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United States Coast Guard

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COMDTPUB P16700.4
NVIC 10-02 Change 1
AUG 6 2004

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 10-02, CHANGE 1

Subj: CH-1 TO NVIC 10-02, SECURITY GUIDELINES FOR VESSELS

1. PURPOSE.

This document revises Navigation and Vessel Inspection Circular (NVIC) No. 10-02 by purging outdated sections and inserting changes. With these changes in place, this Circular only provides the guidance for performing Vessel Security Assessments.

2. BACKGROUND

As the leader in Maritime Homeland Security, the Coast Guard has taken many measures to detect, deter, disrupt, and respond to attacks against U.S. territory, population, vessels, facilities, and critical maritime infrastructure. NVIC 10-02 was published to provide port users the necessary guidance to conduct vulnerability assessments and to develop security plans. In the two years following the terrorist events of September 11, 2001, the Maritime Transportation Security Act of 2002 (MTSA) was enacted into law and associated regulations were published on October 22, 2003. The backbone of the regulations superceded the guidance provided in the various elements of the original NVIC and a large portion of the NVIC will be removed. The portion of the NVIC being retained is the section, referenced in the regulations, that provides guidance for conducting vessel security assessments.

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3. DISCUSSION.

Under Title 33, Parts 104.305, 105.305, and 106.305 of the Code of Federal Regulations, the requirement for conducting assessments is a responsibility of vessel and facility owners. The Coast Guard is issuing, through means of this NVIC, recommended criteria for performing the required assessments. Enclosure (1) outlines procedures to evaluate and document security measures. It is a simplified risk-based security assessment tool, which can be used to refine and tailor security measures to specific facilities or to assess the equivalency of alternative approaches. Owners or operators are encouraged to document the process, record the results of these assessments and provide suggestions on how this assessment tool might be improved.

4. IMPLEMENTATION.

Make the following changes to the subject NVIC:

a. Remove pages 1-5 of NVIC 10-02 and insert pages 1 and 2 of NVIC 10-02 CH 1.
b. Remove Enclosure 1 and Appendices A, C, and D.
c. Designate Appendix B as Enclosure 1.

T. H. GILMOUR
Rear Admiral, U.S. Coast Guard
Assistant Commandant for Marine Safety, Security
and Environmental Protection

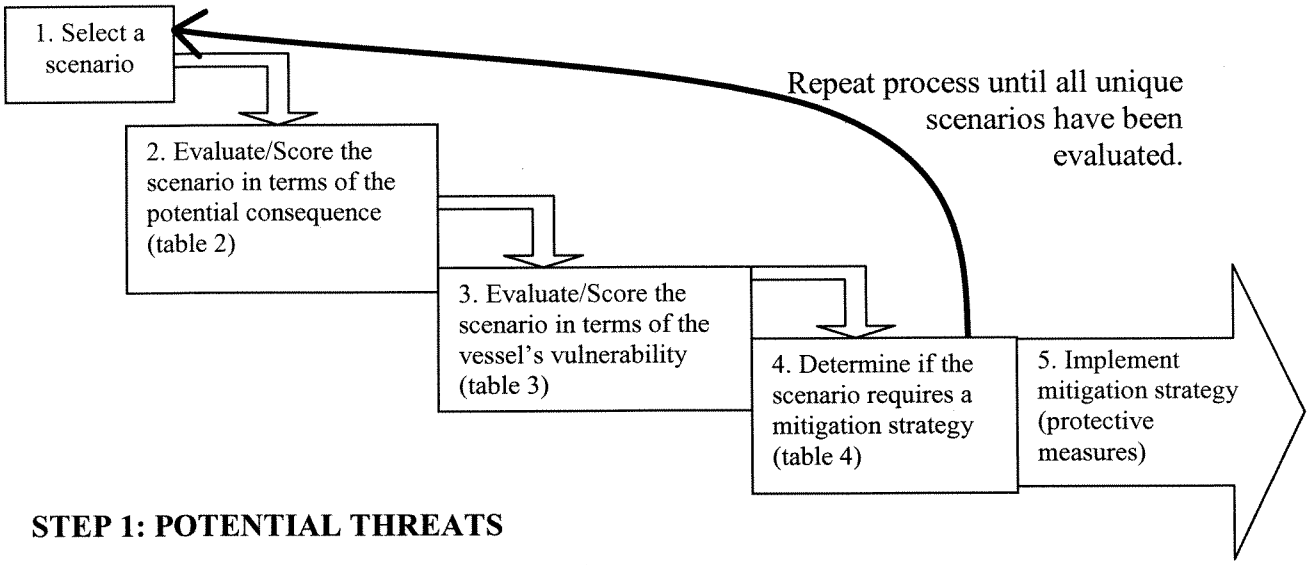
Encl (1): Guidance on Performing Security Assessments

Guidance on Performing Security Assessments

It is generally agreed that risk-based decision-making is one of the best tools to complete a security assessment and to determine appropriate security measures for a vessel. Risk-based decision-making is a systematic and analytical process to consider the likelihood that a security breach will endanger an asset, individual, or function and to identify actions to reduce the vulnerability and mitigate the consequences of a security breach.

A security assessment is a process that identifies weaknesses in physical structures, personnel protection systems, processes, or other areas that may lead to a security breach, and may suggest options to eliminate or mitigate those weaknesses. For example, a security assessment might reveal weaknesses in an organization's security systems or unprotected access points such as the pilot boarding ladder not being raised or side ports not being secured or monitored after loading stores. To mitigate this threat, a vessel would implement procedures to ensure that such access points are secured and verified by some means. Another security enhancement might be to place locking mechanisms and/or wire mesh on doors and windows that provide access to restricted areas to prevent unauthorized personnel from entering such spaces. Such assessments can identify vulnerabilities in vessel operations, personnel security, and physical and technical security.

The following is a simplified risk-based security assessment that can be further refined and tailored to specific vessels. The process and results may be documented when performing the assessment. An example is provided in Table 5 on how to document the process and results.



STEP 1: POTENTIAL THREATS

To begin an assessment, a vessel or company needs to consider attack scenario(s) consisting of a potential threat to the vessel under specific circumstances. It is important

that the scenario or scenarios are within the realm of possibility and, at a minimum, address known capabilities and intents as given by a threat assessment. For example, a boat containing explosives (a specific attack scenario) ramming a tanker (target) that is outbound through a choke point (specific circumstance) is one credible scenario. It may be less credible that a hand held missile launched from a distance at a large tanker could intentionally sink the vessel that is outbound through a choke point.

The number of scenarios is left to the judgment of the vessel owner and/or operator. An initial evaluation should at least consider those scenarios provided in Table 1 with emphasis being placed on the worst-case scenario, and the most probable scenarios. Care should be taken to avoid unnecessarily evaluating excessive scenarios that result in low consequences. Minor variations of the same scenario also do not need to be evaluated separately unless there are measurable differences in consequences.

Table 1: Notional List of Scenarios

Typical Types of Scenarios		Application Example
1. Intrude and/or take control of the target and ...	a. Damage/destroy the vessel with explosives	Intruder plants explosives.
	b. Damage/destroy the vessel through malicious operations/acts	• Intruder takes control of a vessel and runs it aground or collides with something intentionally. • Intruder intentionally opens valves to release Hazmat, etc.
	c. Create a hazardous or pollution incident without destroying the vessel	• Intruder opens valves/vents to release toxic materials or releases toxic material brought along. • Intruder overrides interlocks leading to damage/destruction.
	d. Take hostages/kill people	Goal of the intruder is to kill people.
2. Externally attack the vessel by ...	a. Moving explosives adjacent to vessel • From the waterside • On the shore side • Subsurface	• USS Cole style attack. • Car/truck bomb.
	b. Ramming a stationary target: • With a vessel • With a land-based vehicle	Intentional allision meant to damage/destroy the target (i.e. waterway choke point). NOTE: Evaluate overall consequences from the allision, but only evaluate the vulnerabilities of the vessel and not the vulnerabilities of the target being rammed.
	c. Launching or shooting weapons from a distance	Shooting at a vessel using a rifle, missile, etc.
3. Use the vessel as a means of transferring ...	a. Materials to be used as a weapon into/out of the country	
	b. People into/out of the country	

STEP 2: CONSEQUENCE ASSESSMENT

Each scenario should be evaluated in terms of the potential consequences of the attack. Three elements are included in the consequence assessment: death and injury, economic impact, and environmental impact. A descriptor of the consequence components follows:

DEATH AND INJURY	The potential number of lives that could be lost and injuries occurring as a result of an attack scenario.
ECONOMIC IMPACT	The potential economic impact of an attack scenario.
ENVIRONMENTAL IMPACT	The potential environmental impact of an attack scenario.

The appropriate consequence score or "rating", should be evaluated for each scenario. Consequence ratings and criteria with benchmarks are provided in the following table. These ratings are intended to be broad relative estimates. The appropriate rating is determined by using the consequence component that results in the highest rating. For example, if the death and injury and economic impact result in a Moderate or "1" rating but the environmental impact result is a Significant or "2" rating, then the over all consequence score would be assigned a rating of "2." A precise calculation of these elements is not necessary.

Table 2: Consequence Score

Assign a rating of:	If the impact could be
3	CATASTROPHIC = numerous loss of life or injuries, major national or long term economic impact, complete destruction of multiple aspects of the eco-system over a large area
2	SIGNIFICANT = multiple loss of life or injuries, major regional economic impact, long-term damage to a portion of the eco-system
1	MODERATE = little or no loss of life or injuries, minimal economic impact, or some environmental damage

STEP 3: VULNERABILITY ASSESSMENT

Each scenario should be evaluated in terms of the vessel's vulnerability to an attack. Four elements of the vulnerability score are: availability, accessibility, organic security, and vessel hardness. With the understanding that the vessel owner and/or operator has the greatest control over the accessibility and organic security elements, these elements may be addressed for each scenario. Descriptors of these two vulnerability elements follow:

ACCESSIBILITY	Accessibility of the vessel to the attack scenario. This relates to physical and geographic barriers that deter the threat without organic security.
ORGANIC SECURITY	The ability of security personnel to deter the attack. It includes security plans, communication capabilities, guard force, intrusion detection systems, and timeliness of outside law enforcement to prevent the attack.

The vessel owner and/or operator should discuss each vulnerability element for a given scenario. The initial evaluation of vulnerability is normally viewed with only existing strategies and protective measures, meant to lessen vulnerabilities, which are already in place. After the initial evaluation has been performed, a comparison evaluation can be made with new strategies and protective measures considered. Assessing the vulnerability with only the existing strategies and protective measures provides a better understanding of the overall risk associated with the scenario and how new strategies and protective measures will mitigate risk.

The vulnerability score and criteria with benchmark examples are provided in the following table. Each scenario should be evaluated to get the individual score for each element and then sum these elements to get the total vulnerability score (step 3 in Table 5). This score should be used as the vulnerability score when evaluating each scenario in the next step.

Table 3: Vulnerability Score

Category	Accessibility	Organic Security
3	No deterrence (e.g. unrestricted access to vessel and unrestricted internal movement)	No deterrence capability (e.g. no plan, no guard force, no emergency communication, outside law enforcement not available for timely prevention, no detection capability)
2	Good deterrence (e.g. single substantial barrier; unrestricted access to within 100 yards of vessel)	Good deterrence capability (e.g. minimal security plan, some communications, armed guard force of limited size relative to the vessel; outside law enforcement not available for timely prevention, limited detection systems)
1	Excellent deterrence (expected to deter attack; access restricted to within 500 yards of vessel; multiple physical/geographical barriers)	Excellent deterrence capability expected to deter attack; covert security elements that represent additional elements not visible or apparent

STEP 4: MITIGATION

The vessel owner and/or operator should next determine which scenarios may have mitigation strategies (protective measures) implemented. This is accomplished by determining where the scenario falls in Table 4 based on the consequence and vulnerability assessment scores. Following are terms used in Table 4 as mitigation categories:

"Mitigate" means that mitigation strategies, such as security protective measures and/or procedures, may be developed to reduce risk for that scenario. An appendix to the Vessel Security Plan may contain the scenario(s) evaluated, the results of the evaluation, a

description of the mitigation measure evaluated, and the reason mitigation measures were or were not chosen.

"Consider" means that the scenario should be considered and mitigation strategies should be developed on a case-by-case basis. The Vessel Security Plan may contain the scenario(s) evaluated, the results of the evaluation, and the reason mitigation measures were or were not chosen.

"Document" means that the scenario may not need a mitigation measure at this time and therefore needs only to be documented. However, mitigation measures having little cost may still merit consideration. The security plan may contain the scenario evaluated and the results. This will be beneficial in further revisions of the security plan, to know if the underlying assumptions have changed since the last edition of the security assessment.

Table 4 is intended as a broad, relative tool to assist in the development of the vessel security plan. "Results" are not intended to be the sole basis to trigger or waive the need for specific measures, but are one tool in identifying potential vulnerabilities and evaluating prospective methods to address them.

Table 4: Vulnerability & Consequence Matrix

		Total Vulnerability Score		
		2	3-4	5-6
Consequence Score	3	Consider	Mitigate	Mitigate
	2	Document	Consider	Mitigate
	1	Document	Document	Consider

To assist the vessel owner and/or operator in determining which scenarios may require mitigation methods, the vessel owner and/or operator may find it beneficial to use Table 5 provided below. The vessels owner and/or operator can record the scenarios considered, the consequence score (Table 2), outcome of the each element of vulnerability (Table 3), the total vulnerability score, and the mitigation category Table 4).

Table 5

MITIGATION DETERMINATION WORKSHEET					
Step 1	Step 2	Step 3			Step 4
Scenario/Description	Consequence Score (Table 2)	Vulnerability Score (Table 3)			Mitigation Results (Table 4)
		Accessibility +	Organic Security =	Total Score	

STEP 5: IMPLEMENTATION METHODS

The true value of these assessments is realized when the vessel owner and/or operator determines which scenarios require mitigation and which mitigation strategies (protective measures), when implemented, will best reduce vulnerabilities. The overall desire is to reduce the risk associated with the identified scenario. Note that generally, as mentioned previously, it is easier to reduce vulnerabilities than to reduce consequences or threats when considering mitigation strategies.

To assist the vessel owner and/or operator in evaluating the effectiveness of specific mitigation strategies (protective measures), the vessel owner and/or operator may find it beneficial to use Table 6 provided below.

Table 6

MITIGATION IMPLEMENTATION WORKSHEET						
1	**2**	**3**	**4**			**5**
Mitigation Strategy (Protective Measure)	**Scenario(s) that are affected by Mitigation Strategy (from Step 1 in Table 5)**	**Consequence Score (remains the same)**	**New Vulnerability Score (Table 3)**			**New Mitigation Results (Table 4)**
			Accessibility + Organic = Total			
				Security	**Score**	
1.	1.					
	2.					
	…					
2.	…					

The following steps correspond to each column in Table 6.

1. The vessel owner and/or operator should brainstorm mitigation strategies (protective measures) and record them in the first column of Table 6.

2. Using the scenario(s) from Table 5, list all of the scenario(s) that would be affected by the selected mitigation strategy.

3. The consequence score remains the same as was recorded in Table 5 for each scenario.

4. Re-evaluate the vulnerability score (Table 3) for each element, taking into consideration the mitigation strategy, for each scenario.

5. With the consequence score and new total vulnerability score, use Table 4 to determine the new mitigation results.

There are two factors, effectiveness and feasibility, to consider in determining if a mitigation strategy should be implemented. A strategy may be thought of as highly effective if its implementation lowers the mitigation category (e.g., from "mitigate" to

"consider" in Table 4). A strategy may be thought of as partially effective if the strategy will lower the overall vulnerability score when implemented by itself or with one or more other strategies - for example, if a mitigation strategy lowers the vulnerability score from "5-6" to "3-4" while the consequence score remains at "3" and the mitigation category stays at "mitigate."

It should be noted that if a mitigation strategy, when considered individually, does not reduce the vulnerability, then multiple strategies may be considered in combination. Considering mitigation strategies as a whole may allow the vulnerability to be reduced.

A strategy may be thought of as feasible if it can be implemented with little operational impact or funding relative to the prospective reduction in vulnerability. A strategy may be thought of as partially feasible if its implementation requires significant changes or funding relative to the prospective reduction in vulnerability. A strategy may be thought of as not feasible if its implementation is extremely problematic or is cost prohibitive.

The vessel owner and/or operator should keep in mind that some strategies may be deployed commensurate with various security threat levels established. Feasibility of a mitigation strategy may vary based on the MARSEC level, therefore some strategies may not be warranted at MARSEC Level 1, but may be at MARSEC Levels 2 or 3. For example, using divers to inspect the underwater pier structures and vessel may not be necessary at MARSEC Level 1, but may be necessary if there is a specific threat and/or an increase in MARSEC level. Mitigation strategies should ultimately ensure that a level of security is maintained to achieve the objectives discussed in enclosure (1).

As an example of a possible vulnerability mitigation measure, a company may implement security patrols by hiring additional personnel to detect and prevent unauthorized persons from entering spaces below the main deck on a passenger ferry. This measure would improve organic security and may reduce the overall vulnerability score from a "high" to a "medium". This option, however, is specific for this scenario and also carries a certain cost. Another option might be to secure all access points to spaces below the main deck. This may reduce the accessibility score from "high" to "medium". This option does not require additional personnel and is a passive mitigation measure. Similarly, other scenarios can be tested to determine the most effective strategies.

The vessel owner and/or operator should develop a process through which overall security is continually evaluated by considering consequences and vulnerabilities, how they may change over time, and what additional mitigation strategies can be applied.

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The Chlorine Institute, Inc.
1300 Wilson Boulevard
Arlington, VA 22209
Attn: Kathleen A. Shaver

Dear Ms. Shaver:

I am replying to your letter dated June 25, 2004, in which you ask for clarification regarding one of our Policy Advisory Council decisions involving caustic soda solution. These decisions are made with the intent to provide a safe and secure marine transportation system for waterway users. A vessel or facility that meets all of the criteria identified in the Frequently Asked Question (FAQ) is exempt from the regulations. While vessels or facilities affected by this decision are not required by the regulations to notify their Captain of the Port, such notifications are recommended in order that such operators are identified for potential membership in our Area Maritime Security Committees.

I appreciate the comments that you have regarding these Policy Advisory Council decisions and hope that you agree with my efforts to provide this information in a manner that we feel is the most rapid and most consistent for use by our waterway operators as well as our own COTP's. Review of these FAQ's will be an integral part of our process to help guide the necessary changes to our regulations. I look forward to hearing from you regarding any other issues that you feel need to be addressed in whatever upcoming changes we make to regulations.

Sincerely,

L. L. HERETH
Rear Admiral, U.S. Coast Guard
Director of Port Security