U.S. Department of Transportation

United States Coast Guard

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MOC Policy Letter
No. 2-96
JUL 1 1996

From: Commandant
To : Distribution

Subj: CLASSING AND REPORTING STRUCTURAL FAILURES, MODIFICATIONS TO CRITICAL AREAS INSPECTION PLAN REQUIREMENTS (CAIPS) AND TRANS-ALASKAN PIPELINE SERVICE (TAPS) TANKER ISSUES

Ref: (a) Commandant (G-MVI) letter dated 28 June 1990 (MVI Policy Letter No. 09-90
(b) Commandant (G-MVI) letter dated 21 November 1991 (MVI Policy Letter No. 17-91
(c) Navigation and Vessel Inspection Circular (NVIC) 15-91 dated 16 October 1991 and Change 1 dated 11 July 1994
(d) COMDTINST M16000.7, Marine Safety Manual (MSM), Vol II

1. References (a) and (b) which established new definitions and reporting criteria for structural failures and provided amplifying guidance with respect to the application of reference (c) to TAPS tankers and other designated vessels are cancelled effective immediately. They shall also be deleted from the Commandant (G-MOC) (formerly G-MVI) Policy Letter File and Index. Since those letters were issued, the Coast Guard has been engaged in a continuous iterative process in partnership with all tanker operators engaged in the TAPS trade to improve the quality of those vessels' hull structures through frequent monitoring and redesign of construction details found prone to repeated failures. Valuable information has been collectively gained from the open exchange of information among TAPS operators, the American Bureau of Shipping (ABS) and the Coast Guard which provided an accurate picture of the overall highly satisfactory condition of the TAPS fleet. Hence, the new guidance in the enclosures to this letter provides a "level playing field" for TAPS operators by removing or modifying some previous requirements while maintaining the same high standards of safety for the vessel crews and the Pacific coastal environment in close proximity to the operating routes of the TAPS tankers.

2. Enclosure (1) contains a draft change to Chapter 5, Section G. of reference (d). The policy established by this change revises previous policy regarding the subject of this letter and is effective immediately. Notable changes made by the new policy include:

a. New definitions of Class 1, 2 and 3 structural failures that have been developed in conjunction with the ABS to establish

one consistent U.S. standard. It is intended that ABS will carry these definitions forward to the International Association of Classification Societies (IACS) in order to achieve a common world standard.

b. New guidelines for reporting structural failures which clarify when and how they should be reported including the elimination of the requirement to report Class II failures via Form CG-2692. This eliminates a large number of structural discrepancies previously characterized as "marine casualties" which clearly fall outside that definition or that of a "serious marine incident" contained in 46 Code of Federal Regulations (CFR) 4.03.

c. New guidance to the Officer in Charge, Marine Inspection (OCMI) regarding requirements for permanent or temporary repair of structural failures or possible monitoring and deferral of repairs to the next regularly scheduled shipyard repair period.

3. Enclosure (2) contains a new Section 5L. of reference (d) which updates the amplifying guidance for implementing the CAIP program as outlined in reference (c). Change 1 of reference (c) allows vessel operators to substitute the ABS Enhanced Survey procedures for CAIPs if they can demonstrate equivalency on a case-by-case basis. However, there is no intent to eliminate the CAIP program as it can be applied to any vessel or class of vessels which have a demonstrated history of repetitive structural failures, and are not subject to ABS Enhanced Survey requirements. The principal highlight of this section concerns new guidance for the maintenance of vessel CAIP records including elimination of the requirement to submit CAIP updates to Commandant (G-MOC).

4. Enclosure (3) contains a change to MSM Chapter 10 which updates the amplifying guidance for implementing the CAIP program for TAPS tankers. Reference (c) will also be modified by a proposed Change II to ensure consistent publication of policy in conjunction with the MSM. Based on the significant structural improvements BP America and SeaRiver Maritime have made to the ATIGUN PASS class tankers, the six month CAIP interval established in reference (a) is changed. Effective immediately, the vessel operators of this class may perform CAIPs annually. This section also contains guidance regarding acceptance of temporary repairs as permanent, if they prove to be effective in service.

5. Enclosure (4) contains minor changes to Chapters 7 and 8 which reference the policy contained in Chapters 5 and 10.

6. OCMIs are advised of the following:

a. Commandant (G-MOC) and (G-MO-1) (Traveling Inspectors) are to be immediately advised of any reported Class 1 structural

failure by most expeditious means available. While final approval of repairs rests, as always, with the OCMI, repair proposals should be discussed with the Traveling Inspectors. Commandant (G-MO-1) files contain a significant history of previously accepted repairs. Discussion with Commandant (G-MO-1) ensures greater opportunity for consistency zone to zone with respect to approvals. Traveling inspectors may determine that a visit to the vessel incurring the structural failure is warranted.

b. All field inspectors are strongly reminded that the CAIP documents aboard the vessel contain a detailed history of the structural condition of the vessel including all detected fractures and the repair procedures employed. Prior to any structural examination, inspectors shall review the vessel's CAIP. This is particularly important for assessing an operator's proposal in handling Class 2 and 3 structural failures which remain strictly within the purview of the OCMI.

c. All policies and procedures contained herein remain applicable to foreign flag vessels operating in U.S. waters.

7. A copy of enclosures (1), (2), (3) and (4) shall be appended to each copy of reference (d) and is immediately applicable to all vessels with existing CAIPs, effective the date of this letter. The structural failure definitions in paragraphs 5.G.2.b through 5.G.2.d of enclosure (1) shall also be inserted as enclosure (1) of reference (c). Reference (c) will be amended separately.

G. N. NACCARA
DIRECTOR OF FIELD ACTIVITIES

Encl: (1) Draft Revision to MSM Volume II, Chapter 5, Section G.
(2) Draft Revision to MSM Volume II, Chapter 5, Section L.
(3) Draft Revision to MSM Volume II, Chapter 10, Section Y.
(4) Draft Revision to MSM Volume II, Chapters 7 & 8

Dist: MSOs Los Angeles/Long Beach, San Francisco Bay, Portland,OR
Puget Sound, Valdez and Honolulu; FEACT Japan
All District (m)
Marine Safety Center
Marine Safety School
Commandant (G-MS)
ABS Liaison Officer

G. Structural Failures

1. Normal Operating Conditions Structural failures as defined below are to be distinguished from structural damage. For each defined failure standard, normal operating conditions are stressed to distinguish between those fractures and buckles occurring as a result of the natural working of a vessel's hull as opposed to those which occur as a result of some external force such as collision, allision, grounding, fire, explosion, earthquake, improper cargo handling or ballasting, etc. Fractures and buckles which result from external forces should not be construed as structural failures but reported as marine casualties if they meet the definitions contained in 46 CFR 4.03. Conversely, those fractures or buckles which occur naturally should not be considered marine casualties per se. However, by definition, because all Class 1 structural failures compromise the vessel to safely operate within its design parameters, they are clearly reportable as marine casualties under 46 CFR 4.03. Class 2 and 3 structural failures, as defined, will normally fall outside the parameters of the marine casualty definition except in the rare occasion where the cost of a single repair might exceed the monetary value established in 46 CFR 4.03. In any case, the purpose of reporting structural failures is to determine if unwanted trends are developing in particular classes of vessels or vessels which may be operating in a particular environment in order to ensure that appropriate corrective actions are initiated.

2. Classifications and Definitions

a. Standards For the definitions in paragraphs 5.G.2.b and 5.G.2.c:

(1) outer shell: the side shell and bottom plating of a vessel including the bow and stern rakes of barges.

(2) oiltight envelope: that portion of the outer shell in way of cargo oil tanks and the vessel's bunker/fuel, lube oil and slop tanks, exclusive of the clean ballast tanks.

(3) main strength members: those structural members which provide primary longitudinal strength to the hull and those transverse structural members which directly contribute to support longitudinal strength members. Such members include the strength deck plating; side and bottom plating; tank top plating; the center vertical keel; underdeck, side and bottom longitudinal stiffeners; internal longitudinal bulkheads and stiffeners; deep web frames and girders; transverse bulkheads and girders; and

associated bracketing connecting the aforementioned longitudinal and transverse structural members.

(4) buckle: any deformation in the outer shell and/or strength deck plating and the adjacent internal main strength members to the extent that structural strength has been lost.

(5) action: the extent of response an operator must take, with concurrence by the OCMI, for a particular structural failure.

b. Class 1 Structural Failure: During normal operating conditions, either

(1) a visible, through thickness fracture of any length in the oiltight envelope of the outer shell where threat of pollution is a factor or,

(2) a fracture or buckle which has weakened a main strength member to the extent that the safety of the vessel to operate within its design parameters is compromised.

ACTION: Immediate corrective action must be initiated by the operator with approval of the cognizant OCMI. Temporary repairs may be permitted to allow the vessel to safely transit to a repair facility.

c. Class 2 Structural Failure: A fracture or buckle within a main strength member which does not compromise the safety of the vessel to operate within its design parameters and does not create a threat of pollution either by location or containment.

ACTION: Necessity for corrective action shall be evaluated and agreed upon between the vessel operator and OCMI when the failure is found. Temporary repairs until the next scheduled repair period may be authorized.

d. Class 3 Structural Failure: Any fracture or buckle which does not otherwise meet the definition of a Class 1 or 2 structural failure or a fracture which might normally be considered a Class 2 but is determined not to be detrimental to the strength or serviceability of the effected main hull structural member.

ACTION: Corrective action or notification to the OCMI is not required. Shall be noted for the record, monitored by the operator if deemed desirable and addressed at the next regularly scheduled repair period.

3. Notification of Class 1 Structural Failures on U.S. Flag Vessels
The following actions shall be taken when a Class 1 structural failure occurs on any U.S. vessel over 500 gross tons. Under no circumstance will a vessel be allowed to operate under the terms

and conditions of its Certificate of Inspection until permanent repairs are completed and they are approved by the OCMI. Temporary repairs with additional imposed conditions of operations may be authorized by the OCMI to permit the vessel to proceed to a discharge port and/or repair facility.

a. Operator's Responsibility When a Class 1 structural failure is discovered, the vessel operator shall immediately report it to the cognizant OCMI of the zone where detected. It shall be the operator's responsibility to complete and submit Coast Guard form CG-2692, "Report of Marine Accident, Injury or Death in accordance with 46 CFR 4.05-10. The operator will submit details of the temporary and/or permanent repair procedures to the OCMI and the ABS (or appropriate class society). The repair plan shall include a past history of any similar failure, the results of any past analysis related to that type of failure and the results of past repair actions. Operators of vessels with either Coast Guard Critical Areas Inspection Plans (CAIPs) or ABS Enhanced Survey Programs are advised that submittal of these documents for OCMI review would satisfy this requirement. If the operator has no available history to provide, then a failure analysis will be required, original to the OCMI, copy to Commandant (G-MOC). For clarification, a Class 1 structural failure must always be reported on the CG-2692 regardless of when or where found.

b. OCMI Responsibility The OCMI shall advise G-MOC, in conjunction with district (m), immediately after receiving notice of a Class 1 structural failure by most expeditious means possible. G-MOC will in turn advise G-MO-1 of the event. After regular working hours and on weekends, notification should be made through the Headquarters Command Center. If cognizant G-MOC personnel are unavailable, notification should be made to a G-MO-1 traveling inspector. The OCMI shall evaluate the operator's repair proposal. OCMIs are strongly urged to contact G-MO-1 for consultation regarding acceptable repair procedures. G-MO-1 files contain significant information on previously approved repairs which would be beneficial to ensuring consistency across Marine Inspection zones.

4. Tank Vessel Restrictions Pending completion of permanent repairs to the oiltight envelopes of tankships, operational restrictions may be placed upon these vessels. Restrictions may include prohibition of carrying cargo in the affected tank(s). In order to allow a vessel to remain in service while in that condition, the operator must submit calculations to the OCMI which demonstrate that the other intact tanks can be loaded without placing additional stress on the hull structure and that the vessel can safely operate with the affected tank either ballasted or empty.

5. Vessels with Recurring Structural Failures A vessel which suffers repeated Class 1 structural failures or a continuous high numbers of Class 2 structural failures will be placed in a "Special

Attention Vessels" category. Vessels not otherwise enrolled in the Critical Areas Inspection Plan (CAIP) program outlined in NVIC 15-91, NVIC 15-91, Change 1 and 5L. of this volume may be required to do so. If the condition of the hull structure does not significantly improve, additional operating restrictions regarding route and service may be imposed. In severe cases, the vessel's COI may be revoked and the vessel removed from service. G-MCO will maintain a list of these vessels and they will be regularly attended by a traveling inspector. All structural repairs for these vessels will be approved by G-MOC.

6. Vessels Enrolled in the Alternative Compliance Program As of February 1995, a pilot program was established to delegate the ABS authority to perform surveys of U.S flag vessels on behalf of the Coast Guard pursuant to issuance of a COI. Guidance for this program is contained in NVIC 2-95 and COMDTISTs 16711.17 and 16711.18. Unless otherwise provided for in Section 5L. of this manual with respect to the CAIP Program, approval of Class 1 structural repairs lies solely with the ABS unless it is determined through oversight monitoring procedures that the repairs, as effected, are inadequate. Participation of a vessel in the ACP does not relieve an operator of the responsibility of reporting a Class I structural failure to the cognizant OCMI.

7. Documentation of Class 1 Structural Failures It is rare that two or more types of Class 1 structural failures occur during the same event or examination interval. Should this happen, each type shall be reported by separate CG-2692. If multiple failures of the same type occur, they may be reported on a single CG-2692. The following information should be provided as a minimum with the CG-2692 for each Class I structural failure:

   a. A one or two sentence description on the CG-2692 noting the location and size of the fracture, affected structural components, how the failure was found and method of repair. It is acceptable to attached a shipyard repair specification or class surveyor's report if they contain this type of information.

   b. Photos and/or sketches of the structural failure with identifying marks noting the strake; plate number; frame number; side or bottom longitudinal number; location, i.e., port, starboard or centerline; ship's name and any other useful reference points. Photographs should clearly indicate the originating point of the fracture if it can be visually determined.

   c. A description of the structural detail if determined that it caused or contributed to the cause of the failure, including a description of any similar detail failures which previously occurred in that vessel or sister vessels.

   d. Identification of the vessel's trade and principal operating route; time and weather conditions when the failure occurred;

and the stability condition of the vessel, including hull stresses if available. When the specific time of the failure is not known, a general statement about weather conditions and stability patterns is sufficient.

e. Steel samples shall be obtained for analysis and/or non-destructive testing for Class 1 structural failures, not previously analyzed, if the cause of the failure is not due to some obvious or known discontinuity. The vessel operator shall arrange for the failure analysis if it will assist in determining the cause of the failure. A copy of the report shall be provided to the cognizant OCMI investigating the failure.

f. When accurate information is not available, then the best available data is to be reported concerning the date when found, approximate time/date when the failure may have occurred, possible contributing environmental conditions, stability condition of the vessel and any other information deemed to be possibly pertinent. All such information should be noted as approximate.

8. Notification of Class 1 Structural Failures on Foreign Flag Vessels In addition to the procedures outlined in paragraph 5.G.3.a, the following items shall be adhered to when a Class 1 structural failure occurs to a foreign vessel operating in U.S. waters:

a. Repair proposals shall be provided by either the vessel operator or authorized agent to the vessel's class society representative and the cognizant OCMI. Repairs are not authorized until approved by class.

b. If class authorizes temporary repairs, the OCMI will notify the vessel's master and agent that the vessel will not be allowed to return to a U.S. port until permanent repairs are accomplished, approved by class and all outstanding conditions of class related to the incident removed.

c. Under port state control authority vested within the Captain of the Port, the OCMI may reject class approval of either permanent or temporary if it is determined that they will not restore the vessel to a condition to allow it to operate within its design parameters.

9. Notification of Class 2 and Class 3 Structural Failures Class 2 and Class 3 structural failures as defined in 5.G.2.c. and 5.G.2.d. do not meet the definition of a "marine casualty" in 46 CFR 4.03. Therefore, neither failure is required to be reported on Form CG-2692. However, when Class 2 and Class 3 structural failures are detected, the following actions will be taken.

a. Class 2 Structural Failures Class 2 structural failures have the potential to become serious through fracture propagation, particularly in a longitudinal strength member which has failed

in tension. Please refer to NVIC 15-91, Change 1, which contains important information regarding critical crack length and brittle failure. When a Class 2 failure is found, it must be reported the cognizant OCMI if not found during a scheduled Coast Guard examination. In either case the operator shall submit a repair proposal containing either a temporary or permanent fix. In no case will a temporary repair proposal be accepted during a hull examination for credit unless it involves the necessity of the vessel proceeding to another port for permanent repair. Based on the information presented in the proposal, the OCMI may allow a temporary repair or require immediate permanent repair.

b. Class 3 Structural Failures Class 3 failures are not required to be reported to the OCMI if found at times other than a credit hull exam. The operator shall address all Class 3 failures at each credit hull examination. Based on location, size and type of structural member involved, the OCMI may elect to defer repairs and permit the failure to be monitored at some mutually agreeable interval with operator, particularly if the repair will set up a hard spot or stress riser making the detail more susceptible to failure.

10. Documentation of Class 2 and 3 Structural Failures Operators of All vessels which have either a CAIP manual and/or an ABS Enhanced Survey record shall enter the types and dispositions of the failures as appropriate and in accordance with the guidelines of MSM 5L. or the ABS Rules pertaining to enhanced surveys. Entries of such failures on vessels not required to maintain these records will be made into the MSIS system through an MISN. The entry should be detailed to sufficiently describe the number and types of failures and where the hard copy of the repair approval is located. OCMIs are encouraged to contact the Traveling Inspectors regarding repair of Class 2 failures as a means to help insure consistency throughout marine inspection zones.

11. Relationship Between the OCMI and ABS Regarding Repair Approval Historically, many OCMIs required operators to submit and obtain approved repair plans from ABS (or the cognizant class society) prior to presenting it to the OCMI. While this has worked successfully in most cases, there have been occasions where OCMIs have certain concerns about items not believed to be adequately addressed in the ABS approval. Typically, the OCMI waits until an approval of repairs has been received from the ABS or cognizant class society. In order to help ensure a harmonious regulatory position, all OCMIs should review any repair proposal concurrently with their local ABS counterparts to come to a joint decision on the acceptability of the repair proposal. This partnership facilitates the process by forging a unified regulatory review that assures that the acceptance by one party will not be disputed by the other causing untimely delays through the appeal procedures.

12. Forwarding of Class 1 Structural Failure Reports Upon completion of the investigation of a Class 1 structural failure, the OCMI shall forward the CG-2692 and all supporting attachments to G-MOA for inclusion into the casualty data base, via the district (m) office.

closure (2) to COMDT (G-MOC) Ltr dtd JUL 1 1996

Chapter 5L. VESSEL CONSTRUCTION, CONVERSIONS, ALTERATIONS AND REPAIRS

L. Critical Areas Inspection Plans (CAIPS)

1. Use of CAIPs NVICs 15-91 and 15-91, Change 1 established guidance concerning the implementation and use of CAIPs. CAIPs may be applied to any vessel or class of vessel based on evidence of repetitive and significant structural failures. The purpose of the CAIP is identify, track and document the history of a vessel's structure, including the means and methods employed to mitigate structural failures through modification of substandard design and construction details. It is meant to be a living document. As a vessel ages, it can reasonably be expected that new and/or more frequent failures of the hull girder will occur due to fatigue caused by a variety of factors. These include but are not limited to repetitive cyclical loading in a seaway, stresses imposed by environmental factors, operational conditions such as route, speed and cargo operations and type of service. In this manner, causes of structural failures are addressed and permanently corrected. This eliminates the potential for performing in effect a temporary repair of a fracture or defective which immediately addresses the symptom, but does not hold up in service.

2. Use of CAIPs by Inspectors Periodic updating of the CAIP provides that the latest and best information about the hull structure is available to inspectors attending the vessel. All inspectors assigned to hull examinations of CAIP vessels shall review the manual prior to commencing the inspection. This is particularly important for new inspectors with limited hull/structural experience as the information directs attention to areas highly susceptible for failure, provides detailed information on previously approved repair procedures which aid in evaluating a current repair proposal and ensures a consistent regulatory approach. Inspectors are cautioned that although the CAIP is an excellent "road map" for detecting fractures, the remainder of the vessel must be carefully examined as unexpected fractures, potentially indicative of new trends, could have occurred since the last examination interval.

3. Establishing CAIP Requirements As outlined in NVIC 15-91, the following implementation procedures apply:

   a. G-MOC (formerly G-MVI) will be the implementing authority for CAIPs on vessels operating in multiple OCMI zones. This will be based on review of Class 1 structural failure casualty data, MSIS sorts of MISNs on Class 2 structural failure entries and Traveling Inspectors reports.

   b. The cognizant OCMI is authorized to establish CAIPs for vessels that operate solely within that zone. The OCMI shall notify the district and G-MOC of the CAIP initiation.

c. G-MOC will maintain a list of all vessels required to have CAIPs. This will be available in an MSIS VFSC product. As of June 1996, all tankers engaged in the Trans Alaskan Pipeline Service (TAPS) trade, including all vessels engaged in the export of oil from Valdez, Alaska to a foreign destination, are required to maintain CAIPs. Special details concerning these CAIPs are contained in Section 10Y. of this volume.

4. Operator Responsibilities When a vessel or class of vessels are designated by G-MOC for the CAIP Program, the vessel operator(s) shall:

a. Develop a CAIP in accordance with the performance elements of Enclosure (2) to NVIC 15-91. Format of the CAIP is left to the operator's discretion as long as all the performance criteria is included in the document.

b. Submit the CAIP to the vessel's classification society for review and approval.

c. Upon classification society approval, forward a copy of the approval letter to G-MOC. Submittal of the CAIP itself is not required.

5. CAIP Surveys All CAIP surveys are the responsibility of the vessel operator. Coast Guard inspectors are not required to be present during the surveys but OCMIs are strongly urged to assign inspectors because of the tremendous training opportunities afforded by these inspections. Vessel operators often employ highly experienced structural experts to examine and evaluate the vessel's internal structure. These individuals are generally also responsible for drafting repair proposals. Inexperienced inspectors can gain important experience pertaining to structural assessment through association with steel surveyors. The following guidelines shall be followed:

a. Notice of a CAIP survey should be given at least 15 days in advance to the cognizant OCMI.

b. If Coast Guard inspectors will attend, the operator should present the extent and schedule of the exam to the cognizant OCMI. OCMIs are encouraged to contact the Traveling Inspectors (G-MO-1) to discuss upcoming surveys. The Travelers have accumulated extensive records of many past CAIPs that would be helpful to the marine inspector.

c. The CAIP must be conducted by an individual who is qualified to conduct structural examinations. This individual may be a class surveyor, a surveyor who has been certified by a classification society, or an experienced surveyor who can provide documentation of his/her qualifications to the OCMI. Port engineers and/or ship's officers may be employed if the operator attests in writing to their qualifications. Operators are advised that CAIPs conducted by unqualified individuals

will not be accepted.

d. Cleanliness of the internal structure is paramount to the quality of the CAIP survey. Cleanliness is a subjective term. However, as a minimum, critical and active repair areas should be:

(1) Sufficiently free of standing water, particularly around bottom shell master erection butts and weld wraps of mushroom or rathole cutouts of bottom shell longitudinals.

(2) Sufficiently free of sludge and mud.

(3) Sufficiently free of wax build up and loose scale.

(4) Cleaned to prevent soft coatings, if applied, so as to prevent or hinder fracture detection.

If the CAIP surveyor has any doubt about the cleanliness of the internal structure, further butterworthing, waterwashing and/or stripping shall be conducted.

e. Surveys may be completed by any of the following methods:

(1) Rafting

(2) Staging

(3) Other techniques that apply latest and best technology, such as high resolution cameras suspended in tanks, which result in satisfactory close-up examination of the vessel structure and is acceptable to the OCMI.

Ideally, any of the physical methods employed should permit the surveyor or inspector to be no more than ten (10) feet from any structural component within the critical area defined by the CAIP.

f. Upon completion of the CAIP survey, the operator shall prepare survey report for entry into the CAIP manual. One copy shall be entered into the manual aboard the vessel. Another shall be forwarded to the cognizant OCMI for review. The operator shall provide an executive summary of the report to G-MOC. This summary is intended to be brief. It may contain only types and numbers of the various classes of structural failures noted and if these failures were in existing or new active repair areas. It is expected that these documents be prepared and forwarded within 60 days of the CAIP survey.

6. <u>OCMI Responsibilities and Guidance</u> The cognizant OCMI shall ensure that the following items are adhered to:

a. OCMIs shall instruct their inspectors to review the CAIP at each drydock exam and inspection for certification to verify

that the plan is updated and the required surveys have been performed.

b. When resources permit, inspectors should participate in CAIP surveys. It can not be stressed enough about what an extremely valuable training opportunity a CAIP provides to first tour inspectors. Attending inspectors should monitor the survey and assess its overall quality and completeness.

c. When OCMIs are advised of fractures, they shall require and monitor repairs as required by Section 5.G.2. of this volume.

d. OCMIs should conduct a thorough review of CAIP reports to determine if the periodic information from NVIC 15-91 is provided. The following areas should be of particular interest:

(1) Scope of the survey

(2) Qualifications of the surveyor

(3) Fractures reported as required.

(4) Repair proposals submitted by the operator are acceptable within the established guidelines. Repair procedures specifically to TAPS tankers can be found in Section 10Y. of this manual.

e. CAIPs provide a historical record of the vessel's structural failure and repair history. This history should be employed to evaluate current repair proposals. If certain construction details or prior repairs continue to fail, repairs in kind should not be authorized. OCMIs shall notify operators of their responsibility to improve the deficient detail(s) and work in conjunction with the operator and vessel's class society to mitigate reoccurrence. Conversely, OCMIs and attending surveyors should recognize the effectiveness of prior repairs and design modifications and accept current repairs done in accordance with these procedures. This supports consistency across OCMI zones.

f. When Class 1 fractures occur, OCMIs shall require a failure analysis or non-destructive testing of steel samples in accordance with 5.G.7.e. of this volume. The CAIP process was developed to analyze structural failures and prevent or mitigate their recurrence. Such analysis is vital to this effort.

g. A history of recurring structural failures combined with an operator's reluctance to develop a permanent solution to their cause is sufficient grounds for the OCMI to recommend to Commandant (G-MOC), via the cognizant district (m), that a vessel be restricted from a particular trade, or, removed entirely from service. This is obviously a complex process

NOTE: REMOVAL FROM TRADE, CAUSE FOR

that will require several levels of review. However, nothing is intended to limit the OCMI's authority to remove a vessel's Certificate of Inspection if it is determined that the vessel cannot safely operate within its design parameters.

h. After review of the CAIP survey report, the OCMI shall ensure that the proper CAIP survey information is entered into MSIS.

i. Vessels in the ACP Several vessels required to maintain CAIPs have been accepted into the pilot Alternative Compliance Program (ACP). These vessels are inspected by ABS on behalf of the Coast Guard and are subject to oversight only. All ocean-going tankships classed by the ABS are required to follow Enhanced Survey guidelines in addition to normal survey requirements. The Enhanced Survey requirements closely parallel CAIP standards and are deemed equivalent as permitted by NVIC 15-91, Change 1, for the normal twice in five year drydock interval. However, the Enhanced Survey guidelines do not specify any annual survey requirements. Thus, strictly adopting the ABS guidelines for Enhanced Survey causes the operator to not comply with the Coast Guard standards if the vessel is subject to an annual CAIP requirement. Consequently, when oversighting these vessels, the OCMI must determine that the vessel has completed an annual CAIP to NVIC 15-91, or, that the Enhanced Survey guidelines have been formally extended by ABS to the annual interval and that the required surveys have been performed. Failure to conduct either examination at the prescribed interval will cause the vessel to be removed from service until done and possible civil penalty procedures initiated against the operator.

4/3/03 VALDEZ, ALASKA
NOTE ① CHECK MISLE FOR CAIP ENKO
② CHECK ABS ENHANCED SURVEY DATES AGAIN.

Enclosure (3) to COMDT (G-MOC) Ltr dtd JUL 1 1996

Chapter 10. INSPECTION PROCEDURES APPLICABLE TO VESSEL TYPES, CLASSES AND CATEGORIES

Y. Trans-Alaska Pipeline Service (TAPS) Tankships

1. Background The "Report of the TAPS Tanker Structural Failure Study" was published on 25 June 1990. The "TAPS Tanker Structural Failure Study Follow-up Report" was published in May 1991. Both reports addressed the reasons why TAPS tankers experienced a disproportional high number of structural failures compared to vessels in other trades. In order to combat these failures effectively, the principal recommendation of the TAPS study concerned the establishment of Critical Areas Inspection Plans (CAIPs) for all TAPS tankers. Specific guidance for CAIPs is contained in NVIC 15-91, NVIC 15-91, Change 1 and Section 5L. of this manual.

Between June 1990 and June 1996, the Coast Guard in partnership with TAPS operators and the ABS have conducted literally hundreds of CAIP examinations of TAPS vessels. While all TAPS vessels were subject to an annual examination of at least some portion of the cargo block, 16 vessels of which 14 were in three distinct classes, were subject to more frequent examinations due to severe structural problems caused by a combination of a number of factors including but not limited to poor design details, poor construction practices, lack of adequate internal coatings systems, lack of maintenance, age and harsh environmental conditions that stressed hulls and were exacerbated by various operating practices employed prior to the studies.

As of June 1996, only six of these targeted vessels in the ATIGUN PASS 165,000 deadweight ton class remain in existence. Only two of these vessels are currently in service. However, both operators of these vessels, BP America and SeaRiver Maritime, have been very effective in improving original design and construction details to the extent that the special six month interval between CAIPs originally imposed on these vessels is removed and the vessels may be examined under the one-year CAIP interval provided for by NVIC 15-91. The vessels in this class are:

a. S.S. ATIGUN PASS

b. S.S. THOMPSON PASS

c. S.S. BROOKS RANGE

d. S.S. KEYSTONE CANYON (downsized to 125,000 dwt in 1990)

e. S.S. S-R BENICIA

f. S.S. S-R NORTH SLOPE

2. Definitions

a. TAPS Tanker A vessel that transports oil in bulk from Valdez, Alaska to any U.S. or foreign port.

b. ANS Service Alaska North Slope service. A term designated by the U.S. Department of Commerce for tankers carrying oil in bulk from Valdez to foreign ports. This definition is interchangeable with TAPS.

c. Cargo Block As applicable to tankers and OBOs, all cargo and ballast tanks between the forward most and after most transverse cargo bulkheads.

3. CAIP Requirements for TAPS Tankers G-MOC will maintain an MSIS VFSC for CAIP status of TAPS tankers. TAPS tankers will be required to subscribe to CAIP requirements as follows:

a. Tankers New to TAPS Service All tankers initially entering the TAPS trade will be required to establish a CAIP for the full cargo block per NVIC 15-91. Operators may apply to Commandant (G-MOC) for alternative compliance with CAIP requirements per NVIC 15-91, Change 1, 5.b.(2)(d)-(f) but will be subject to a baseline examination by the Traveling Inspectors (G-MO-1) prior to G-MOC approval. The CAIP interval will be no longer than one year until a structural history can be developed by the Coast Guard. CAIPs may be performed within the tenth or fourteenth month following the previous CAIP survey.

b. Existing TAPS Tankers Tankers that have been in continuous TAPS service are normally subject to annual CAIPs. However, operators may apply G-MOC for relief of certain CAIP requirements on a case by case basis as outlined in NVIC 15-91, Change 1. This includes elimination of certain portions of the cargo block from a CAIP examination or extending CAIP intervals. Favorable approval of these requests will be based primarily on review of the structural failure history which may show the lack of significant problems over time or past structural problems which have permanently been corrected.

c. Tankers In and Out of TAPS Service Circumstances may cause TAPS tanker operators to place vessels on other routes for extended periods. It is not mandatory to maintain the CAIP during this period. However, the vessel must complete a CAIP prior to return to TAPS service if the prescribed interval since the last CAIP has been exceeded.

d. CAIPs vs. ABS Enhanced Survey Guidelines NVIC 15-91, Change 1 permits TAPS operators to substitute ABS Enhanced Survey guidelines for CAIPs on a case by case basis. It has been determined that the Enhanced Survey is equivalent to the CAIP requirements for those vessels that are approved for a normal two in five year internal examination interval which would correspond to the ABS Special Survey and Intermediate Survey

requirements. However, the Enhanced Survey requirements do not equate with a CAIP in both scope and depth of examination on an annual basis. Operators must affirm in writing to G-MOC that the Enhanced Survey requirements normally complied with at Special Survey will be performed to satisfy annual CAIP requirements.

e. TAPS Tankers Involved in Export Trade In April 1996, the President signed an authorization allowing export of Alaskan oil to foreign markets. The authorization requires that exporters obtain a special permit from the Department of Commerce to engage in this trade. As a condition of obtaining the permit, the exporter must employ a tanker that is subject to an annual CAIP survey. Consequently, although NVIC 15-91, Change 1 provides operators to extend CAIP intervals, separate rule making by the Department of Commerce will require those vessels employed in oil export service to undergo a mandatory annual CAIP.

f. TAPS Tankers Enrolled in the ACP Tankers enrolled in the Alternative Compliance Program described in Section 5.G.6 of this volume may substitute ABS Enhanced Survey Guidelines for the CAIP examine provided that surveys are performed to the same extent required by the CAIP.

g. Reports of Structural Failure TAPS operators shall report Class 1 and 2 structural failures in accordance with the procedures outlined in Subsections 5.G.3.a and 5.G.9.a. of this volume. Acceptance of Enhanced Survey requirements in lieu of CAIPs or enrollment of a vessel in ACP does not relieve an operator of reporting responsibility to the cognizant OCMI.

h. Maintenance of Records A complete, up to date CAIP shall be required on each TAPS tanker and in the operator's office. A copy of the detailed survey report normally completed to append the vessel CAIP shall be provided to the cognizant OCMI where the survey is performed or where repair work, if required, will be conducted. An executive summary highlighting the CAIP shall be provided to G-MOC for review and forwarding to the Traveling Inspectors for maintenance in the TAPS file. The executive summary should contain the same, but less detailed information, required by enclosure (4) of NVIC 15-91. It is expected that the CAIP update and the executive summary be completed and placed aboard the vessel and forwarded, respectively, within 60 days of the CAIP. The cognizant OCMI shall ensure the vessel's MSIS files are updated to reflect the current CAIP.

4. TAPS Repair Guidance The hierarchy of repairs described in this section shall be considered as a guideline for repairs whether the fracture is found at the CAIP survey or during routine operations.

a. Class 1 Structural Failures All such failures must be immediately repaired prior to the vessel being permitted to return to service in accordance with Section 5.G.3 of this

volume. Operators are always required to submit a Coast Guard form CG-2692, "Report of Marine Accident, Injury or Death" whenever a Class 1 failure occurs or is found.

b. Class 2 Structural Failures These failures shall be evaluated by the operator in concert with the cognizant OCMI and vessel's class society. Temporary repairs may be authorized. In some cases, if the failure has arrested itself or poses no further chance of propagation, monitoring of the fracture with no repair may be authorized by the OCMI until the next scheduled repair period. No CG-2692 is required to be filed.

c. Class 3 Structural Failures Repair of Class 3 failures may be held in abeyance to the next regularly scheduled repair period at the discretion of the operator. Repair of a Class 3 failure may be deferred and monitored if the OCMI determines that the repair would actually create a bigger problem such as expanding the heat effected zone between the weldment and base metal and causing additional stresses to be concentrated into a design detail.

d. Temporary vs. Permanent Repairs It is imperative that OCMIs consider all past approved repair procedures which have been effective in service in order to ensure consistency between zones. It is also important that the root cause of any structural failure be determined or understood prior to approving a repair as either "temporary" or permanent." The primary goal of the CAIP guidelines is to prevent reoccurrence of structural failures and not simply just to address the end result of the root cause of the problem. The terms "temporary" and "permanent" can have multiple meanings that are clarified as follows:

(1) For Class 1 structural failures, temporary repairs mean emergency measures taken to allow a vessel to safely transit to a port or facility to effectively evaluate the failure and accomplish permanent repairs. In no case will a vessel be continued in service under the terms and conditions of the Certificate of Inspection, solely with these repairs, beyond the singular voyage to a discharge port and/or repair facility.

(2) For Class 2 and 3 structural repairs, temporary repairs mean measures taken to prevent a structural failure from propagating to the next higher class. Generally, it is intended that these measures need suffice only to the next regularly scheduled repair period when "permanent" repairs could be effected. However, past history has shown that in many cases, these "temporary" measures have satisfactorily arrested the cause of the failures. At the request of the operator, the OCMI should evaluate their effectiveness and may accept them as permanent, if warranted. In such cases, a CG-835 noting the temporary repair and requiring a subsequent permanent repair may

simply be written off as completed, accordingly.

(3) For all three classes of failure, permanent repairs should not be necessarily construed as "repairs in kind." Structural failures resulting from a poor design detail will recur if that detail is restored as original. Much of the success realized to date in curtailing numbers of TAPS structural failures has resulted from improving design details. However, unless it is ascertained that a certain repetitive type fracture could reach critical proportions, it is acceptable to permit repair by traditional means such as "veeing" and welding. It should be recognized that structural repairs could be an iterative process, that is, several "permanent" repairs may be proposed and accepted before a modification is successful in preventing recurring fractures.

e. Repair Guidance Guidance on previously approved repairs can be obtained from numerous sources including but not limited to:

(1) The vessel's CAIP

(2) Traveling Inspectors (G-MO-1) files

(3) Classification society files

(4) "Guidance Manual for the Inspection and Condition Assessment of Tanker Structures" published by the International Chamber of Shipping

closure (4) to COMDT (G-MOC) Ltr dtd JUL 1 1996

Chapter 7. VESSEL REINSPECTIONS

H. Critical Areas Inspection Plan (CAIP) Surveys

1. General Surveys required as a part of a vessel's CAIP will be conducted as outlined in NVIC 15-91, NVIC 15-91, Change 1 and Chapters 5 and 10 of this volume.

Enclosure (4) to COMDT (G-MOC) Ltr dtd JUL 1 1996

Chapter 8. Hull Examinations

I. Critical Area Inspection Plan (CAIP) Surveys

1. General Hull examinations required as a part of a vessel's CAIP will be conducted as outlined in NVIC 15-91, NVIC 15-91, Change 1, and Chapters 5 and 10 of this volume.