7 [5.6] is added since it is referenced in language transferred from the existing Section 3103F.5.2.1.2 to proposed Section 3105F.2, and subsequent references are renumbered. Editorial error in reference UFC 4-150-06 [5.6] is corrected. These changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on AISC 325 [5.2], ANSI/AWC NDS [5.3], UFC 4-159-03 [5.5], ASCE/SEI 7 [5.6] and UFC 4-152-01 [5.9] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 6
SECTION 3106F
GEOTECHNICAL HAZARDS AND FOUNDATIONS

6.1. ***3106F.10.2 Kinematic loading from lateral spreading.*** *Kinematic pile loading from permanent lateral spread ground deformation in deep seated levels of slope/embankment/dike foundation soils shall be evaluated. The lateral deformations shall be restricted such that the structural performance of foundation piles is not compromised.*

The lateral deformation of the embankment or dike and associated piles and foundation soils shall be determined using analytical methods as follows:

1. *…*
2. *For the pushover analysis, the estimated displacements may be uniformly distributed within the thickness of the weak soil layer (i.e., zero at and below the bottom of the layer to the maximum value at and above the top of the weak layer)~~, or as appropriate~~. The thickness of the weak soil layer shall not be more than five times the pile diameter or 10 feet, whichever is smaller.*
3. *...*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
MOT operators and consulting engineers have requested clarity regarding the following statement in item #2: *"zero at and below the bottom of the layer to the maximum value at and above the top of the weak layer".* The concern expressed was that a linear distribution of the kinematic motions over the full height of the soil layer may be overly generous. Therefore, additional language is proposed to replace the existing "*or as appropriate*" language to provide the requested clarity based on current state of the knowledge in kinematic loading.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 7
SECTION 3107F
STRUCTURAL ANALYSIS AND DESIGN OF COMPONENTS

7.1. ***3107F.1.1 Purpose.*** *This section establishes the minimum performance standards for structural and nonstructural components. Evaluation procedures for seismic performance, strength and deformation characteristics of concrete, steel and timber components are prescribed herein. Analytical procedures for seismic assessment ~~structural systems~~ are presented in Section 3104F.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3107F.1.1 is modified to define a purpose consistent with the proposed nonstructural components, nonbuilding structures and building structures requirements, including: (a) proposed Section 3104F.5 for seismic assessment, (b) proposed Section 3107F.5 for consolidated structural analysis requirements, and (c) proposed Section 3107F.7 for consolidated supports and attachments (or anchorage) requirements. The terminology *"nonstructural"* is added since Section 3107F.7 is applicable to all supports and attachments. The terminology *"structural systems"* is revised to *"seismic assessment"* since Section 3104F applies to seismic assessment of components and structures. These changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.2. ***3107F.1.2 Applicability.*** *This section addresses MOT~~s~~ structures constructed using the following structural components:*

1. *Reinforced concrete decks supported by batter and/or vertical concrete piles*
2. *Reinforced concrete decks supported by batter and/or vertical steel piles, including pipe piles filled with concrete*
3. *Reinforced concrete decks supported by batter and/or vertical timber piles*
4. *Timber decks supported by batter or vertical timber, concrete or steel pipe piles*
5. *Retaining structures constructed of steel, concrete sheet piles or reinforced concrete*

Additionally, this section addresses structural and nonstructural components, nonbuilding structures and building structures comprised of steel, concrete or timber.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3107F.1.2 is modified to define applicability consistent with the proposed nonstructural components, nonbuilding structures and building structures requirements, including: (a) proposed Section 3104F.5 for seismic assessment, (b) proposed Section 3107F.5 for consolidated structural analysis requirements, and (c) proposed Section 3107F.7 for consolidated supports and attachments (or anchorage) requirements. The terminology *"MOT structures"* is added to the 1st paragraph for clarity, and a 2nd paragraph is added to generally address other components and structures. These changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

This change is non-substantive and has no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.3. ***3107F.2.1 Component strength.*** … [Correct indentation of paragraph beginning with *"In addition…"*]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Update of the indentation of the paragraph beginning with *"In addition…"* is an editorial correction for consistency. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.4. ***3107F.2.1.1 Material properties.*** *…*

Based on a historical review of the building materials used in the twentieth century, guidelines for tensile and yield properties of concrete reinforcing bars and the compressive strength of structural concrete have been established (see Tables 10-2 to 10-4 of ASCE/SEI 41 [7.3]) ~~(see Tables 6-1 to 6-3 of FEMA 356 [7.3]~~. … The values in Tables 31F-7-1 and 31F-7-2, are adjusted according to ~~e~~Equations (7-1) through (7-3).

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing FEMA 356 reference is removed since it is outdated and replaced with the new ASCE/SEI 41 [7.3] reference. Minor editorial errors are also corrected. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 41 [7.3] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.5. ***3107F.2.1.2 Knowledge factor (k).*** *…*

The knowledge factor, k, is 1.0 when comprehensive knowledge as specified above is utilized. Otherwise, the knowledge factor shall be 0.75 (see Section 5.2.6 of ASCE/SEI 41 [7.3]) ~~(see Table 2-1 of FEMA 356 [7.3])~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing FEMA 356 reference is removed since it is outdated and replaced with the new ASCE/SEI 41 [7.3] reference. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 41 [7.3] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.6. ***3107F.2.2 Component stiffness.*** *…However, in lieu of using nonlinear methods to establish the stiffness and moment curvature relation of structural components, the equations of Table 31F-7-3 may be used to approximate the effective elastic stiffness, EI_e, for lateral analyses (see Section 3107F.8~~5~~ for definition of symbols).*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3107F.5 cross-reference is corrected to reference the revised *Section 3107F.8 Symbols*. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

☐ No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

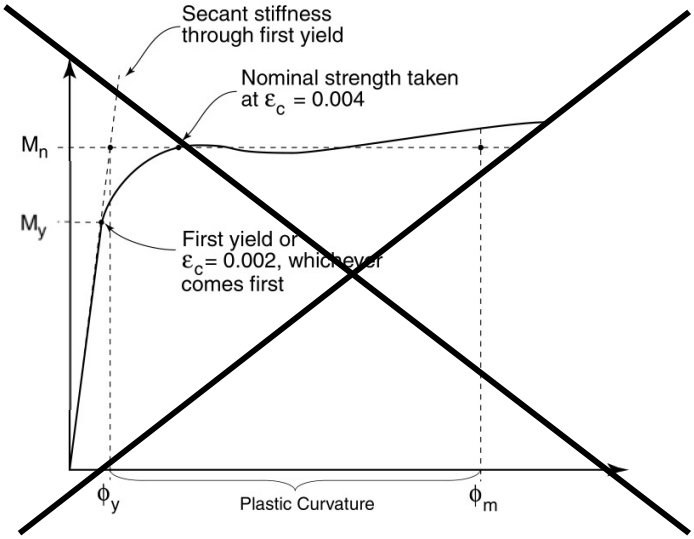
ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.7. Remove entirely:



~~FIGURE 31F-7-4~~
~~METHOD A – MOMENT CURVATURE ANALYSIS~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Figure 31F-7-4 is removed and replaced with an identical figure, except for the update of "M_n" with "M_p". This update in symbolism ensures consistent use of the "M_p" factor for idealized plastic moment capacity in both Methods A and B in Section 3107F. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.8. Add new Figure 31F-7-4:

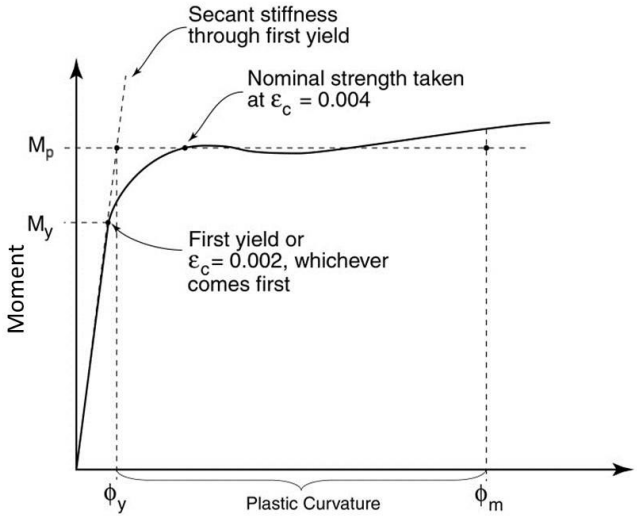


FIGURE 31F-7-4
METHOD A – MOMENT CURVATURE ANALYSIS

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Figure 31F-7-4 is removed and replaced with an identical figure, except for the update of "M_n" with "M_p". This update in symbolism ensures consistent use of the "M_p" factor for idealized plastic moment capacity in both Methods A and B in Section 3107F. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.9. ***3107F.2.5.6 Component acceptance/damage criteria.*** *…The ~~following~~ limiting values (Table 31F-7-5) apply for each performance level for both existing and new structures…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The terminology "*following*" is removed since it is superfluous and potentially misleading. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.10. ***3107F.2.7.1 Joint shear capacity.*** *…*

…

$$\nu_j = \frac{0.9\, M_o}{\sqrt{2}\, l_{dv}\, D_p^2} \qquad \text{(7-23)}$$

~~$$\nu_j = \frac{0.9\, M_p}{\sqrt{2}\, l_{dv}\, D_p^2} \qquad \text{(7-23)}$$~~

where:

…

M_o ~~M_p~~ = Overstrength ~~Over strength~~ moment demand of the plastic hinge (the maximum possible moment in the pile) as determined from the procedure of Section 3107F.2.5.7

…

… Note, if the pile is subjected to axial tension under seismic load, the value of N, and f_a ~~fa~~ will be negative.

…

$$M_c = \left(\frac{1}{0.9}\right) \sqrt{2}\, \nu_j\, l_{dv}\, D_p^2 \le M_o \qquad \text{(7-27)}$$

~~$$M_c = \left(\frac{1}{.90}\right) \sqrt{2}\, \nu_j\, l_{dv}\, D_p^2 \le M_p \qquad \text{(7-27)}$$~~

…

$$M_{c,r} = 2A_s f_y (h_d - d_c) + N\left(\frac{D_p}{2} - d_c\right) \qquad \text{(7-28)}$$

where:

…

In addition, the bottom deck steel ($A_{s,\ deckbottom}$) ~~($A_{s,\ deckbottom}$)~~ area within $h_d/2$ of the face of the pile shall satisfy: …

$$\Phi'_y = \frac{\Phi_y M_c}{M_p} \qquad \text{(7-30)}$$

~~$$\Phi'_y = \frac{\Phi_y M_c}{M_n} \qquad \text{(7-30)}$$~~

where:

M_p = Idealized plastic moment capacity from Method A or B (see Figure 31F-7-4 or 31F-7-5, respectively)

~~*M_n is defined in Figure 31F-7-4.*~~

…

where:

L_p = Plastic hinge length as determined from Equation (7-5)

~~*Where L_p is given by Equation (7-5).*~~

…

$$\Phi'_u = \Phi_p + \frac{\Phi_y M_{c,r}}{M_p} \qquad \textit{(7-32)}$$

~~$$\Phi'_u = \Phi_p + \frac{\Phi_y M_{c,r}}{M_n} \qquad \textit{(7-32)}$$~~

where:

M_p = Idealized plastic moment capacity from Method A or B (see Figure 31F-7-4 or 31F-7-5, respectively)

~~*Note that*~~ *$M_{c,r}$ = 0, unless deck stirrups are present as discussed above. Examples of adjusted moment curvature relationships are shown in Figure 31F-7-13.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3107F.2.7.1 is revised for clarity, consistency and accuracy. These changes are non-substantive.

Editorial: Multiple editorial revisions and corrections (i.e., symbol subscripts, addition of *"where:"*, indentations) are implemented for consistency with this code.

Update "M_p" to *"M_o"*: In the existing Section 3107F (in 2016 CBC), the symbol "M_p" has dual meanings for overstrength moment demand of the plastic hinge (Section 3107F.2.7) and idealized plastic moment capacity (Section 3107F.2.5.4.2). Therefore, to eliminate the potential for confusion, the symbolism is updated to *"M_o"* for overstrength moment demand of the plastic hinge in Section 3107F.2.7.1.

Update "M_n" to *"M_p"*: This update in symbolism ensures consistent use of the "M_p" factor for idealized plastic moment capacity in both Methods A and B in Section 3107F. The definition of "M_p" is added for clarity, where existing language erroneously omits reference to Method B for *Equation (7-30)* and *Equation (7-32)*.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.11. ***FIGURE 31F-7-121 JOINT ROTATION***

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing *Figure 31F-7-11* is renumbered *Figure 31F-7-12*. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.12. ***3107F.2.8.1 Existing ordinary batter piles.*** … [Correct indentation of paragraph beginning with *"As an example, …"*]

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Update of the indentation of the paragraph beginning with *"As an example, …"* is an editorial correction for consistency. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.13. ***3107F.2.8.2 Nonordinary batter piles.*** *…*

For fused and seismic release mechanism batter pile systems, a nonlinear modeling procedure shall be used and peer reviewed (Section 3101F.8.2 ~~3108F.8.2~~).

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Update of the existing Section 3108F.8.2 cross-reference to Section 3101F.8.2 is an editorial correction. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.14. ***3107F.3.3.2 Displacement capacity.*** *…For pier-type (long unsupported length) vertical piles, three simplified procedures to determine fixity or displacement capacity are described in UFC 4-151-10 [7.12], UFC 3-220-01~~01A~~ [7.13] and Chai [7.14]. …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing UFC 3-220-01A reference is updated to the latest edition available, UFC 3-220-01. This change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 3-220-01 [7.13] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.15. ***3107F.5 Nonbuilding structures and building structures.*** *The analysis of nonbuilding structures and building structures shall be based on the load combinations defined in Section 3103F.8 with seismic assessment per Section 3104F.5. The component strength in nonbuilding structures and building structures shall be established in accordance with AISC [7.10], ACI-318 [7.7], ANSI/AWC NDS [7.11], accounting for existing condition with knowledge factors applied, as appropriate. For strength evaluation of supports and attachments, see Section 3107F.7.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate.

Therefore, this section is added to specifically address the capacity assessment of nonbuilding structures and building structures for evaluation, design and strengthening purposes. For completeness, the proposed amendments include the addition of AISC [7.10], ACI-318 [7.7] and ANSI/AWC NDS [7.11] references, accounting for existing condition with knowledge factors applied, and cross-references Sections 3103F.8 and 3107F.7. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on AISC [7.10], ACI-318 [7.7] and ANSI/AWC NDS [7.11] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient seismic design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.16. ***3107F.6~~5~~ Mooring and berthing components.*** *Mooring components include bitts, bollards, cleats, pelican hooks, capstans, mooring dolphins and quick release hooks. The maximum mooring line forces (demand) shall be established per Section 3105F. Applicable safety factors to be applied to the demand are provided in Section 3105F.8. Multiple lines may be attached to the mooring component at varying horizontal and vertical angles. Mooring components shall therefore be checked for all mooring analysis load cases.*

Berthing components include fender piles and fenders, which may be camels, fender panels or wales. The maximum berthing forces (demand) on breasting dolphins and fender piles shall be established according to Section 3105F.

Mooring and berthing components analyses shall be based on the load combinations defined in Section 3103F.8 with seismic assessment per Section 3104F.5. The component strength shall account for existing condition with knowledge factors applied, as appropriate. For strength evaluation of supports and attachments, see Section 3107F.7.

Mooring and berthing component capacities may be governed by the strength of the deck, structure and/or soil. Therefore, a check of the deck, structural and geotechnical capacities to withstand component loads shall be performed, as appropriate.

~~*Applicable safety factors to be applied to the demand are provided in Section 3103F.10.*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate.

Therefore, this section is renumbered and amended to specifically address the capacity assessment of mooring and berthing components only, with all general requirements for supports and attachments (or anchorage) of all nonbuilding structures and building structures transferred to proposed *Section 3107F.7 Supports and attachments (or anchorage)*. This includes reorganization so that the mooring and berthing statements are split into separate paragraphs, as well as updated cross reference number therein, where all mooring and berthing standards are relocated from Section 3103F to 3105F.

1st paragraph: The first three sentence in existing Section 3107F.5.2 are relocated directly to this paragraph since they apply to mooring components only, as: *"The maximum mooring line forces (demand) shall be established per Section 3105F…Multiple lines may be attached to the mooring component at varying horizontal and vertical angles. Mooring components shall therefore be checked for all mooring analysis load cases."* The last sentence is relocated from the 5th paragraph in this section, with the cross-reference number updated as necessary.

2nd paragraph: The last sentence in existing Section 3107F.5.2 is relocated and updated for clarity to this paragraph.

3rd paragraph: This paragraph is added to provide cross-references to Sections 3103F.8, 3104F.5 and 3107F.7 and accounting for existing condition with knowledge factors applied.

4th paragraph: The last two sentences in existing Section 3107F.5.3 are relocated to create this paragraph and expanded to apply to mooring and berthing components.

5th paragraph: This sentence is relocated to the 1st paragraph in this section.

These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient mooring and berthing component design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.17. ***3107F.7~~5.1~~ Supports and attachments (or anchorage) ~~Component strength~~.*** *The evaluation of supports and attachments for nonstructural components, nonbuilding structures and building structures shall be based on the load combinations defined in Section 3103F.8 with seismic assessment per Section 3104F.5. The strength of supports and attachments for nonstructural components, nonbuilding structures and building structures shall be assessed in accordance with AISC [7.10], ACI-318 [7.7], ANSI/AWC NDS [7.11], accounting for existing condition with knowledge factors applied, as appropriate. The following parameters shall be established ~~in order~~ to calculate ~~component~~ strength:*

New and existing components:

1. *Yield and tensile strength of structural steel*

2. *Structural steel modulus of elasticity*

3. *Yield and tensile strength of bolts*

4. *Concrete infill compressive strength*

5. *Concrete infill modulus of elasticity*

Additional parameters for existing components:

1. *Condition of steel including corrosion*

2. *Effective cross-sectional areas*

3. *Condition of embedment material such as concrete slab or timber deck*

The analysis and design shall include the load transfer to supporting deck/pile structures or foundation elements. A check of the deck capacity to withstand support and attachment loads shall be performed for all nonstructural components, nonbuilding structures and building structures.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate.

Therefore, this section is renumbered, retitled and expanded to explicitly address the capacity assessment of supports and attachments (or anchorage) of all nonbuilding structures and building structures. For completeness, the proposed amendments include the addition of AISC [7.10], ACI-318 [7.7] and ANSI/AWC NDS [7.11] references, accounting for existing condition with knowledge factors applied, and cross-references Sections 3103F.8 and 3107F.7. Editorial revisions are implemented. The last paragraph is relocated from existing Section 3110F.7 as: *"The analysis and design shall include the load transfer to supporting deck/pile structures or foundation elements."* These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on AISC [7.10], ACI-318 [7.7] and ANSI/AWC NDS [7.11] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by facilitating more resilient supports and attachments design and strengthening, which results in reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.18. ~~***3107F.5.2 Mooring and berthing component demand.*** *The maximum mooring line forces (demand) shall be established per Section 3105F. Multiple lines may be attached to the mooring component at varying horizontal and vertical angles. Mooring components shall therefore be checked for all the mooring analysis load cases. The maximum demand on breasting dolphins and fender piles shall be established according to Sections 3103F.6 and 3105F.*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3107F.5.2 language is relocated to the proposed *Section 3107F.6 Mooring and berthing components* in the proposed 2019 CBC, due to reorganization within Section 3107F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:
The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.19. ~~***3107F.5.3 Capacity of mooring and berthing components.*** *The structural and connection capacity of mooring components bolted to the deck shall be established in accordance with AISC [7.10], ACI-318 [7.7], ANSI/AWC NDS [7.11], as appropriate. The mooring component capacity may be governed by the strength of the deck material. Therefore, a check of the deck capacity to withstand mooring component loads shall be performed.~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing Section 3107F.5.3 language is relocated to the proposed *Section 3107F.6 Mooring and berthing components* in the proposed 2019 CBC, due to reorganization within Section 3107F. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.20. ***3107F.~~8~~6 Symbols.***

…

~~M_n = Moment at secant stiffness~~

$\underline{M_o}$ = *Overstrength moment demand of the plastic hinge (Section 3107F.2.7)*

M_p = ~~*Overstrength moment demand of the plastic hinge (Section 3107F.2.7), or i*~~ *Idealized plastic moment capacity from Method A or B (Section 3107F.2.5.4.~~2~~)*

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered due to the reorganization in Section 3107F beginning at existing Sections 3107F.5, for consolidation of supports and attachments (or anchorage) assessment in proposed Section 3107F. The symbol "M_n" is removed and replaced with *"M_p"* for consistent use of and definition of *"M_p"* for idealized plastic moment capacity in both Methods A and B in Section 3107F. The existing dual meaning of symbol "M_p" in Section 3107F is eliminated by the addition of *"M_o"*, for overstrength moment demand of the plastic hinge in Section 3107F.2.7.1. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

☐ No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

7.21. ***3107F.9~~7~~ References.***

…

[7.3] American Society of Civil Engineers (ASCE), 2017, ASCE/SEI 41-17 (ASCE/SEI 41), "Seismic Evaluation and Retrofit of Existing Buildings," Reston, VA.

~~[7.3] Federal Emergency Management Agency, FEMA - 356, Nov. 2000, "Prestandard and Commentary for the Seismic Rehabilitation of Buildings," Washington, D.C.~~

…

[7.10] American Institute of Steel Construction Inc. (AISC), 2017~~2011~~, AISC 325-17~~11~~ (AISC 325), "Steel Construction Manual," 15th~~14~~th ed., Chicago, IL.

[7.11] American Wood Council (AWC), 2017~~2014~~, ANSI/AWC NDS-2018~~15~~ (ANSI/AWC NDS), "National Design Specification (NDS) for Wood Construction," Washington, D.C.

…

[7.13] Department of Defense, 01 November 2012~~16 January 2004~~, Unified Facilities Criteria (UFC) 3-220-01~~A~~, "Geotechnical Engineering,"~~"Deep Foundations,"~~ Washington, D.C.

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered due to the reorganization of existing Sections 3107F.5 thru 3107F.5.3 to proposed Sections 3107F.5 thru 3107F.7. References AISC 325 [7.10], ANSI/AWC NDS [7.11] and UFC 3-220-01 [7.13] are updated to the latest editions available. For reference ASCE/SEI 41 [7.3], the existing FEMA 356 reference is removed since it is outdated and replaced with the new ASCE/SEI 41 reference. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/SEI 41 [7.3], AISC 325 [7.10], ANSI/AWC NDS [7.11] and UFC 3-220-01 [7.13] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 8
SECTION 3108F
FIRE PREVENTION, DETECTION AND SUPPRESSION

8.1.

TABLE 31F-8-2
FIRE HAZARD CLASSIFICATIONS

FIRE HAZARD CLASSIFICATION	***STORED VOLUME (bbls)***			***FLOWING VOLUME (bbls)***		***CRITERIA (bbls)****
	Stripped	***V_{SL}***	***V_{SH}***	***V_{FL}***	***V_{FH}***	
LOW	*y*	*n*	*n*	*y*	*y*	$V_{FL} \geq V_{FH}$, and $V_T \leq 1200$
LOW	*n*	*y*	*n*	*y*	*n*	$V_{SL} + V_{FL} \leq 1200$
MEDIUM	*n*	*n*	*y*	*n*	*y*	$V_{SH} + V_{FH} \leq 1200$
MEDIUM	*y*	*n*	*n*	*y*	*y*	$V_{FH} > V_{FL}$, and $V_T \leq 1200$
HIGH	*y*	*n*	*n*	*y*	*y*	$V_T > 1200$
HIGH	*n*	*y*	*y*	*y*	*y*	$V_T > 1200$
HIGH	*n*	*y*	*n*	*y*	*n*	$V_{SL} + V_{FL} > 1200$
HIGH	*n*	*n*	*y*	*n*	*y*	$V_{SH} + V_{FH} > 1200$

y ≡ yes
n ≡ no
Stripped = product purged from pipeline following product transfer event.
V_{SL} *= stored volume of low volatility product*
V_{SH} *= stored volume of high volatility product*
V_{FL} *= volume of low volatility product flowing through transfer line during ESD.*
V_{FH} *= volume of high volatility product flowing through transfer line during ESD.*
$V_T = V_{SL} + V_{SH} + V_{FL} + V_{FH}$ *= Total Volume (stored and flowing)*
** Quantities are based on maximum flow rate, including simultaneous transfers.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The 1st column title of Table 31F-8-2 is updated from "*CLASS*" to "*FIRE HAZARD CLASSIFICATION*" for consistency with Table 31F-1-1 column labelling, and to clearly distinguish class type (vs. oil spill exposure classification as defined in Table 31F-1-1). Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

8.2.

TABLE 31F-8-3
MINIMUM FIRE SUPPRESSION PROVISIONS PER BERTH (N/E)

FIRE HAZARD CLASSIFICATION (From Table 31F-8-2)	*VESSEL AND CARGO LIQUID VOLATILITY RATING (From Table 31F-8-1)*	*MINIMUM PROVISIONS*
LOW	*Barge with L_C (including drums)*	***500 gpm of water*** *2 x 20 lb portable dry chemical extinguishers or the equivalent.* ~~*and*~~ *2 x 110 lb wheeled dry chemical extinguishers or the equivalent.*
	Barge with H_C (including drums) Tankers < 50 KDWT, handling L_C or H_C	***1,500 gpm of water*** *2 x 20 lb portable dry chemical extinguishers or the equivalent.* ~~*and*~~ *2 x 165 lb wheeled dry chemical extinguishers or the equivalent.*
MEDIUM	*Tankers < 50 KDWT, handling L_C*	***1,500 gpm of water*** *2 x 20 lb portable dry chemical extinguishers or the equivalent.* ~~*and*~~ *2 x 165 lb wheeled dry chemical extinguishers or the equivalent.*
	Tankers < 50 KDWT, handling H_C	***2,000 gpm of water*** *4 x 20 lb portable dry chemical extinguishers or the equivalent.* ~~*and*~~ *2 x 165 lb wheeled dry chemical extinguishers or the equivalent.*
HIGH	*Tankers < 50 KDWT, handling L_C or H_C*	***3,000 gpm of water*** *4 x 20 lb portable dry chemical extinguishers or the equivalent.* ~~*and*~~ *2 x 165 lb wheeled dry chemical extinguishers or the equivalent.*
LOW, MEDIUM, HIGH	*Tankers > 50 KDWT, handling L_C or H_C*	***3,000 gpm of water*** *6 x 20 lb portable dry chemical extinguishers or the equivalent.* ~~*and*~~ *4 x 165 lb wheeled dry chemical extinguishers or the equivalent.*

Notes: L_C and H_C are defined in Table 31F-8-1. KDWT= Dead Weight Tons (Thousands)

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Table 31F-8-3 is modified for clarity and consistency purposes to better articulate the minimum fire suppression provisions of this code. These proposed amendments do not change the intent, purpose or applicability of the existing regulations.

Title: The terminology *"PER BERTH"* is added to the title for clarity. This is consistent with the existing Section 3108F.6, which states in part: *"The minimum provisions [in Table 31F-3-8] may have to be augmented for multi-berth terminals or those conducting simultaneous transfers, in accordance with the risks identified in the Fire Protection Assessment."* Also, see Section 19.5.3.1 of ISGOTT [8.2] for consistent industry standards.

Dry Chemical Extinguishers: Division staff have observed numerous instances where the existing requirements are misinterpreted by summing the combined capacities. Therefore, the portable and wheeled dry chemical extinguisher requirements are separated to clarify that the total capacity of each category (portable and wheeled) must be provided, but unit sizes may vary.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to ISGOTT [8.2] while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

8.3. ***3108F.6.3 Fire water.*** *The source of fire water shall be reliable and provide sufficient rated capacity as determined in the Fire Protection Assessment. Water-based fire protection systems shall be tested and maintained per California NFPA 25 [8.9], as adopted and amended by the State Fire Marshal, or the local enforcing agency requirements. Specifications shall be retained. The latest testing and maintenance records shall be readily accessible to the Division (N/E). …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The terminology "*rated*" is added to clarify the existing intent of this fire water regulatory requirement. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

8.4. ***3108F.7 Fire ~~Critical~~ systems seismic assessment (N/E).*** *Fire detection and protection systems, and emergency shutdown systems shall have a seismic assessment per Section 3104F.5~~6~~. For strength evaluation of supports and attachments, see Section 3107F.7.*

For firewater piping and pipeline systems, see Section 3109F.7. ~~For anchors and supports, see Section 3109F.4.~~

~~For equipment anchorages and supports, see Section 3110F.8.~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate.

Therefore, this section is updated to cross-reference the proposed sections (as applicable), and these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 9
SECTION 3109F
PIPING AND PIPELINES

9.1. ***3109F.2 Oil piping and pipeline systems.*** *All pressure piping and pipelines for oil service shall conform to the provisions of API Standard 2610 [9.1], ASME B31.3 [9.2] or B31.4 [9.3] as appropriate, including the following:*

1. All piping/pipelines shall be documented on current ~~P&ID's~~ P&IDs (N/E).

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
A typographical error is corrected. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are editorial and non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

9.2. ***3109F.3 Pipeline stress analysis (N/E).*** *Pipeline stress analysis shall be performed for:*

1. *New piping and pipelines*
2. *Significant rerouting/relocation of existing piping*
3. *Any replacement of "not-in-kind" piping*
4. *Any significant rearrangement or replacement of "not in-kind" anchors and/or supports*
5. *Significant seismic displacements calculated from the structural and/or geotechnical assessments*

Pipeline stress analysis shall be performed in accordance with ASME B31.4 [9.3], considering all relevant loads and corresponding displacements determined from the structural analysis and/or geotechnical analysis described in Sections 3104F and 3106F, respectively. Seismic loading of above-grade pipelines may be analyzed in accordance with ASME B31.E [9.5] with seismic loads computed from Section 3104F.5.4.1.

For pipelines spanning between seismically isolated sections (Section 3104F.1.3) and/or varying geotechnical conditions, evaluation of the relative movement of pipelines and supports and varying seismic accelerations shall be considered, including phase differences.

Flexibility analysis for piping, considering supports, shall be performed in accordance with ASME B31.4 [9.3] by using the largest temperature differential imposed by normal operation, start-up, shutdown or abnormal conditions. Thermal loads shall be based upon maximum and minimum local temperatures; heat traced piping shall use the maximum attainable temperature of the heat tracing system.

Section 3106F.12 provides additional considerations for underwater seafloor pipelines.

To determine forces at sliding surfaces, the coefficients of static friction shown in Table 31F-9-1 shall be used.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, this section is updated for clarity, accuracy and completeness, including the addition of cross-references to existing sections of this code. These amendments are consistent with the original intent, purpose and applicability of this code.

1st paragraph: This bulletized paragraph is updated with editorial changes for completeness.

2nd paragraph: This paragraph is updated with editorial changes for completeness, including the addition of cross-references to Sections 3106F and 3104F.5.4.1, based on consolidation of provisions for the seismic assessment of components and structures in proposed Section 3104F.5.

3rd paragraph: This paragraph is relocated from existing Section 3104F.1.3 and modified, since this statement primarily requires assessment by the pipeline stress analyst with information provided by the structural analyst.

5th paragraph: This paragraph is added to provide cross-reference to existing Section 3106F.12.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost, since they are consistent with the original intent, purpose and applicability of this code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

9.3. ***3109F.4 Piping and pipelines ~~Anchors and~~ supports and attachments (or anchorage).*** *~~Anchors and s~~ Supports and attachments shall conform to ASME B31.3 [9.2], ASME B31.4 [9.3], API Standard 2610 [9.1] and the ASCE Guidelines [9.6] (N).*

A seismic assessment shall be performed for existing ~~anchors and~~ supports and attachments using recommendations in Section 7 of CalARP [9.7] ~~or Chapter 11 of FEMA 356 [9.8]~~, as appropriate (E).

For strength evaluation of supports and attachments, see Section 3107F.7. If a pipeline analysis has been performed and support reactions are available, they may be used to determine the forces on the support structure.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate. Therefore, this section is updated to cross-reference the proposed sections (as applicable).

The terminologies of *"piping and pipelines"* and *"supports and attachments"* are updated for consistency in this code. The FEMA 356 reference is removed since it is outdated. The last sentence is relocated directly from existing Section 3104F.5.2: *"If a pipeline analysis has been performed and support reactions are available, they may be used to determine the forces on the support structure."*

Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

9.4. ***3109F.5.1 Valves and fittings.*** *…*

1. *Conform to ASME B31.3 [9.2], ASME B31.4 [9.3], API Standard 609 [9.8]~~[9.9]~~ and ASME B16.34 [9.9]~~[9.10]~~, as appropriate, based on their service (N).*
2. *…*
3. *…*
4. *…*
5. *…*
6. *Isolation valves shall be fire-safe in accordance with API Standard 607 [9.10]~~[9.11]~~ (N).*
7. *…*
8. *…*
9. *…*
10. *Pressure relief devices shall be sized in accordance with API RP 520 [9.11]~~[9.12]~~ (N). Set pressures and accumulating pressures shall be in accordance with API RP 520 [9.11]~~[9.12]~~ (N/E).*
11. *…*
12. *…*
13. *…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Reference are renumbered. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are editorial and non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

9.5. ***3109F.6 Utility and auxiliary piping and pipeline systems.*** *…*

Vapor return lines and VOC vapor inerting and enriching (natural gas) piping shall conform to 33 CFR 154.2100(b) [9.12]~~[9.13]~~ (N/E).

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Reference are renumbered. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are editorial and non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

9.6. ***3109F.7 Fire piping and pipeline systems.*** *Firewater and foam piping and fittings shall meet the following requirements:*

1. Conform to NFPA 11 [9.13][~~9.14~~], NFPA 24 [9.14][~~9.15~~], and ASME B16.5 [9.15][~~9.16~~] (N/E).

2. …

3. …

4. Piping and appurtenances shall be color-coded per local jurisdiction requirements or per ASME A13.1 [9.16][~~9.17~~] (N/E).

5. Pipeline stress analysis shall be performed for firewater piping and pipelines per Section 3109F.3 (N/E).

6. Firewater piping and pipelines supports and attachments shall be assessed per Section 3109F.4.

7~~6~~. External visual inspection shall be performed for per Section 3102F.3.5.5 (N/E).

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Renumbering: Reference and items are renumbered as appropriate.

Item 5: The terminology *"piping and"* is added for consistency with this code. This item is also corrected to apply to new and existing firewater piping and pipelines, as this was mistakenly removed in the 2016 CBC. Fire piping and pipelines are critical systems since their operation following a seismic event is essential to prevent oil spills and to protect public health, safety and the environment. Therefore, seismic assessment using pipeline stress analysis methods shall be performed to ensure survivability and continued operations during a Level 2 earthquake. Seismic adequacy of supports and attachments (or anchors) shall also be checked.

Item 6: This item is added to consolidate and consistently reference the piping/pipeline supports and attachments requirements in Section 3109F.4.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment since fire piping and pipelines operation following a seismic event is essential to oil spill prevention and protection of public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to comply is equivalent to the existing industry practice in compliance with the existing code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

9.7. ***3109F.8 References.***

…

~~[9.8] Federal Emergency Management Agency, Nov. 2000, FEMA 356, "Prestandard and Commentary for the Seismic Rehabilitation of Buildings," Washington, D.C.~~

[9.8~~9~~] American Petroleum Institute (API), 2009, API Standard 609, "Butterfly Valves: Double Flanged, Lug- and Wafer-Type," 7th ed., Washington, D.C.

[9.9~~10~~] American Society of Mechanical Engineers (ASME), 2013, ASME B16.34-2013 (ASME B16.34), "Valves Flanged Threaded and Welding End," New York.

[9.10~~1~~] American Petroleum Institute (API), 2010, API Standard 607, "Fire Test for Quarter-Turn Valves and Valves Equipped with Nonmetallic Seats," 6th ed., Washington, D.C.

[9.11~~2~~] *American Petroleum Institute (API), API Recommended Practice 520 P1 and P2 (API 520), "Sizing, Selection, and Installation of Pressure-relieving Devices, Part 1 – Sizing and Selection," 2014, 9th ed., and "Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries – Part 2 – Installation," 2015, 6th ed., Washington, D.C.*

[9.12~~3~~] *Code of Federal Regulations (CFR), Title 33, Section 154.2100 – Vapor Control System, General (33 CFR 154.2100)*

[9.13~~4~~] *National Fire Protection Association (NFPA), NFPA 11, "Standard for Low-, Medium-, and High-Expansion Foam," Quincy, MA. For edition, see California Code of Regulations (CCR), Title 24, Part 2, Chapter 35 – Referenced Standards.*

[9.14~~5~~] *National Fire Protection Association (NFPA), NFPA 24, "Standard for the Installation of Private Fire Service Mains and Their Appurtenances," Quincy, MA. For edition, see California Code of Regulations (CCR), Title 24, Part 2, Chapter 35 – Referenced Standards.*

[9.15~~6~~] *American Society of Mechanical Engineers (ASME), 2013, ASME B16.5-2013 (ASME B16.5), "Pipe Flanges and Flanged Fittings," New York.*

[9.16~~7~~] *American Society of Mechanical Engineers (ASME), 2007, ASME A13.1-2007 (R2013) (ASME A13.1), "Scheme for the Identification of Piping Systems," New York.*

Authority: Sections 8750 through 8760, Public Resources Code.

Reference: Sections 8750, 8751, 8755 and 8757, Public Resources Code.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The existing FEMA 356 reference [9.8] is removed since it is outdated, and the references thereafter are renumbered. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 10
SECTION 3110F
MECHANICAL AND ELECTRICAL EQUIPMENT

10.1. ***3110F.2.1 General criteria.*** *Marine loading arms and ancillary systems shall conform to ASME B31.3 [10.1], 33 CFR 154.510 [10.2] and OCIMF ~~CCIMF~~ "Design and Construction Specification for Marine Loading Arms" [10.3]. Each loading arm used for transferring oil shall have a means of being drained or closed before being disconnected.*

…

Loading arms and ancillary systems shall have a seismic assessment in accordance with Section 3104F.5. For seismic evaluation, design and strengthening of loading arms and ancillary equipment, seismic loads shall be computed per Section 3104F.5.4.1 ~~shall meet the seismic criteria defined in Section 3104F.2.1~~ and the procedure in Section 8.5.3 of ASCE/COPRI 61 [10.5] ~~(N)~~. For strength evaluation of supports and attachments, see Section 3107F.7.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate. Therefore, this section is updated to cross-reference the proposed sections (as applicable).

1st paragraph: The following requirement is transferred from Article 5 (2 CCR § 2380(b)(3)) since it must be accounted for during construction to be operationally attainable: *"Each loading arm used for transferring oil shall have a means of being drained or closed before being disconnected."* An editorial correction is made to the OCIMF reference.

2nd paragraph: The existing Section 3104F.2.1 cross-reference for the definition of seismic criteria is removed for brevity, since this is addressed in the proposed Section 3104F.5. The ASCE/COPRI 61 [10.5] reference is expanded to provide a method to evaluation of new or existing loading arms, where the need for existing loading arm evaluation is determined per proposed Section 3104F.5.2.

These changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ASCE/COPRI 61 [10.5], and referred to Article 5 (2 CCR § 2380(b)(3)) to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to comply is equivalent to the existing industry practice utilized to comply with the existing code.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

10.2. ***3110F.6 Oil sumps and ancillary equipment.*** *…*

…

3. Sumps shall be located at least ~~25ft~~ 25 ft from the manifolds, base of the loading arms or hose towers (N).

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
A typographical error is corrected. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are editorial and non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

10.3. ***3110F.7 Vapor control systems.*** *Vapor control systems shall conform to 33 CFR 154.2000 through 154.2181 [10.21] and API Standard 2610 [10.22]. The effects of seismic, wind, dead, live and other loads shall be considered in the analysis and design of individual tie-downs of components, such as of steel skirts, vessels, controls and detonation arresters.* ~~*The analysis and design shall include the load transfer to supporting deck/pile structures or foundation elements.*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The last sentence is relocated to proposed Section 3107F.7, since proposed Section 3110F.12 applies to all mechanical and electrical equipment (including vapor control systems), and consolidates and consistently references the Chapter 31F nonstructural component, nonbuilding structure and building structure assessment requirements in: (1) proposed Section 3104F.5 for seismic assessment and (2) proposed Section 3107F.7 for strength evaluation of supports and attachments. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

10.4. ~~***3110F.8 Equipment anchors and supports.*** *For new (N) electrical and mechanical equipment, the seismic lateral loads (demand) shall be calculated using the methods of Section 6.4 of FEMA 450 [10.23]. The design for load transfer to the wharf deck shall use the same procedures as for mooring and berthing components (see Section 3107F.5.3).*~~

~~*For existing (E) equipment, the seismic assessment shall be performed in accordance with CalARP [10.24], FEMA 356 [10.25] or ASCE Guidelines [10.26].*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate.

Therefore, this section is deleted since it is duplicative of the proposed Section 3110F.12 language. These changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

10.5. ***3110F.10~~9~~ Spill prevention equipment and systems maintenance (N/E).*** *…*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The section is renumbered. This change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

☒ No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

10.6. ***3110F.11~~0~~ Pumps (N/E).*** *…*

…Firewater pumps providing the wharf fire protection shall be maintained in accordance with Section 3108F.6.3 ~~per California NFPA 25 [10.27], as adopted and amended by the State Fire Marshal, or local enforcing agency requirements~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered. Reference to California NFPA 25 [10.27] is removed and redirected to Section 3108F.6.3, to eliminate duplicative language regarding firewater pumps and consolidate fire prevention requirements in Section 3108F. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

10.7. ***3110F.12~~1~~ Mechanical and electrical equipment ~~Critical systems~~ seismic assessment (N/E).***
~~Critical m~~ Mechanical and electrical equipment ~~related to personnel safety, oil spill prevention or response,~~ shall have a seismic assessment per Section 3104F.5~~.3~~. For strength evaluation of ~~equipment anchorages and~~ supports and attachments, see Section 3107F.7 ~~3110F.8~~.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate. Therefore, this section is updated to cross-reference the proposed sections (as applicable).

The language *"related to personnel safety, oil spill prevention or response"* is also relocated to proposed Section 3104F.5.1 in the consolidated definition of "critical systems".

These changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

10.8. ***3110F.13~~2~~ References.***

…

[10.7] National Fluid Power Association (NFPA), 2009, NFPA T3.6.7 R3-2009 (R2017~~2~~) (NFPA T3.6.7 R3), "Fluid Power Systems and Products – Square Head Industrial Cylinders – Mounting Dimensions," Milwaukee, WI.

…

~~*[10.23] Federal Emergency Management Agency, 2003, FEMA 450, "NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures," Washington, D.C.*~~

~~*[10.24] CalARP Program Seismic Guidance Committee, December 2013, "Guidance for California Accidental Release Prevention (CalARP) Program Seismic Assessments," Sacramento, CA.*~~

~~*[10.25] Federal Emergency Management Agency (FEMA), Nov. 2000, FEMA 356, "Prestandard and Commentary for the Seismic Rehabilitation of Buildings," Washington, D.C.*~~

~~*[10.26] American Society of Civil Engineers (ASCE), 2011, 1997, "Guidelines for Seismic Evaluation and Design of Petrochemical Facilities," 2nd ed., New York.*~~

~~*[10.27] National Fire Protection Association (NFPA), California NFPA 25, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," California ed. For edition, see California Code of Regulations (CCR), Title 24, Part 2, Chapter 35 – Referenced Standards.*~~

Authority: Sections 8750 through 8760, Public Resources Code.

Reference: Sections 8750, 8751, 8755 and 8757, Public Resources Code.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
This section is renumbered, and references *[10.23]* through *[10.27]* are removed since existing Section 3110F.8 is deleted. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

DIVISION 11
SECTION 3111F
ELECTRICAL SYSTEMS

11.1. ***3111F.3 Identification and tagging.*** *All electrical equipment, cables and conductors shall be clearly identified by means of tags ~~oftags~~, plates, color coding or other effective means to facilitate troubleshooting and improve safety, …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
A typographical error is corrected. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are editorial and non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

11.2. ***3111F.5 Electrical service.*** *…*

1. Electrical, instrument and control systems used to activate ~~activiate~~ equipment needed to control a fire or mitigate its consequences shall …

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
A typographical error is corrected. Therefore, this change is editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are editorial and non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

11.3. ***3111F.6 Grounding and bonding (N/E).***

…

3. Bonding of vessels to the MOT structure is not permitted ~~(2 CCR 2341) [11.7].~~

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Reference to Article 5 (2 CCR 2341 [11.7]) is removed since this operational reference is no longer relevant, since this statement refers to the built requirement and is not an operational regulation. Therefore, this change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

11.4. ***3111F.8 Illumination (N/E).*** ~~*Lighting shall conform to 2 CCR 2365 [11.7] and 33 CFR 154.570 (d) [11.8].*~~

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, Section 3111F.8 is expanded (including the addition of multiple subsections) to address built standards for fixed lighting (or luminaires) at MOTs. The proposed language (including subsections) is presented in a similar style to fixed lighting standards elsewhere in building standards (ref. Sections 1008 and 1205 of the 2016 CBC). These requirements ensure that fixed lighting is evaluated, designed and installed to be able to achieve the operational lighting standards, providing illumination to prevent oil spills and protect public health, safety and the environment. These built illumination standards compliment the operational standards in Article 5 (2 CCR 2365) and 33 CFR 154.570; however, references to these operational standards are removed since they are no longer broadly necessary. Reference to 33 CFR 154.570 is relocated to proposed subsections as appropriate. Therefore, these changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to Sections 1008 and 1205 of the 2016 CBC while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

11.5. ***3111F.8.1 Illumination Locations.*** *At a minimum, MOTs shall have fixed lighting (or luminaires) that illuminate the following areas:*

1. Transfer connection points on the MOT

2. Transfer connection points for any barge that may transfer oil at the MOT

3. Transfer operations work areas on the MOT

4. Transfer operations work areas for any barge that may transfer oil at the MOT

5. Areas defined in Sections 17.4 and 24.6.4 of ISGOTT [11.7], as applicable

Lighting shall be located or shielded so as not to mislead or otherwise interfere with off-site areas as governed by federal, state and local agency requirements.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3111F.8.1 is added to specifically address the built locations of fixed lighting (or luminaires) at MOTs. These requirements ensure that fixed lighting is evaluated, designed and installed in appropriate locations to achieve safe operations, to prevent oil spills and protect public health, safety and the environment. Reference to Sections 17.4 and 26.6.4 of ISGOTT [11.7] are added as this is the internationally-accepted industry standard for terminal lighting. The last sentence is added to emphasize to the engineer-of-record that directionality and shielding of illumination shall be considered in the selection of fixed lighting locations, such that they comply with all federal, state and local agency requirements.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ISGOTT [11.7] and referred to Sections 1008 and 1205 of the 2016 CBC, Article 5 (2 CCR 2365) and 33 CFR 154.570 while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the Article 5 (2 CCR 2365), 33 CFR 154.570 and ISGOTT [11.7] standards to evaluate and design fixed lighting at MOTs. The proposed amendments are consistent with these standards and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by ensuring fixed lighting is installed to provide adequate illumination for operations, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to comply is equivalent to the existing industry practice.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act grants the Commission overlapping jurisdiction with the United States Coast Guard with respect to the authority to regulate marine terminals in state waters. These amendments to this code complement, but do not conflict with and Code of Federal Regulations (CFRs).

11.6. ***3111F.8.2 Illumination Levels.*** *After subtraction of the ambient lighting level, the minimum illumination levels at the locations defined in Section 3111F.8.1 shall be as follows:*

1. 5.0 footcandles (54 lux) at transfer connection points

2. 1.0 footcandle (11 lux) in transfer operations work and other areas

The illumination levels shall be verified by measurement at the locations defined in Section 3111F.8.1. All measurements shall be taken on a horizontal plane, 3 feet above the MOT and barge deck or walking surface (33 CFR 154.570 (b) [11.8]). Background measurement of ambient lighting (e.g., moonlight, sky glow) shall be recorded in an area shielded from site lighting.

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
Section 3111F.8.2 is added to specifically address the built levels of fixed lighting (or luminaires) at MOTs. These requirements ensure that light fixtures (or luminaires) are installed with adequate capacity to achieve the lighting levels necessary for safe operations, to prevent oil spills and protect public health, safety and the environment. Detailed language is added, including reference to 33 CFR 154.570 (b) [11.8], to clarify the procedure for determining if the minimum illumination levels are achieved once installed.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on 33 CFR 154.570 (b) [11.8] and referred to Sections 1008 and 1205 of the 2016 CBC and Article 5 (2 CCR 2365) while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The existing industry practice is to utilize the Article 5 (2 CCR 2365) and 33 CFR 154.570 standards to evaluate and design fixed lighting at MOTs. The proposed amendments are consistent with these standards and equivalently prescriptive. No technologies or equipment are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by ensuring fixed lighting is installed to provide adequate illumination for operations, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These amendments have no associated cost since the level of effort required to comply is equivalent to the existing industry practice.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act grants the Commission overlapping jurisdiction with the United States Coast Guard with respect to the authority to regulate marine terminals in state waters. These amendments to this code complement, but do not conflict with and Code of Federal Regulations (CFRs).

11.7. ***3111F.8.3 Emergency Power for Illumination (N).*** *In the event of power supply failure, the emergency power system (Section 3111F.5.1) shall automatically illuminate all of the areas defined in Section 3111F.8.1, and fire pump, hydrant, monitor, foam, and hose connection points on the MOT. The emergency power system shall provide power for a duration of not less than 60 minutes at a level of not less than an average of 0.5 footcandle (5.5 lux).*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

Section 3111F.8.3 is added to define the minimum built levels of fixed lighting (or luminaires) required for new applications at MOTs, to function after power supply failure for safe operations, to prevent oil spills and protect public health, safety and the environment. The proposed language is similar to emergency power for illumination standards in Sections 1008.3 of the 2016 CBC, with modification for MOT application. The duration of lighting allows time to secure the MOT, such as oil transfer shutdown, initiating firefighting or emergency incident response, or vessel departure within 30 minutes (ref. Article 5 (2 CCR 2340 (c)(28)).

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff referred to Sections 1008.3 of the 2016 CBC and Article 5 (2 CCR 2340 (c)(28)) while revising this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

Appropriate new technologies or equipment or prescriptive standards are specified per common industry practice for these amendments to this code. These are necessary to prevent oil spills and protect public health, safety and the environment in case of emergency power loss.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

These changes may significantly benefit the health and welfare of California residents, worker safety, and the state's environment by ensuring fixed lighting is installed to provide adequate illumination for emergencies, which results in safer operations with reduced potential for oil spills and risk to public health, safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These provisions will benefit MOT operators during emergency loss of power, to prevent oil spills and protect public health, safety and the environment. The cost of these requirements is considered negligible, since they apply to new applications only, where the cost is insignificant as part of the entire system design and installation.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

11.8. ***3111F.10 Cathodic Protection Systems (CPS) (N/E).*** *CPS operating, testing, and maintenance criteria for underwater structures shall conform to* *UFC 3-570-01* ~~*UFC 3-570-02N*~~ *[11.12] …*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The UFC 3-570-02N [11.12] reference is updated to the latest edition, UFC 3-570-01 [11.12]. This change is non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on UFC 3-570-01 [11.12] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- ☐ The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- ☐ The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- ☐ The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- ☐ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

11.9. ***3111F.11 Electrical ~~Critical~~ systems seismic assessment (N/E).*** *Electrical ~~power~~ systems shall have a seismic assessment per Section 3104F.5~~.3~~. For strength evaluation of ~~equipment anchorages and~~ supports and attachments, see Section 3107F.7 ~~3110F.8~~.*

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
In general, the evaluation, strengthening and design requirements for nonstructural components, nonbuilding structures and building structures are scattered throughout this existing code. Therefore, the proposed code amendments include consolidation of provisions for these components and structures in the following form: (a) seismic assessment in proposed Section 3104F.5, (b) critical systems in proposed Section 3104F.5.1, (c) structural assessment of nonbuilding structures and building structures in proposed Section 3107F.5, and (d) supports and attachments (or anchorage) assessment in proposed Section 3107F.7, for cross-referenced in Sections 3108F, 3109F, 3110F and 3111F, as appropriate.

Therefore, this section is updated to cross-reference the proposed sections (as applicable), and with minor editorial revisions for consistency. These changes are non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

11.10. ***3111F.12 References.***

…

[11.7] International Chamber of Shipping (ICS), Oil Companies International Marine Forum (OCIMF), International Association of Ports and Harbors (IAPH), 2006, "International Safety Guide for Oil Tankers and Terminals (ISGOTT)," 5th ed., Witherby, London.

~~*[11.7] California Code of Regulations (CCR), Title 2, Division 3, Chapter 1, Article 5 – Marine Terminals Inspection and Monitoring (2 CCR 2300 et seq.)*~~

…

[11.12] Department of Defense, 28 November 2016, Unified ~~United~~ Facilities Criteria (UFC) 3-570-01, ~~2004 January 16 UFC 3-570-02N, "Electrical Engineering~~ Cathodic Protection," Washington, D.C.

…

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
The new ISGOTT reference [11.7] is added since it is utilized in the proposed *Section 3111F.8.1 Illumination Locations*, to provide additional resources for consultation. The existing Article 5 (2 CCR *2300 et seq.*) reference [11.7] is removed since it is no longer utilized in the revised *Section 3111F.8 Illumination (N/E)*. Reference UFC 3-570-01 [11.12] is updated to the latest edition available and modified to correct editorial errors. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff relied on ISGOTT [11.7] and UFC 3-570-01 [11.12] to revise this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).

CHAPTER 35
REFERENCED STANDARDS

The California State Lands Commission (Commission) references the following reference standards in Chapter 35:

1. ACI 318-14 (unamended)
2. ASCE/SEI 7-16 (unamended)
3. ASME B31.3-2014 (unamended)
4. ASTM D4318-10 (unamended)
5. ANSI/AWC NDS-2018 (unamended)

Note that the Commission has opted not to adopt the 2018 International Building Code references and/or latest editions of ASME B31.3 and ASTM D4318. Therefore, the following obelisks are proposed:

ASME

B31.3—2014 Process Piping……3109F, 3110F, 3112F

ASTM

D4318—10 Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils……3106F

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:
At the direction of the California Building Standards Commission, the Commission proposes to reference existing standards in Chapter 35, with the revisions and amendments noted above. This Chapter 35 update is considered non-regulatory and intended only as an aid to the user. Therefore, these changes are editorial and non-substantive.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The Commission staff did not rely upon any technical, theoretical or empirical studies, reports or documents for the modification of this section of this code.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

No new technologies or equipment or prescriptive standards are required in these amendments to this code.

CONSIDERATION OF REASONABLE ALTERNATIVES

No alternatives were presented to or considered by Commission staff for these amendments to this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The Commission staff finds that the adoption of this Code modification will not have a significant adverse economic impact on small businesses. None of the business that will be governed by these proposed regulations can be considered to be a "small business" as defined in Government Code Section 11342.610.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence are required to determine that these amendments to this code will have no significant adverse impact on any business.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The California State Lands Commission has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

  No jobs will be created or eliminated by these amendments to this code.

- The creation of new businesses or the elimination of existing businesses within the State of California.

  No businesses will be created or eliminated by these amendments to this code.

- The expansion of businesses currently doing business with the State of California.

  No business expansions will be affected by these amendments to this code.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

  No significant benefit to the health and welfare of California residents, worker safety, and the state's environment will be achieved by these amendments to this code.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

These changes are non-substantive and have no associated cost**.**

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These amendments to this code do not duplicate or conflict with and Code of Federal Regulations (CFRs).