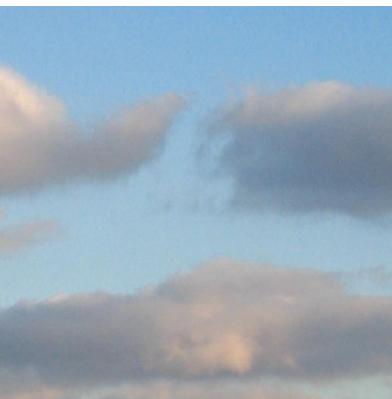




# Maritime Forces Atlantic



Safety and Environmental  
Management System (SEMS) Manual  
March 2009

## COMMANDER'S SAFETY AND ENVIRONMENTAL POLICY STATEMENT

All Maritime Forces Atlantic (MARLANT) activities have the potential to adversely affect the health and safety of personnel and negatively impact the environment. At MARLANT, we recognize these potential safety risks and environmental impacts, and are determined to protect our people and the environment while maintaining operational effectiveness.

To meet this commitment, MARLANT shall implement the Defence Environmental Strategy and the Defence Occupational Health and Safety Strategy within the framework of a formal documented Safety and Environmental Management System (SEMS), consistent with the principles of Canadian National Standards CSA Z1000 and ISO 14001. Senior management shall use the SEMS framework to set safety and environmental objectives and targets, as well as, review the progress of associated programs. The SEMS provides MARLANT with the direction and guidance to meet applicable safety and environmental legislation, standards and departmental policies. By implementing the SEMS, we can demonstrate our due diligence and ensure the continual improvement of our safety and environmental performance.

The SEMS encompasses civilian and military personnel, as well as, suppliers and contractors working for or on behalf of MARLANT. To keep our people safe and ensure our commitment to the prevention of pollution, we must be aware of the safety and environmental consequences of our actions and conduct our duties in a responsible manner.

I am personally committed to providing a safe workplace and sustaining our environment while fulfilling our operational mandate

## ÉNONCÉ DE POLITIQUE DU COMMANDANT SUR LA SÉCURITÉ ET L'ENVIRONNEMENT

Toutes les activités des Forces maritimes de l'Atlantique (FMAR(A) ont le potentiel d'avoir un impact négatif sur la santé et la sécurité du personnel et sur l'environnement. Les FMAR(A) reconnaissent ces risques pour la sécurité et leur incidence sur l'environnement et se sont engagées à protéger ses membres et l'environnement tout en préservant l'efficacité opérationnelle.

Pour satisfaire à cet engagement, les FMAR(A) entendent appliquer la Stratégie de l'environnement de la Défense et la Stratégie de la Défense en matière de santé et de sécurité au travail dans le cadre d'un Système de gestion de la sécurité et de l'environnement (SGSE), conformément aux principes des normes nationales du Canada CSA Z1000 et ISO 14001. La haute direction se servira du cadre du SGSE pour fixer des objectifs et des cibles en matière de sécurité et d'environnement, ainsi que pour assurer le suivi des programmes connexes. Le SGSE dispense aux FMAR(A) l'orientation et la direction requises pour observer les lois, les normes et les politiques ministérielles pertinentes en matière de sécurité et d'environnement. En appliquant le SGSE, nous pouvons faire preuve de diligence raisonnable et veiller à l'amélioration constante de notre rendement en matière de sécurité et d'environnement.

Le SGSE touche autant le personnel civil que militaire, de même que les fournisseurs et entrepreneurs qui travaillent au service ou au nom des FMAR(A). Pour garantir la sécurité de notre personnel et honorer notre engagement sur le plan de la prévention de la pollution, nous devons être conscients des conséquences de nos gestes sur la sécurité et sur l'environnement, et nous acquitter de nos fonctions de manière responsable.

Je suis personnellement résolu à fournir un milieu de travail sécuritaire et à préserver notre environnement tout en nous acquittant de notre mandat opérationnel.



John F. Newton

Rear-Admiral/Contre-amiral  
Commander/Commandant

Maritime Forces Atlantic/Forces maritimes de l'Atlantique  
September 2013/Septembre 2013



# FOREWORD

**FORMATION  
SAFETY and ENVIRONMENT MANAGEMENT SYSTEM (SEMS)  
PROCEDURES MANUAL**

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Commander's Safety and Environmental Policy

**FOREWORD**

Table of Contents.....	1/10
Authority.....	4/10
Manual Owner .....	5/10
Manual Distribution.....	6/10
Revision History .....	7/10

**PART I - ADMINISTRATION**

<b>Chapter 1 – General .....</b>	2/17
<b>Chapter 2 – Policy.....</b>	3/17
<b>Chapter 3 – Planning .....</b>	3/17
Safety Hazards and Environmental Aspects .....	3/17
Legal and Other Requirements.....	4/17
Safety and Environmental Management Programs (SEMPS).....	5/17
Objectives and targets.....	6/17
Management of Change .....	6/17
<b>Chapter 4 - Implementation &amp; Operation .....</b>	7/17
Resources, Roles, Responsibility and Authority .....	7/17
Competence, Training and Awareness.....	8/17
Consultation and Communication .....	9/17
SEMS Documentation .....	11/17
Document and Data Control .....	11/17
Operational Control .....	12/17
Emergency Preparedness and Response .....	13/17
<b>Chapter 5 - Checking.....</b>	13/17
Performance Measurement and Monitoring .....	13/17
Calibrating Equipment.....	14/17
Evaluation of Compliance .....	14/17
Accidents, Incidents, Non-conformances and Corrective and Preventive Action .....	14/17
Control of Records .....	15/17
Internal Audit (Formation Verification Process) .....	16/17
<b>Chapter 6 - Management Review.....</b>	16/17

## PART I - ADMINISTRATION (continued)

### Annexes

Annex 1A	List of Units Included in the SEMS Scope
Annex 1B	Glossary
Annex 1C	Acronyms
Annex 3A	Identification and Determination of Significance of Safety Hazards and Environmental Aspects
Annex 3B	Hazards and Aspects
Annex 3C	Applicable Legal and Other Requirements
Annex 3D	Safety and Environmental Management Program (SEMP) Procedures
Annex 3E	Safety and Environment Management Programs (SEMPs)
Annex 4A	Safety and Environmental Organization
Annex 4B	FSE Qualifications and Training Matrix
Annex 4C	Document Master List
Annex 5A	Non-conformance Report
Annex 5B	Records Master Lists
Annex 6A	Instruction for Conducting a Management Review

## PART II - DIRECTIVES

### Safety

#S1	Lockout/Tag Out
#S2	Tools and Machinery (Formerly Guards and Barriers)
#S3	Reporting Off-duty Accidents and Physical Fitness Safety
#S4	Hazardous Occurrence Investigation, Reporting and Analysis
#S5	Return to Work Program
#S6	Fall Protection
#S7	Safety Permit Program (Formerly Gas Free Certification)
#S8	Personal Protective Equipment (PPE)
#S9	Respiratory Protection Program (RPE)
#S10	Confined Space Entry
#S11	Hot Work (Formerly Welding and Burning Operations (Ships))
#S12	Non-ionizing Radiation Safety Program
#S13	Laser Safety Program
#S14	Laser Ranges
#S15	Ionizing Radiation Safety (Formerly Radiation General SOPs)
#S16	Explosives Safety
#S17	Occupational Health Program
#S18	Safety Committees
#S19	Ergonomics Program
#S20	General Safety Program: Roles and Responsibility
#S21	Accommodating Persons with Environmental Illness / Multiple Chemical Sensitivity

**PART II – DIRECTIVES (continued)****Integrated Safety/Environment**

- #SE1 Hazardous Materials
- #SE2 Procurement and Contracting: To be developed (TBD)
- #SE3 Asbestos Management
- #SE4 Agency Inspections and Investigations
- #SE5 Safety and Environmental Training Program
- #SE6 Formation Verification Process, Inspections/Surveys and SPDET
- #SE7 Water Management

**Environment**

- #E1 Spill Prevention and Reporting
- #E2 Contaminated Sites Management
- #E3 Environmental Assessment (EA)
- #E4 Integrated Pest Management (IPM)
- #E5 Solid Waste Management
- #E6 Storage Tank Management
- #E7 Halocarbon Management
- #E8 Effluent Management
- #E9 TBD
- #E10 Climate Change
- #E11 Natural Resource Management
- #E12 Range and Training Area Management

**PART III - EMERGENCY PREPAREDNESS AND RESPONSE**

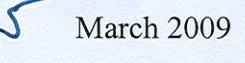
## AUTHORITY

1. This Manual provides guidance to MARLANT personnel for the implementation and maintenance of the Formation Safety and Environment Management System (SEMS).
2. It is based on ISO 14001:2004, the international and Canadian standard for Environmental Management Systems (EMSS), which is mandated by MARCORD 4-12 as the EMS model for all units, and Z1000-06, which is the Canadian Standard for Occupational health and safety management.
3. This Manual is used by MARLANT to provide a Safety and Environmental Management System that:
  - a. satisfies the requirements of Treasury Board, National Defence, Command and Formation safety and environmental policy and directives;
  - b. is consistent with the National Standard of Canada CAN/ISO 14001:2004 – “Environmental management systems – Requirements with guidance for use” hereafter called 14001; and
  - c. meets the requirements of Z1000-06, the Canadian Standard for Occupational health and safety management, hereafter called Z1000.

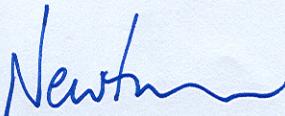
Under the authority of :



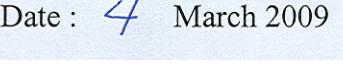
P.A. Maddison  
Rear-Admiral  
Commander  
Maritime Forces Atlantic

Date :  March 2009

Responsible Assistant Chief of Staff  
for implementation



John F. Newton  
Captain (N)  
Assistant Chief of Staff Materiel  
CFB Halifax

Date :  March 2009

**MANUAL OWNER**

4. This is a controlled copy of the MARLANT SEMS Manual. Manual owners, or other personnel, are not permitted to make changes to it. However, changes can be requested IAW the document control procedure described in the Manual. The SEMS Manual is controlled by the SO SEMS Administration in Formation Safety and Environment (FSE), who has the responsibility and authority for the distribution, maintenance and recall of controlled copies of the Manual.
5. The assigned owner of the controlled copy signs and dates the "Declaration" below.

MANUAL # 4

6. THIS COPY OF THE MANUAL IS RECORDED ON THE DISTRIBUTION LIST AS BEING ON LOAN TO:

Name: *Chris Pockett*

Rank: *CN*

Position *SO SEMS Admin*

DECLARATION

7. I have read and understood the above control and registration requirements.

Manual owner's Signature:



Date Received: *6 march 2009*

**MANUAL DISTRIBUTION**

Copy		Owner (Position/Rank)	Location	Date of Issue
No.	Type			
1	Electronic, CD	Commander MARLANT	Dockyard, Halifax (D-201)	March 2009
2	Master paper	FSEO	Stadacona Bldg S-90 Rm 334	March 2009
3	Paper	SO SEMS Administration	Stadacona Bldg S-90 Rm 334	March 2009
4	Master electronic	SO SEMS Administration	DIN web at < <a href="http://halifax.mil.ca/N4MAT/N48/index.htm">http://halifax.mil.ca/N4MAT/N48/index.htm</a> >	March 2009

**REVISION HISTORY****First Revision June 2005**

SEMS Document	Details of Revision	Date of Issue
Commander's Safety and Environmental Policy	New	Oct 2004
Foreword	Revised for SEMS	Jun 2005
<b>Part I</b>		
Part I Text	New	Jun 2005
<b>Part II</b>		
<b>Safety</b>		
Directive #S1 - Lockout/Tagout	Revised for SEMS	Jun 2005
Directive #S2 - Guards and Barriers	Revised for SEMS	Jun 2005
Directive #S3 - Hazardous Material	Revised for SEMS	Jun 2005
Directive #S4 Procurement and Safety Controls	Revised for SEMS	Jun 2005
Directive #S5 - Off-duty and Physical Fitness Safety	Revised for SEMS	Jun 2005
Directive #S6 Inspections and Surveys	Revised for SEMS	Jun 2005
Directive #S7 - Incident Directive Investigation, Reporting and Analysis	Revised for SEMS	Jun 2005
Directive #S8 - Return to Work	Revised for SEMS	Jun 2005
Directive #S9 – Training	Revised for SEMS	Jun 2005
Directive #S10 - Fall Arrest	Revised for SEMS	Jun 2005
Directive #S11 - Gas Free Certification	Revised for SEMS	Jun 2005
Directive #S12 - Personal Protective Equipment	Revised for SEMS	Jun 2005
Directive #S15 - Respiratory Protection Program	Revised for SEMS	Jun 2005
Directive #S14 - Confined Space Entry	Revised for SEMS	Jun 2005
Directive #S15 - Welding and Burning Operations (Ships)	Revised for SEMS	Jun 2005
Directive #S16 – Non-ionizing Radiation	Revised for SEMS	Jun 2005
Directive #S17 – LASER Safety	Revised for SEMS	Jun 2005
Directive #S18 LASER Ranges	Revised for SEMS	Jun 2005
Directive #S19 Radiation General SOPs	Revised for SEMS	Jun 2005
Directive #S20 Explosives Safety	Revised for SEMS	Jun 2005

SEMS Document	Details of Revision	Date of Issue
<b>Part II</b>		
<b>Environmental</b>		
Directive #E1 – HazMat Management	New	Jun 2005
Directive #E2- Spill Prevention and Reporting	Revised for SEMS	Jun 2005
Directive #E3 - Asbestos Management	Revised for SEMS	Jun 2005
Directive #E4 - Contaminated Sites	Revised for SEMS	Jun 2005
Directive #E5 – Environmental Assessment	Revised for SEMS and to reflect changes in CEAA.	Jun 2005
Directive #E6 - Inspections and Investigations	Revised for SEMS	Jun 2005
Directive #E7 – Integrated Pest Management	Revised for SEMS	Jun 2005
Directive #E8 – Environmental Training	Revised for SEMS	Jun 2005
Directive #E9 - Environmental Audit Program	Revised for SEMS	Jun 2005
Directive #E10 - Solid Waste Mgmt.	Revised for SEMS and annex added to provide instructions for handling international garbage.	Jun 2005
Directive #E11 - Storage Tank Mgmt.	Revised for SEMS	Jun 2005
<b>Part III</b>		
Emergency Preparedness and Response Plan	Revised for SEMS and to reflect the changes to BOps organization to include Military Policy, Fire Department, BOps and QHM.	Jun 2005

## Second Revision March 2006

SEMS Document	Details of Revision	Date of Issue
Foreword	Updated with new ACOS Mat signature.	Mar 2006
<b>Part I</b>		
Part I Text	Changed to reflect revisions to the CLC, Regulations Part XIX and ISO 14001 (2004). Several new definitions and acronyms added. New risk and impact assessment methodologies added. Legal and Other list was updated to include related hazards and aspects. Format of manual changed to reflect military writing style.	Mar 2006
<b>Part II</b>		
Directives #S1-#S20 and #E1-#E11	Format changed to reflect military writing style.	Mar 2006
Directive #E12 – Halocarbon Mgmt.	New	Mar 2006
Directive #E13 – Effluent Mgmt.	New	Mar 2006
Directive #E14 – Water Mgmt.	New	Mar 2006
Directive #E15 – Climate Change Mgmt.	New	Mar 2006
Directive #E16 – Natural Resource Mgmt.	New	Mar 2006
Directive #E17 – Training Area Mgmt.	New	Mar 2006
<b>Part III</b>		
Part III Text	Name of emergency response plan changed to Base Emergency Response Plan (BERP).	Mar 2006

**Third Revision, March 2009**

<b>SEMS Document</b>	<b>Details of Revision</b>	<b>Date of Issue</b>
Policy	18001 replaced by Z1000	Feb 2009
Policy	New Commander MARLANT	Nov 2010
Policy	New Commander MARLANT	Sep 2013
Foreword	18001 replaced by Z1000	Mar 2009
Foreword	Administrative changes – Table of Contents, pagination	Mar 2010
Foreword	Administrative changes – Table of Contents, Revision History	Jun 2011
Foreword	Administrative changes – Revision History	Jan 2013
Foreword	Administrative changes – Revision History	Apr 2013
Foreword	Administrative changes – Revision History	May 2013
Foreword	Administrative changes – Revision History	Jun 2013
Foreword	Administrative changes – Revision History and TOC	Feb 2014
Foreword	Administrative changes – Revision History	Mar 2014
Foreword	Administrative changes – Revision History	July 2014
Foreword	Administrative changes – Revision History	Aug 2014
<b>Part I</b>		
Part I Text	18001 replaced by Z1000 and minor changes for clarification.	Mar 2009
Part I Text	Reviewed for currency and revised where necessary.	Feb 2014
<b>Part I Annexes</b>		
Annex 1A – SEMS Scope	Revised to reflect organizational name changes.	Feb 2014
Annex 1B – Glossary	18001 replaced by Z1000 and definitions from Z1000 were added.	Mar 2009
Annex 1B - Glossary	Reviewed for currency and revised where necessary	Feb 2014
Annex 1C - Acronyms	Acronyms in text added to Annex.	Mar 2009
Annex 1C – Acronyms	Reviewed for currency and revised where necessary	Feb 2014
Annex 3A – Hazard/Aspect I.D. and determination of significance	18001 replaced by Z1000 and minor typos corrected. Aligned with changes requested for HFX Class Manual.	Mar 2009
Annex 3B – Hazards/Aspects Lists	Tables revised to reflect changes to Annex 3A. Table 2 header corrected, and hazards and aspects provided in two separate tables, a third table provides a prioritised list of hazards and aspects.	Mar 2009
Annex 3B – Hazards/Aspects Lists	Tables revised based on hazards and aspects review.	Jun 2013
Annex 3C – Applicable Legal and Other Requirements	Annex was updated with current legal and other requirements.	Mar 2010
Annex 3C – Applicable Legal and Other Requirements	Annex was updated with current legal and other requirements.	Jun 2011
Annex 3C – Applicable Legal and Other Requirements	Annex was updated with current legal and other requirements.	Apr 2013
Annex 3C – Applicable Legal and Other Requirements	Annex was updated to include references to SEMPs.	Feb 2014
Annex 3D – Safety and Environmental Management Program (SEMP) Procedures	Annex text revised to clarify and to make the procedure the same as practice. The forms in the appendices revised to align with the excel files used to link program/project information.	Mar 2009
Annex 3D Appendix 2 – SEMP Project Synopsis for FY	Minor changes to tables and text of Resources Required section.	Sep 2009
Annex 3D – Safety and Environmental Management Program (SEMP) Procedures	Reviewed for currency and revised where necessary.	Feb 2014
Annex 3D App 1 – Program Submission	Replaced previous appendix. Includes current Capability	Feb 2014

	Plan Program submission form.	
Annex 3D App 2 – Project Submission	Replaced previous appendix. Includes current Capability Plan Project submission form.	Feb 2014
Annex 4A – Safety and Environmental Organization	Added RadHazO, ULSSO and Unit Exp Safe O to list of TORs. Revised governance and organization charts.	Feb 2014
Annex 4A App 1 – TOR FSEMC	Reviewed for currency and revised where necessary.	Feb 2014
Annex 4A App 2 – TOR FltSEMC	Reviewed for currency and revised where necessary.	Feb 2014
Annex 4A App 8 – FSE Roles and Responsibilities	Reviewed for currency and revised where necessary.	Feb 2014
Annex 4A App 9 – TOR URadHazO	New	Feb 2014
Annex 4A App 10 – TOR ULSSO	New	Feb 2014
Annex 4A App 11 – TOR UAR and UESO	New	Feb 2014
Annex 4B – FSE Qualifications and Training Matrix	Reviewed for currency and revised where necessary.	Feb 2014
Annex 4C – Document Master List	Directive #S21 added to the list	Jun 2011
Annex 4C – Document Master List	Added Directive #SE7 and Annex 4A Appendices 9, 10 and 11	Feb 2014
Annex 6A – Instructions for conducting a management review	Steps in process clarified, and form, previously a part of the capability planning call letter, included to improve the collection of performance data for management review.	May 2009
Annex 6A – Instructions for conducting a management review	Reviewed for currency and revised where necessary.	Feb 2014
Appendix 1 – Safety and Environmental Performance Data (form)	Modified as a fill-in-the-blanks form to facilitate collection of data for management review.	May 2009
Appendix 2 – Guidelines for providing safety performance data	Modified to clarify the requirements for completing the safety performance data section of Appendix 1.	"
Appendix 1 – Safety and Environmental Performance Data (form)	Updated to reflect current performance reporting requirements.	May 2013
Appendix 2 – Guidelines for providing safety performance data	Updated to reflect current performance reporting requirements.	May 2013

SEMS Document	Details of Revision	Date of Issue
<b>Part II Safety Directives</b>		
Directive #S1 – Lockout/Tag Out	Expanded to provide clearer direction	Mar 2009
Directive #S2 – Tools and Machinery	Expanded to provide clearer direction, formerly Guards and Barriers	
Directive #S3 - Reporting Off-duty Accidents and Physical Fitness Safety	Expanded to provide clearer direction, formerly #S5	"
Directive #S4 - Hazardous Occurrence Investigation, Reporting and Analysis	Expanded to provide clearer direction, formerly #S7	"
Directive #S4 - Hazardous Occurrence Investigation, Reporting and Analysis	Reviewed for currency and revised where necessary	Feb 2014
Directive #S5 - Return to Work Program	Expanded to provide clearer direction, formerly #S8	Mar 2009
Directive #S6 - Fall Protection	Expanded to provide clearer direction, formerly #S10	"
Directive #S7 - Safety Permit Program (Formerly Gas Free Certification)	Expanded to provide clearer direction, formerly #S11	"
Directive #S8 - Personal Protective Equipment (PPE)	Expanded to provide clearer direction, formerly #S12	"
Directive #S9 - Respiratory Protection Program (RPE)	Expanded to provide clearer direction, formerly #S13	"
Directive #S10 - Confined Space Entry	Expanded to provide clearer direction, formerly #S14	"
Directive #S12 - Non-ionizing Radiation Safety Program	Expanded to provide clearer direction, formerly #S16	"
Directive #S13 - Laser Safety Program	Expanded to provide clearer direction, formerly #S17	"
Directive #S14 - Laser Ranges	Expanded to provide clearer direction, formerly #S18	"
Directive #S15 - Ionizing Radiation Safety (Formerly Radiation General SOPs)	Expanded to provide clearer direction, formerly #S19	"
Directive #S16 - Explosives Safety	Expanded to provide clearer direction, formerly #S20	"
Directive #S17 – Occupational Health and Safety	New	Mar 2009
Directive #S17 – Occupational Health and Safety	Revised to align authorities with CANFORGEN 118/12	Jan 2013
Directive #S18 – Safety Committees	New	Mar 2009
Directive #S19 – Ergonomics Program	New	"
Directive #S19 – Ergonomics Program	Reviewed for currency and revised where necessary.	Feb 2014
Directive #S20 – General Safety Program	New	Mar 2009
Directive #S21 - Accommodating Persons with Environmental Illness / Multiple Chemical Sensitivity	New	Jun 2011
Directive #S21 - Accommodating Persons with Environmental Illness / Multiple Chemical Sensitivity	Reviewed for currency and revised where necessary.	Mar 2014

<b>SEMS Document</b>	<b>Details of Revision</b>	<b>Date of Issue</b>
<b>Part II Integrated Safety/Environmental Directives</b>		
Directive #SE1 – Hazardous Materials Management	New, combines former safety directive #S3: Hazardous Material and former environmental directive #E1: Hazardous Material Management.	Mar 2009
Directive #SE2 - Procurement	Based on former directive #S4 Procurement and Safety Controls. Not yet finalized.	To be determined
Directive #SE3 - Asbestos Management	New, based on former environmental directive #E3 - Asbestos Management, with added safety component.	"
Directive #SE4 – Agency Inspections and Investigations	New, based on former environmental directive #E6 – Inspections and Investigations.	"
Directive #SE5 – Safety and Environmental Training	New, combines former safety directive #S9 – Safety Training and former environmental directive #E8 – Environmental Training.	"
Directive #SE6 – Formation Verification Process, Inspections/Surveys and SPDET	New, combines the former safety directive #S6 – Inspections and Surveys and former environmental directive #E9 – Audit Program with added safety component for SPDET.	"
Directive #SE7 – Water Management	New	Feb 2014

SEMS Document	Details of Revision	Date of Issue
<b>Part II Environmental Directives</b>		
Directive #E1 - Spill Prevention and Reporting	Reviewed for currency and revised where necessary, formerly #E2.	Mar 2009
Directive #E2 - Contaminated Sites Management	Reviewed for currency and revised where necessary, formerly #E4.	"
Directive #E2 - Contaminated Sites Management	Reviewed for currency and revised where necessary.	Feb 2014
Directive #E2 - Contaminated Sites Management	Reviewed for currency and revised where necessary.	Mar 2014
Directive #E3 - Environmental Assessment (EA)	Reviewed for currency and revised where necessary, formerly #E5.	Mar 2009
Directive #E4 - Integrated Pest Management (IPM)	Reviewed for currency and revised where necessary, formerly #E7.	"
Directive #E5 -Solid Waste Management	Reviewed for currency and revised where necessary, formerly #E10.	"
Directive #E5 -Solid Waste Management	Reviewed for currency and revised where necessary.	Feb 2014
Directive #E5 -Solid Waste Management	Reviewed for currency and revised where necessary.	Aug 2014
Directive #E6 - Storage Tank Management	Reviewed for currency and revised where necessary, formerly #E11.	Mar 2009
Directive #E6 - Storage Tank Management	Reviewed for currency and revised where necessary.	Feb 2014
Directive #E6 - Storage Tank Management	Reviewed for currency and revised where necessary.	Jul 2014
Directive #E7 - Halocarbon Management	Reviewed for currency and revised where necessary, formerly #E12.	Mar 2009
Directive #E7 - Halocarbon Management	Reviewed for currency and revised where necessary.	Feb 2014
Directive #E7 - Halocarbon Management	Reviewed for currency and revised where necessary.	Mar 2014
Directive #E8 - Effluent Management	Reviewed for currency and revised where necessary, formerly #E13.	Mar 2009
Directive #E8 - Effluent Management	Reviewed for currency and revised where necessary.	Mar 2014
Directive #E9 - Water Management	Reviewed for currency and revised where necessary, formerly #E14.	"
Directive #E9 - Water Management	Deleted and replaced by Directive #SE7	Feb 2014
Directive #E10 - Climate Change	Reviewed for currency and revised where necessary, formerly #E15.	Mar 2009
Directive #E11 - Natural Resource Management	Reviewed for currency and revised where necessary, formerly #E16.	"
Directive #E12 - Range and Training Area Management	Reviewed for currency and revised where necessary, formerly #E17.	"

SEMS Document	Details of Revision	Date of Issue
<b>Part III Emergency Preparedness and Response</b>		
Part III Emergency Preparedness and Response - MARLANT	Reviewed for currency and revised where necessary.	Feb 2014

## PART I – ADMINISTRATION

## PART I - ADMINISTRATION

### Chapter 1 - GENERAL

1. Hazard prevention has been practised at MARLANT for many years by implementing the DND/CF Safety Program. As a result, hazards have been identified and control measures applied. However, changes in legislation required this process to be formally documented.
2. Environmental risk management has been practiced at the Formation for more than 20 years and was formalized in March 1999, when a documented environmental management system (EMS) manual consistent with the principles of ISO 14001:2004, was issued.
3. In 2004, it was determined that it would be more efficient and effective to manage safety and environmental risk together and a joint SPR was formed 1 April 2005 followed by the initial issue of the integrated Safety and Environmental Management System (SEMS) Manual, 1 June 2005. This was subsequently revised in March 2006. Since that time, to meet the requirements of Z1000 the SEMS Manual has remained consistent with both Z1000 and ISO 14001.
4. The purpose of the SEMS is to facilitate the implementation of the Commander MARLANT's safety and environmental policy; thereby eliminating, or at least minimizing the risk associated with the safety hazards and the significant environmental aspects of activities, products and services it can control.
5. The scope of the Formation SEMS includes the activities and operations of all MARLANT integral and assigned lodger units listed at Annex 1A, and all persons, such as suppliers and contractors working for or on behalf of the Formation, who have access to MARLANT sites. The safety areas covered by the SEMS include: General Safety; Ionizing Radiation; Non-ionizing Radiation; Laser Safety; and Explosives Safety. To help the user understand the system, a glossary of definitions and a list of acronyms are contained in Annexes 1B and 1C, respectively.
6. The Defence Management Committee has mandated the use of the ISO 14001 model for environmental management. Being consistent with the principles of Z10001 and ISO 14001 provides MARLANT with a uniform approach to safety and environmental management and hence, due diligence. The Formation accomplishes this by adherence to the DND management system hierarchy that includes:
  - a. National Defence and Treasury Board safety and environmental policy, directives and standards;
  - b. RCN safety and environmental policy, relevant NAVORDs and directives;
  - c. MARLANT safety and environment policy, relevant MARLANTORDs, the Formation SEMS Manual; and
  - d. Unit and Ship Class Manuals.

7. The SEMS is documented to ensure it is robust to frequent turnover in personnel. The Manual provides information on the purpose and scope of the SEMS and details the responsibilities for implementation and maintenance. It provides direction on safety and environmental management topics and references to related documents.

## **Chapter 2 - POLICY**

8. The Commander MARLANT's safety and environment policy, which is located at the front of this manual, is communicated to, and applies to all personnel in MARLANT integral units and assigned lodger units and other persons within the scope of the SEMS. The policy is to be posted in high traffic areas throughout the Formation and copies are made available to all MARLANT personnel and to the public on demand. The policy is reviewed annually by the Formation Safety and Environment Officer (FSEO) and upon change of command.

## **Chapter 3 - PLANNING**

### **Safety Hazards and Environmental Aspects**

9. There is a legal requirement to have a Hazard Prevention Program that includes the identification and assessment of safety hazards and the implementation of appropriate control measures. This is also required by Z1000. There is a similar requirement in ISO 14001 to identify MARLANT's significant environmental aspects and to implement control measures. This has the objective of eliminating, or at least minimizing, the risks to the Formation of the safety hazards and significant environmental aspects associated with MARLANT's activities, products and services. This objective is met by:

- a. identification and assessment of safety hazards and environmental aspects using safety/environmental risk assessment methods;
- b. work to continually improve risk assessment methods; and
- c. implementation and maintenance of the SEMS to manage MARLANT safety and environmental programs, and improve performance.

10. The identification and assessment of safety hazards and environmental aspects was accomplished using the method given at Annex 3A – Safety Hazards and Environmental Aspects. The current lists of hazards and aspects, applicable to the Formation, are provided at Annex 3B, which also shows the control measures in place.

11. Progress in identifying hazards and aspects and determining their significance is reviewed and updated every year as part of the management review process. The updated list of safety hazards and environmental aspects is presented to the Formation Safety and Environmental Management Committee (FSEMC) during the annual SEMS Management Review. Hazards and aspects are also reviewed when they are identified and when actual changes in operations, activities

and services and/or equipment alter the significance of hazards or aspects or when new hazards or aspects are introduced to the Formation.

12. The updated MARLANT hazards and aspects lists are also submitted to the RCN Safety and Environmental Advisors who jointly develop RCN lists based on the input from the Formations. This is presented to the RCN Safety and Environmental Management Committee (RCN SEMC) during the RCN HQ Management Review.

13. All of MARLANT's safety hazards and significant environmental aspects are taken into account when setting Formation objectives, targets and establishing programs. They are also considered when:

- a. identifying applicable legal and other requirements;
- b. determining training requirements;
- c. documenting procedures and directives to manage safety hazards and environmental impacts; and
- d. developing monitoring programs and emergency preparedness and response plans.

### **Legal and Other Safety and Environmental Requirements**

14. The FSEO provides direction for this procedure while oversight is given by the FSEMSO. The SO SEMS Admin, working with SO Verification, ensures the safety and environmental legal and other requirements applicable to the Formation's safety hazards and environmental aspects are known and accessible by:

- a. working with subject matter experts to identify and interpret applicable legislation and policy;
- b. tracking actual and pending changes to the applicable legislation and policy;
- c. posting Part II of Canada Labour Code and Canada Occupational Health & Safety regulations on the intranet web page;
- d. reporting verification trends and providing a legislative and policy update as part of the management review process;
- e. consulting with relevant subject matter experts before issuing revisions to the units' legal and other requirements lists when there are changes to applicable legislation and policy; and
- f. disseminating to the units' safety and environment officers any changes to their legal and other requirements lists.

15. Unit General Safety Officers (UGSOs) and Unit Environment Officers (UEnvOs) assess the implication(s) to their units of the revised applicable legal and other requirements and provide this information to all relevant unit personnel. The current legal and other requirements that are applicable to MARLANT's safety hazards and environmental aspects are listed at Annex 3C.

### **Safety and Environmental Management Programs (SEMPs)**

16. SEMPs are established to meet the Department, RCN and Formation safety and environmental objectives, targets, and policies. Working with the section heads, the FSEO establishes the SEMPs by considering the relevant objectives, targets and policies and MARLANT's safety/environmental pressures and concerns.

17. Once the program(s) have been established, the FSEO/section heads, assign program managers who, together with the section heads, determine the means and time frame for program implementation. Programs are generally ongoing, but are reviewed annually to evaluate their currency.

18. Program managers, working with their respective section heads as part of the capability planning process, set annual program objectives and targets for the plan year. These are presented for endorsement at the FSEMC meeting. Progress in meeting targets is reviewed and reported to the FSEMC and RCN SEMC.

19. Program managers identify projects required to meet the objectives and targets for the next fiscal year and forecasted out years. Program managers document these requirements and prepare an annual capability plan submission for his/her assigned programs IAW instructions at Annex 3D. The program submissions are reviewed by the section heads and then sent to the FSE AdminO.

20. Even if there are no funds for lower priority projects these are included in the capability plan in case additional funds become available later in the year. Funding requests are prioritized using the following criteria:

- a. risk to human health;
- b. non-compliance with legislation;
- c. risk to the environment or non-compliance with policy; and
- d. restoration/enhancement of the workplace/natural environment.

21. The current Formation SEMPs and associated program managers are listed at Annex 3E.

22. Program/project progress is monitored by the program/project managers and reviewed by section heads on a regular basis and reported as part of the Tri-annual expenditure review cycle.

23. Unit-specific safety and environmental projects are funded from the unit's notional budget. This is done by the project OPI working with the UGSO and UEnvO through the unit's capability planning process.

## **Objectives and Targets**

24. Safety objectives and targets are established in accordance with the "Defence Occupational Health and Safety Strategy – 2013-2018" (D OHS Strat). Environmental objectives and targets are published in: "Defence Environmental Strategy" (DES). Using these documents, RCN sets pan-navy objectives and targets. The FSEO, working with the FSE section heads, identifies the RCN safety and environmental objectives and targets applicable to MARLANT and adds Formation-specific safety and environmental objectives and targets, taking into account the legal and other requirements, all safety hazards and significant environmental aspects. The following are also considered:

- a. technological options;
- b. financial, operational and business requirements;
- c. the views of interested parties;
- d. results of audits and inspections; and
- e. the need for continual improvement.

## **Management of Change**

25. Prior to new projects, activities and proposed changes to work processes/procedures being undertaken, they are reviewed to determine whether they introduce new safety hazard(s) or environmental aspect(s), or whether an environmental assessment (EA) is required under the Canadian Environmental Assessment Act (2012) (CEAA), or applicable provincial legislation, or whether a due diligence EA should be conducted.

26. If new safety hazard(s) and/or environmental aspects are identified, the project/process change is reviewed to determine if the hazard(s) and aspects can be eliminated, or mitigated. Any resulting changes to hazards and/or aspects are reflected in revised hazard/aspects lists and directives modified as required.

27. If required, an EA is completed by the project proponent IAW the DND/CF EA Manual, SEMS Directive in Part II of the Manual and the relevant legislation. Where necessary, the completed EA is sent to DGE for registration by the Staff Officer Environmental Assessment (SO EA), acting as the Federal Environmental Assessment Coordinator.

28. Developments in technology are monitored to identify those that could help reduce the risks from hazards and aspects.

## Chapter 4 - IMPLEMENTATION AND OPERATION

### Resources, Roles, Responsibility and Authority

29. Safety responsibilities are detailed in DND “General Safety Program, A-GG-040-001/AG-001, Volume 1, Chapter 2, Responsibilities” while the Formation’s safety and environmental roles and responsibilities are described below, summarized at Annex 4A, and detailed in the terms of reference (TOR) in Annex 4A appendices. Roles and responsibilities are also detailed in NAVORDs, MARLANTORDS and the directives in Part II of the Manual.

30. The Commander MARLANT has overall accountability for safety and the environment, provides the resources to implement the SEMS and chairs the Formation Council Meeting (FCM) where the results of the Formation SEMS Management Review are presented.

31. The ACOS Mat is the Commander’s safety and environmental delegate. In this capacity, the ACOS Mat is the SEMS champion who:

- a. conducts the annual SEMS Management Review as chair of the FSEMC; and
- b. reports the results to the RCN Comptroller at the RCN SEMC.

32. The FSEO, who reports to ACOS Mat, is the management representative and provides the oversight and direction for the SEMS and associated programs to ensure that safety and environmental requirements are met and maintained in accordance with CSA Z1000-06 and CAN/ISO 14001:2004. The TOR for the FSEMC are given at Annex 4A – Appendix 8.

33. Membership of the FSEMC includes the SPRs, COs and other senior managers from integral and lodger units. The committee is chaired by ACOS Mat and the TOR for the FSEMC are given at Annex 4A - Appendix 1.

34. COMCANFLTLANT is responsible for providing oversight and direction for the ships’ class manuals and other fleet safety and environmental issues. COMCANFLTLANT is the chair of the FltSEMC, which conducts the annual Fleet Management Review. TOR for the FltSEMC are located at Annex 4A, Appendix 2.

35. Commanding Officers (COs) are responsible for the safety and environmental performance in the areas of jurisdiction under their command. COs are responsible for developing, implementing and controlling the safety and environmental program within their unit consistent with DND, RCN and MARLANT’s requirements.

36. Managers/supervisors have a major responsibility for OHS and accident prevention in areas under their jurisdiction. Managers/supervisors are accountable for hazardous occurrences and must take a lead role by establishing procedures to prevent hazardous occurrences, and to motivate subordinates to identify and eliminate potential OHS hazards.

37. The UGSO and UEnvO Working Groups comprise FSE staff and UGSOs and UEnvOs respectively. The TOR for the safety and environmental working groups are given at Annex 4A – Appendices 3 and 4 respectively. The UGSO Working Group is chaired by the FSafeO and the UEnvO Working Group is chaired by the FEPO. The FSEMSO is the co-chair of both working groups to address system issues and concerns, while the SO SEMS Admin is the secretary for both the UGSO and UEnvO Working Groups.

38. UGSOs, UEnvOs and UHazMat Coordinators are appointed by unit COs and are responsible for implementing and maintaining their respective sections of the unit SEMS and addressing HazMat issues. The TOR for UGSOs, UEnvOs and UHazMat Coordinators are given at Annex 4A – Appendices 5, 6 and 7 respectively. Units have Safety and Environmental Committees (USECs), which provide oversight and direction on safety and environmental issues. The CO or designate chairs these committees. It should be noted, the Canada Labour Code requires that JOSH committees meet at least nine times a year. Other individual safety and environmental responsibilities are detailed in unit and ship class manuals.

39. The MARLANT SEMP OPIs are assigned by the FSEO in consultation with FSE section heads (Annex 4A, Figure 1 – FSE Organization). They implement, maintain and report on their assigned SEMPs as described at Annex 3D.

40. The Formation Technical Authority (FTA) with input from Sea Training and CANFLTLANT are responsible for providing technical input for the Standard Operating Procedures (SOPs) and Emergency Preparedness and Response Plans in the ship class manuals.

41. Worker participation in SEMS implementation is achieved by participation in JOSH and JOSHE committees, working in hazard and aspect identification Planning Workshops and through communication sessions with the Labour Management Relations Committees (LMRCs).

### **Competence, Training and Awareness**

42. COs are to ensure the safety and environmental training needs, for unit personnel and all other persons performing tasks on their behalf or have access to areas under their jurisdiction, are identified and the training provided. COs are to also ensure the bi-annual Maritime Command Safety and Environmental Briefing (MCSEAB) is conducted for safety and environment. This briefing is delivered jointly by the UGSO/UEnvO and includes the following topics:

- a. MARLANT's SEMS;
- b. due diligence and individual responsibility;
- c. an overview of applicable safety and environmental legislation;
- d. emergency response; and
- e. unit-specific issues.

43. Any new information on safety hazards will be provided to an employee whenever new relevant hazard information becomes available and before being assigned to a new job and/or exposed to a new hazard.

44. Persons performing tasks that have been identified as having the potential to be hazardous and/or cause significant environmental impacts must be competent on the basis of appropriate education, training and/or experience. This is initially established by the hiring process, while on-the-job competence is determined by the supervisor's observations and annual performance reviews. Job-specific safety and environmental training is provided by trade training, by the unit, or by FSE.

45. Information on available safety and environmental training within the Formation can be obtained from SO SEMS Admin. Training must take into account differing levels of responsibility, ability, literacy and the inherent safety and environmental work done by the trainee(s). The minimum qualifications and training requirements for FSE personnel are shown at Annex 4B.

46. Safety/environmental training is reviewed for efficiency and effectiveness by the FSEMSO, working with the other FSE section heads, as required by changing conditions effecting risk, or when new information on safety hazards and/or environmental aspects becomes available.

47. All units shall provide training statistics to FSE, IAW the MARLANT Capability Planning Guidance and present the data at the annual SEMS management review. Units are also responsible for keeping records of safety and environmental training indefinitely. These records are reviewed when FSE conducts unit audits.

48. All ships and units must inform FSE annually of UGSO and UEnvO appointments so they can be course-loaded on to the first available relevant training course.

### **Consultation and Communication**

49. Responsibilities for communicating safety and environmental information both within and outside of the Formation are as follows:

- a. The ACOS Mat, on behalf of the Commander MARLANT, is responsible for responding to external communications on safety and environmental issues;
- b. The FSEO is responsible for:
  - i. coordinating the receipt of, and response to, external communications on safety and environmental topics;

- ii. providing technical support to ACOS Mat for the preparation of responses, or as appropriate, obtaining this input through consultation with relevant subject-matter experts;
  - iii. responding, in consultation with subject-matter experts, to internal communications on safety and environmental issues between the various levels within the Formation and other Commands within DND; and
  - iv. communicating with external regulatory agencies, either directly and/or in association with subject-matter experts on safety and environmental topics; and
- c. The Formation and Base Public Affairs Officers (PAffOs) are responsible for providing support to the Formation and Base regarding external communications on safety and environmental issues.

50. Safety and environmental information is disseminated to personnel within the Formation and other Commands by:

- a. participation in, and/or distribution of minutes of meetings of committees such as, joint occupational safety and health (JOSH), environmental, LMRC, FSEMC and FltSEMC and the UGSO/UEnvO Working Groups;
- b. participation in safety and environment promotional activities;
- c. writing safety and environmental newspaper articles; and
- d. using the FSE intranet webpage and conventional notice boards.

51. When external written requests for information and/or safety and environmental complaints are received, ACOS Mat distributes them for action, decides on the appropriate signing authority and issues the response accordingly. A file is maintained for these requests and the responses.

52. If the request is verbal, the recipient decides if the request should be documented and informs the caller accordingly. If a verbal answer is given to a verbal request this should be noted by a memo to an appropriate file by the responder.

53. Safety and environmental information is disseminated to external interested parties, which includes other government departments and the general public, by:

- a. ACOS Mat, in consultation with the FSEO and Formation PAffO, responding to safety and environmental inquiries and requests from other Commands, government departments and the general public;
- b. SO EA as Federal Coordinator for the environmental assessment process; and

c. OAG and Department of National Defence reporting to Parliament.

54. Members of FSE who communicate with external agencies, and/or give advice, document the outcome by a note to the relevant project/topic file.

## **SEMS Documentation**

55. SEMS documentation includes all sections of this manual and relevant RCN and MARLANT safety and environmental policies, orders, directives and management programs. Safety and environmental records, which provide evidence of the effectiveness of the SEMS, are also considered part of the documentation. The SEMS Manual is divided into three parts:

- a. **Part I – Administration** – Chapters 1-6 meet the Z1000/14001 requirements for administration and documentation.
- b. **Part II – Directives** – Provides specific direction to the Formation for activities relevant to safety and environmental management topics.
- c. **Part III – Emergency Preparedness and Response** – Contains an overview and references for the plans used within the Formation to respond to emergency situations.

## **Document and Data Control**

56. The FSEO is responsible for ensuring all documents and data required by the Formation's SEMS are controlled and revised and/or updated as necessary.

57. The key control elements for the SEMS Manual are the document identification, and date of issue as shown on the header and footer of each page. SO SEMS Admin, reporting to the FSEMSO, is responsible for:

- a. developing and maintaining the document master list, the revision history and the manual distribution list;
- b. distributing original and revised documents as required;
- c. ensuring that obsolete documents have been removed;
- d. retaining obsolete documents that are required for legal and/or knowledge purposes and ensuring these documents are suitably identified; and
- e. controlling documents of external origin.

58. The current Formation document master list is located at Annex 4C. The manual distribution list showing the distribution of the controlled copies of the manual and the revision history are located at the front of the manual.

59. Manuals and other controlled documents are sent by the SO SEMS Admin to manual owners. The SO SEMS Admin maintains the manual distribution list. The manual owner, or delegate, is responsible for replacing controlled documents with the most recent versions. When new or revised documents are issued, the manual owner removes and destroys the obsolete versions. The manual owner enters their name and location on the manual owner page upon issue. When revisions to the Formation SEMS Manual are completed a letter or message is sent indicating the electronic copy has been updated and can be located on the FSE website.

60. Requests for minor changes to the manual, such as typographical errors, punctuation, grammar, style, etc. are sent in writing to the SO SEMS Admin. The FSEMSO decides on the merit of the changes and the SO SEMS Admin makes the changes, as appropriate, and informs the person who requested the changes, the FSEMSO and the FSEO of the outcome in writing. Requests for more substantive revisions, or for a new document, are made in writing to the FSEO and the following procedure is then carried out:

- a. The request is discussed between the FSEO, FSEMSO and relevant subject matter experts and, if necessary, the person asking for the revised/new document and the person's supervisor;
- b. If the change is agreed to at that level and not considered urgent, the revision is included with any other annual changes and tabled at the FSEMC meeting as part of the Formation management review. If the change is considered urgent, the revision is made and the document issued immediately; and
- c. The SO SEMS Admin updates the document master list, notes the changes in the revision history form and updates the webpage. The updated document master list and revision history are issued with the new and or revised documents to owners of controlled copies of the manual.

61. Completed revision history forms are retained in the manual by all manual owners as records of past changes.

62. If procedures are copied for internal use they are no longer controlled. Users of uncontrolled copies must confirm they are using the most current procedures by reference to a controlled copy of the manual.

## **Operational Control**

63. The FSEO is responsible for ensuring Formation policies, orders and directives for managing safety hazards and significant environmental impacts are established and maintained, and for ensuring higher-level orders and policy are followed. At the Formation level, the principal direction for safety and environmental management is provided by the SEMS and associated directives located in Part II of this Manual.

64. The FSEO directs the section heads to work with subject matter experts to prepare and issue, through the FSEMSO, any required directives using the document control procedure given above. The implementation of directives is monitored by the Formation verification process.

65. At the unit level, operational control is achieved by the identification of hazards and aspects and eliminating or mitigating them using the hierarchy of controls given at Annex 3A, "Guide to Hazard/Aspect Identification, Assessment and Control". Where necessary, SOPs are developed and implemented prescribing operating criteria for the activities that have the potential to be hazardous and/or cause significant environmental impacts. The SOPs apply to all relevant unit personnel, suppliers and contractors who perform tasks on behalf of the unit. The Formation verification process verifies that contractors have been informed and are adhering to MARLANT procedures.

### **Emergency Preparedness and Response**

66. ACOS Mat is responsible for ensuring an appropriate state of readiness to respond to potential hazards caused by emergency situations and implementing, maintaining and testing the Base Emergency Response Plan (BERP).

67. Emergency response exercises shall be conducted at a frequency based on risk. Response plans shall also be periodically reviewed and revised where necessary, in particular after accidents, emergency situations and from lessons learned from exercises. The emergency preparedness and response plans in MARLANT are outlined in Part III of this manual. For additional information consult the relevant plan or OPI, as indicated in Part III.

## **Chapter 5 - CHECKING**

### **Performance Measurement and Monitoring**

68. The Formation is required to report on progress towards meeting safety and environmental targets as indicated in the annual MARLANT Capability Planning call letter. This information is also used by ACOS Mat to report the Formation's safety and environmental performance to the Commander MARLANT through the FSEMC and Formation Council, and to Comd RCN through RCN SEMC. This process:

- a. monitors progress in meeting objectives and targets for past year;
- b. provides an overall evaluation of safety/environmental performance;
- c. obtains approval for objectives/targets for current year; and
- d. reviews:
  - i. findings of the Formation verification process;
  - ii. proposed changes to policy or SEMS;

- iii. changes to the hazards and aspects lists;
- iv. opportunities for improvement; and
- v. proposed changes to legislation.

## **Calibrating Equipment**

69. The OPIs for any instrumentation used in monitoring and measurement must calibrate the instruments IAW manufacturers' recommendations, document the results and keep these as records.

## **Evaluation of Compliance**

70. MARLANT ensures compliance with safety and environmental legislation and other requirements by implementing the Formation verification process as described below, and in Directive #SE 6 in Part II of this Manual. The verification process checks compliance with applicable safety and environmental legislation and policy, and conformance to the principles of CSA Z1000 and ISO 14001.

## **Accidents, Incidents, Non-conformances and Corrective and Preventive Action**

71. Safety incidents and accidents are reported using the DND Accident Prevention Report form (DND 663). For insurance purposes, military and civilian incidents are also recorded on CF 98 and WCB 67 respectively.

72. The Non-conformance Report (NCR) at Annex 5A is used to report legislative and/or policy non-compliance, as well as, system non-conformance. The NCR form has sections for documenting the corrective action plan and verifying it has been completed successfully.

73. Safety hazards and non-conformance can also be identified by:

- a. audits and inspections conducted by FSE and RCN;
- b. the results from monitoring and measurement programs;
- c. SPDET self audit results;
- d. Summary Investigation (SI)/Technical Investigation (TI);
- e. Unsatisfactory Condition Reports (UCRs); and
- f. day-to-day observations.

74. Unit COs, Heads of Departments (HODs) and supervisors in the area where the hazard/non-conformance occurred are responsible, in consultation with subject-matter experts and other relevant personnel, for developing corrective action plans to rectify and to prevent from recurring non-compliance and/or non-conformance. This includes:

- a. handling and investigation of safety and environmental incidents, accidents, non-compliance and non-conformance;
- b. taking action to mitigate any safety or environmental consequences arising from incidents, accidents, non-compliance and non-conformance;
- c. initiation and completion of the selected corrective action and preventive action(s); and
- d. confirmation of the effectiveness of the corrective and preventive action(s) taken.

The above steps can be documented using the NCR form located at Annex 5A.

75. All MARLANT personnel are responsible for identifying and reporting, in writing, using the NCR form at Annex 5A, any actual or suspected non-compliance with safety and environmental legislation and non-conformance with the Formation SEMS to the FSEO. Opportunities for improvement of the system should also be communicated to the FSEO.

76. In addition, the FSEO, in consultation with subject-matter experts and other relevant personnel, continually evaluates the Formation SEMS and takes action to prevent potential non-compliance and/or non-conformance before they occur.

### **Control of Records**

77. The SO SEMS Admin, under the direction of the FSEMSO, is responsible for managing all FSE safety and environmental records. The records are maintained IAW DND procedures for records management. Due to the large volume of safety and environmental records and correspondence associated with safety and environmental management within MARLANT, FSE has sub-divided the DND records' classification categories.

78. FSE safety and environmental records are stored in two systems, i.e., the filing and library systems. The filing system contains general safety and environmental records and their locations are entered into the filing system database. The library contains other records such as reports and manuals and their locations are also entered in the library database. FSE personnel can access both databases through the common network drive.

79. Safety incident data are put into the NDHQ PeopleSoft database and the hard copies kept as safety records.

80. The Formation's Safety and Environmental Records' Master Lists are attached at Annex 5B. This identifies the records that are used to monitor the effectiveness of the SEMS. Annex 5B also provides information on how the records are filed, where they are located and their retention times and identifies the person(s) assigned to manage them.

### **Internal Audit (Formation Verification Process)**

81. FSE implements the verification process of all Formation integral units and assigned lodger units to confirm whether or not the unit:

- a. complies with safety and environmental legislation;
- b. complies with Department, Command and Formation safety and environmental policy; and
- c. SEMS conforms to the principles of CSA Z1000-06/ISO 14001:2004.

82. Units considered as high-risk, such as ships, Fleet Maintenance Facility, Cape Scott (FMFCS) and BLog, are verified twice every three years, while lower-risk units are verified once every three years. The planning section of the SEMS is also re-evaluated when new information on safety hazards and/or environmental aspects becomes available.

83. The verification schedule is sent by message during the first quarter after a review of the Operation's Schedule for the year. SO Verification is responsible for developing and coordinating implementation of the Formation verification process for the upcoming year. Input for this is sought from FSEO, FSEMSO, FSE personnel and units who may be verified. The FSEO presents a summary of the previous year's verification results and the three-year verification schedule to the FSEMC. The verification process is implemented IAW generally accepted auditing practices using the RCN/MARLANT protocol and checklists. Verifiers are selected to ensure the objectivity and impartiality of the verification process.

84. In addition, RCN conducts verification visits to the Formations once every three years to ensure that SEMS continues to be suitable and is being implemented in an efficient and effective manner.

### **Chapter 6 - MANAGEMENT REVIEW**

85. The Formation management review is conducted by the FSEMC, chaired by ACOS Mat on behalf of the Commander MARLANT. The purpose of the SEMS management review is to confirm that the Formation is meeting policy commitments. The review must also determine whether the SEMS continues to be suitable, adequate and effective. The FSEMC reviews the status of objectives, targets and SEMPs for the previous FY and the proposed objectives and targets for the current FY.

86. The Formation management review for each FY takes place no later than (NLT) mid-June of the following FY. This allows the results to be presented first to the Commander MARLANT at

a Formation Council meeting, and then to the RCN Compt at the RCN SEMC management review, which is scheduled for NLT end-June.

87. To meet this timing, individual ship management reviews must be conducted NLT end-April and the FltSEMC by end-May to allow ACOS Mat to present the results to the FSEMC. Similarly, shore units must complete their management reviews and pass the results up the chain of command to the FSEMC.

88. A package of the material to be reviewed, including recommendations for improvement and the meeting agenda is prepared for the meeting by the FSEO. The FSEO as FSEMC secretary ensures meeting minutes, including decisions and action points, are documented, distributed and maintained as a record. Additional instructions for conducting a management review are given at Annex 6A.

## ANNEX 1A – LISTS OF UNITS INCLUDED IN THE SEMS SCOPE

1. All MARLANT personnel are included in the scope of the SEMS and are subject to the safety and environmental policy and direction provided by the MARLANT SEMS Manual. Integral and assigned lodger units with safety hazards and significant environmental aspects require a stand-alone SEMS Manual.
2. The status of the General Safety program at all units is monitored by the annual SPDET they submit to FSE. This is verified by FSE during unit safety visits/inspections/audits.
3. As listed in Table 1, there are 24 shore-based units that require a stand-alone SEMS. Table 2 lists the 18 ships that are covered by the Ships' Class Manuals.

**Table 1 – SHORE-BASED UNITS WITH STAND-ALONE SEMS**

<b>Number</b>	<b>Unit</b>
1	Fleet Maintenance Facility Cape Scott (FMFCS)
2	Canadian Forces Naval Engineering School (CFNES)
3	Canadian Forces Naval Operations School (CFNOS)
4	Base Operations (BOps)
5	12 Wing Shearwater
6	<ul style="list-style-type: none"> <li>• 12 Wing HQ Ops</li> </ul>
7	<ul style="list-style-type: none"> <li>• 12 AMS</li> </ul>
8	<ul style="list-style-type: none"> <li>• HOTEF</li> </ul>
9	<ul style="list-style-type: none"> <li>• 423 (MH)</li> </ul>
10	<ul style="list-style-type: none"> <li>• 406 (M) OTS</li> </ul>
11	Base Logistics (BLog)
12	Base Construction Engineering (BCE)
13	Formation Communications and Information Systems (FCIS)
14	Base Administration (BAdm) (includes Detachment Sydney)
15	Canadian Forces Station (CFS) St John's
16	Canadian Forces Health Services Centre (Atlantic) (CF H Svcs C (A)) & 1 Dental Detachment (Halifax) (These units have a joint Manual).
17	Trinity
18	Canadian Forces Ammunition Depot (CFAD) Bedford
19	Regional Cadet Support Unit (Atlantic)
20	Canadian Fleet Atlantic (CANFLTLANT) HQ
21	Fleet Diving Unit Atlantic (FDU(A))
22	Defence Research & Development Canada Atlantic (DRDC (A))

**Table 1 – SHORE-BASED UNITS WITH STAND-ALONE SEMS (continued)**

<b>RESERVE UNITS</b>	
<b>Number</b>	<b>Unit</b>
1	HMCS CABOT
2	HMCS SCOTIAN

**Table 2 – SHIPS' CLASS MANUALS**

<b>Number</b>	<b>CLASS</b>	<b>SHIP</b>
1	<b>KINGSTON</b>	HMCS SHAWINIGAN
2		HMCS GLACE BAY
3		HMCS GOOSE BAY
4		HMCS KINGSTON
5		HMCS MONCTON
6		HMCS SUMMERSIDE
7	<b>HALIFAX</b>	HMCS HALIFAX
8		HMCS CHARLOTTETOWN
9		HMCS MONTREAL
10		HMCS TORONTO
11		HMCS VILLE DE QUEBEC
12		HMCS ST. JOHN'S
13		HMCS FREDERICTON
14	<b>IROQUOIS</b>	HMCS IROQUOIS
15		HMCS ATHABASKAN
16	<b>PROTECTEUR</b>	HMCS PRESERVER
17	<b>VICTORIA</b>	HMCS WINDSOR
18		HMCS CORNER BROOK

## ANNEX 1B – GLOSSARY

**Accident:** undesired event giving rise to death, ill health, injury, damage or other loss.

**Accident cause:** anything that has contributed to, or could contribute to the occurrence of an accident.

**Client:** organization commissioning the verification. The client may be the organization being verified or any other organization, which has the regulatory, contractual or administrative right to commission the verification.

**Competence:** demonstrated ability to apply OHS and environmental knowledge and skills.

**Compliance verification:** a review of operations products and services directed towards determining whether or not a facility meets all of its current applicable legislative and regulatory requirements.

**Continual improvement:** process of enhancing the management system to achieve improvements in overall performance in line with the organization's policy. The process need not take place in all areas of activity simultaneously.

**Contractor:** an organization or individual providing services to another organization in accordance with agreed-upon specifications, terms and conditions.

**Controlled copy:** manual, procedure, work instruction or other document that is maintained up-to-date. Authorized holders of the manual, procedure and/or work instructions, receive revised copies of these documents, as appropriate.

**CSA-Z1000-06:** The Occupational Health and Safety Management System Standard. This Canadian standard establishes the basic criteria for the development, implementation and maintenance of a Health and Safety Management System.

**Disabling injury:** a work injury that prevents the employee from returning to work for his/her next regular shift.

**Document:** a medium containing information related to the SEMS.

**Due diligence:** is the reasonable standard of care for the health and safety of others and for the environment that individuals exercise in the course of carrying out their duties.

**Emergency:** a sudden situation or set of circumstances, which if not prevented, eliminated, controlled, contained or addressed could result in a significant danger, injury or damage to personnel, environment and/or assets.

**Emergency response:** an action carried out in a particular organization, community or region to protect human health, the environment and assets from the impact of an emergency.

**Emergency response plan (ERP):** a plan that outlines what is to be done if there is an accident involving certain dangerous goods and that is in accordance with the Transportation of Dangerous Goods Regulations, Part 7, Emergency Response Assistance Plans.

**Environment:** surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation. Surroundings in this context extend from within an organization to the global system.

**Environmental aspect:** element of an organization's activities, products or services that can interact with the environment. This may include a discharge or release or consumption of a natural resource. A significant aspect is an environmental aspect that has or can have a significant environmental impact.

**Environmental impact:** any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

**Ergonomics:** integrated knowledge derived from the social and technical sciences, used to match jobs, systems, products and environments with the physical and mental attributes of the people involved.

**General safety:** provides occupational safety policy and guidelines aimed at preventing accidents in operations, training and support activities of DND/CF. In addition, there are stand-alone safety programs for civilian return to work, flight, explosives, fire, ionizing radiation, laser, mobile support operations, non-ionizing, nuclear, and RADHAZ.

**Hazard:** a source of potential harm to a worker, an asset or the environment.

**Incident:** an undesired event that gave rise to an accident or had the potential to lead to an accident. Note: An incident where no ill health, injury, damage or other loss occurs is also referred to as a “near miss”. The term “incident” includes “near misses”.

**Incident/accident investigation:** the determination and analysis of all facts relating to an incident/accident in order to establish its causes and take corrective measures to prevent its recurrence.

**Interested party:** individual or group concerned with or affected by the safety or environmental performance of an organization.

**Ionizing Radiation:** the emission by a nuclear substance having an energy of more than 10 electron volts (eV) and a wavelength of approximately 100 nanometres ( $100 \times 10^{-9}$  m) or smaller.

**ISO 14001:** an international standard titled, "Environmental Management Systems – Specification with guidance for use." This has been adopted as the National Standard for Canada and has worldwide recognition.

**LASER:** a source of intense coherent monochromatic and collimated optical radiation. An acronym for Light Amplification by Stimulated Emission of Radiation.

**Lead verifier:** person qualified to manage and perform verifications.

**Legal and Other Requirements:** the legislation, regulations, bylaws, industry standards and the organization's own policies, orders and directives regarding the environment and occupational health and safety.

**Management programs:** the process by which objectives and targets are achieved, which may include projects, tasks or studies. The program addresses the required schedule, resources and responsibilities and outlines the methodology by which they are to be achieved.

**Management representative:** individual delegated responsibility by senior management to provide the leadership for EMS implementation and oversight for the ongoing administration of the EMS. The management representative also presents senior management with the information to conduct the management review of the EMS.

**Management system:** the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.

**Management system verification:** a systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization's environmental management system conforms to the environmental management system verification criteria set by the organization and for communication of the results of this process to management. From a DND/CF perspective, management is the most senior person in the chain of command at the site being verified.

**Non-compliance:** any deviation from applicable legislative, regulatory or policy requirements. It is customary to use non-compliance relative to a legislation or policy.

**Non-conformance/Non-conformity:** any deviation from work standards, practices, procedures, management system requirements, performance, etc.. It is customary to use non-conformance relative to a standard.

**Non-ionizing Radiation (NIR):** the portion of the electromagnetic spectrum with a wavelength above 1 nanometre ( $10^{-9}$ m) and energy less than 10 electron volts (eV). Absorption of any electromagnetic radiation by the body can cause tissue heating and other effects. However, absorbed NIR never causes creation of ions in the tissue, thus there is no disruption of the tissue. NIR resulting from radio frequency exposure must not be confused with ionizing radiation such as X-rays.

**Objective:** overall goal arising from the policy that an organization sets itself to achieve and which is quantified, where practical (see "target").

**Objective evidence:** information, which can be proven true, based on facts obtained through observation, measurement, test or other means.

**Occupational health and safety:** conditions and factors that affect the well-being of employees, temporary workers, contractor personnel, visitors and any other person in the workplace.

**Occupational illness:** any abnormal physical condition, or disorder caused by exposure to factors directly associated with employment.

**Office of Primary Interest (OPI):** an assigned point of responsibility for a specific management task, project or program, etc..

**Opportunity for Improvement (OFI):** a finding in a verification that, although not considered to be a non-conformance, could potentially lead to one if not addressed.

**Organization:** company, corporation, enterprise, authority, institution, unit or ship, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration. For organizations with more than one operating unit, a single operating unit may be defined as an organization.

**Performance:** measurable results of the management system, related to an organization's control of its safety hazards and environmental aspects, based on its policy, objectives and targets.

**Policy:** statement by the organization of its intentions and principles in relation to its overall performance, which provides a framework for action and for the setting of objectives and targets.

**Prevention of pollution:** use of processes, practices, materials or products that avoid, reduce, or control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution. The potential benefits of prevention of pollution include the reduction of adverse environmental impacts, improved efficiency and reduced costs.

**Procedure:** a documented or undocumented method of carrying out an activity.

**Process:** a set of interrelated or interacting activities, which transform inputs into outputs.

**Records:** a document that states results achieved or provides evidence of activities conducted, such as those that demonstrate the effectiveness of implementation and maintenance of the EMS and conformance to ISO 14001.

**Risk:** combination of the likelihood and consequences of a specified hazardous event occurring.

**Risk Assessment:** overall process of estimating the magnitude of risk and deciding whether or not the risk is tolerable.

**Safety:** freedom from unacceptable risk of harm.

**Safety and Environmental Management System (SEMS):** an integrated management system has been developed since both the safety and environmental programs have the common aim of prevention of accidental death or injury to personnel and damage or destruction to DND assets and the natural environment.

**Safety hazard:** source or situation with a potential for harm in terms of death, injury, ill health, damage to assets, damage to the workplace environment or a combination of these.

**Safety hazard identification:** process of recognizing that a hazard exists and defining its characteristics.

**SEMS verification criteria:** policies, practices, procedures or requirements, such as those covered by ISO 14001:2004 and CSA Z1000-06. If applicable, any additional SEMS requirements against which the verifier compares collected verification evidence about the organization's management system. Requirements may include but are not limited to standards, guidelines, specified organizational requirements and legislative or regulatory requirements.

**SEMS documents:** documents, which describe the core elements of the SEMS and their interaction and provide direction on where to obtain more detailed information on the operation of specific parts of the SEMS.

**Significant environmental aspect:** refers to an environmental aspect that has, or has the potential to have, a significant environmental impact.

**Subject matter:** specified environmental activity, event, condition, management system and/or information about these matters.

**Summary Investigation (SI):** an investigation, other than a board of inquiry, ordered by the CMS, an officer commanding a command or formation or a commanding officer to establish the cause of an incident/accident.

**System:** a set of interrelated or interacting elements.

**Target:** detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, which arises from the objectives and needs to be set and met in order to achieve those objectives.

**Technical expert:** person who provides specific knowledge or expertise to the verification team, but who does not participate as a verifier.

**Technical Investigation (TI):** a RCN TI is a procedure for investigating the technical or procedural aspects of a significant material failure or unsatisfactory equipment or system performance in ships, submarines and supporting units of Maritime Command.

**Uncontrolled Copy:** manual, procedure, work instruction or other document, which is not maintained up-to-date once released from FSE. Recipient(s) of uncontrolled copies are not included

in distribution lists and do not receive revisions to these documents.

**Verification:** systematic examination in order to determine whether activities and related results conform to planned arrangements and whether these arrangements are implemented effectively and are suitable for achieving the organization's policy and objectives.

**Verification concern:** an inference, based on incomplete evidence, that the system being verified may not conform to the verification criteria. This indicates the need to obtain more evidence to substantiate either the system does or does not conform.

**Verification conclusion:** professional judgement or opinion expressed by a verifier about the subject matter of the verification, based on and limited to reasoning the verifier has applied to verification findings.

**Verification criteria:** policies, practices, procedures or requirements against which the verifier compares collected verification evidence about the subject matter. Requirements may include but are not limited to standards, guidelines, specified organizational requirements and legislative or regulatory requirements.

**Verification evidence:** verifiable information, records or statements of fact, which:

- a. can be qualitative or quantitative, used by the verifier to determine whether verification criteria are met; and
- b. is typically based on interviews, examination of documents, observation of activities and conditions, existing results of measurements or tests or other means within the scope of the verification.

**Verification findings:** results of the evaluation of the collected evidence compared with the agreed verification criteria, which provide the basis for the verification report.

**Verification observation:** statement of fact made during a verification and substantiated by objective evidence.

**Verification program:** a set of one or more verifications planned for a specific time frame and directed towards a specific purpose. *Note: A verification program includes all activities necessary for planning, organizing and conducting the verifications.*

**Verification team:** group of verifiers or a single verifier designated to perform a given verification; the verification team may also include technical experts and verifiers-in-training. One of the verifiers on the team performs the function of lead verifier.

**Verifier:** person qualified to perform verifications.

**Work injury:** any injury or occupational illness that arises out of and in the course of work or duty.

**Worker:** a person employed by the organization or a person under the day-to-day control of the organization.

**Worker representative:** a non-managerial worker who is:

- a. a member of the workplace health and safety committee;
- b. a representative of other workers according to the requirements of law, or collective agreements; or
- c. selected by non-managerial workers for other reasons.

**Workplace parties:** managers, including supervisors, workers and worker representatives.

**ANNEX 1C – ACRONYMS**

ACOS Mat	Assistant Chief of Staff Materiel
ADM (IE)	Assistant Deputy Minister (Infrastructure and Environment)
AJAG	Assistant Judge Advocate General
BAdm	Base Administration
BComd	Base Commander
BCE	Base Construction Engineering
BLog	Base Logistics
BERP	Base Emergency Response Plan
C&D	Construction and Demolition
CEAA	Canadian Environmental Assessment Act
CFB Halifax	Canadian Forces Base Halifax
CFIA	Canadian Food Inspection Agency
CFSTG	Canadian Forces Support Training Group
CMS	Chief of Maritime Staff
COMCANFLTLANT	Commander Canadian Fleet Atlantic
CTD	Cumulative Trauma Disorder
DAOD	Defence Administration Orders and Directives
Defence OHS Strat	Defence Occupational Health and Safety Strategy
DES	Defence Environmental Strategy
DGE	Director General Environment
DMMD	Director Material Management and Distribution
DND	Department of National Defence
DSafeG	Director of General Safety
EA	Environmental Assessment
ECM	Executive Committee Meeting
ERP	Emergency Response Plan
FEPO	Formation Environmental Protection Officer
FETP	Formation Environment Training Plan
FltSEMC	Fleet Safety and Environment Management Committee
FMF	Fleet Maintenance Facility
FSafeO	Formation Safety Officer
FSE	Formation Safety and Environment
FSE AdminO	Formation Safety and Environment Administration Officer
FSEMC	Formation Safety and Environment Management Committee
FSEMSO	Formation Safety and Environmental Management System Officer
FSEO	Formation Safety and Environment Officer
FTA	Formation Technical Authority
FY	Fiscal Year
HazMat	Hazardous Material
HazWaste	Hazardous Waste
HMRA	Hazardous Material Reference Application
HMRP	Hazardous Material Response Plan
HOD	Head of Department
HRMS	Human Resource Management System

IAW	In accordance with
ISO	International Organization for Standardization
IWHMO	Integrated Waste and Hazardous Materials Management Office
JOSH	Joint Occupational Health and Safety
LMRC	Labour Management Relations Committee
MARLANT	Maritime Forces Atlantic
MARLANTORD	Maritime Forces Atlantic Order
MCEB	Maritime Command Environmental Brief
MCEMC	Maritime Command Environment Management Committee
MOG 5	Maritime Operations Group Five
MOS	Military Occupational Structure
MOSID	Military Occupational Structure Identity
MSD	Muscular Skeletal Disorder
MSDS	Material Safety Data Sheet
MSI	Muscular Skeletal Injury
MSRMS	Maritime Staff Risk Management Services
NAVORD	Navy Order
NCR	Non-conformance Report
NDHQ	National Defence Headquarters
NLT	No Later Than
OAG	Office of the Auditor General
OFI	Opportunity For Improvement
OHS	Occupational Health and Safety
OHSAS 18001	Occupational Health and Safety Assessment Series 18001
OPI	Office of Primary Interest
PAffO	Public Affairs Officer
POL	Petroleum, Oil and Lubricants
RadHaz	Non-ionizing Radiation
RCN	Royal Canadian Navy
R&O	Repair and Overhaul
RSI	Repetitive Strain Injury
SDS	Sustainable Development Strategy
SEMP	Safety and Environmental Management Program
SEMS	Safety and Environmental Management System
SI	Summary Investigation
SIR	Significant Incident Report
SME	Subject Matter Expert
SO EA	Staff Officer Environmental Assessment
SOP	Standard Operating Procedure
SO SEMS Admin	Staff Officer SEMS Administrator
SO Verification	Staff Officer Verification
SPDET	Safety Program Development and Evaluation Technique
SPR	Single Point of Responsibility
SSEC	Ship's Safety and Environmental Committee
STI	Soft Tissue Injury
TI	Technical Investigation
TOR	Terms Of Reference

UAR	Unit Ammunition Representative
UCR	Unsatisfactory Condition Report
UEnvO	Unit Environment Officer
UESO	Unit Explosives Safety Officer
UEWG	Unit Environment Officers' Working Group
UER	Unit Employment Record
UGSO	Unit General Safety Officer
UGSOWG	Unit General Safety Officers' Working Group
UHazMatO	Unit Hazardous Material Officer
ULSSO	Unit Laser System Safety Officer
URadHazO	Unit RadHaz Officer
USEC	Unit Safety and Environment Committee
UXO	Unexploded Ordnance
WHMIS	Workplace Hazardous Materials Information System

**ANNEX 3A: Identification and Determination of Significance for Safety Hazards and Environmental Aspects****Introduction**

1. This procedure is used for the identification of occupational health and safety hazards and environmental aspects, the assessment and prioritization of the associated risks and impacts and the implementation of control measures to address the resulting risks in the workplace and the impacts on the natural environment. It has been established, and must be kept up-to-date, to meet the requirements of the current versions of Z1000 and ISO 14001, and is flexible for use at all levels of the organization.
2. It is crucial that the identification of hazards and aspects be as comprehensive as possible. Accordingly, detailed hazard/aspect identification and assessment shall be conducted at the unit level with consultation and participation of the personnel conducting the activity, their supervisors, management, committees and other stakeholders under the guidance of FSE.
3. The procedure will be used by the Formation and Command to provide a broader perspective and overview. Unit results will be considered in the development of Formation level hazards and aspects. The Command hazards and aspects will take into account the respective Formation level results. Where considered necessary, the actual scoring may change to reflect the viewpoint of the reviewing organization.

**Selection of Activities**

4. At the unit level activities are assessed on a priority basis by considering:
  - a. the opinion of the supervisors and workers on the activities that are considered to have the most serious safety risks and/or adverse environmental impacts;
  - b. legal and policy requirements;
  - c. statistics showing which activities cause the most frequent accidents, or incidents with the potential to cause injuries, illness and environmental damage;
  - d. new activities, equipment or process;
  - e. modified activities, equipment or process;
  - f. non-routine activities;
  - g. activities where employees are required to work alone or in isolated work places;
  - h. activities with potential for violence in the workplace;
  - i. Verification Process, Inspection/survey and SPDET results;
  - j. recommendations from OHS and environmental committees; and
  - k. sites with large inventories of hazardous materials.
5. Activities include all routine and non-routine activities, emergency situations and the activities of all personnel having access to MARLANT sites such as contractors and visitors. Once an activity has been selected for assessment it is broken down into the sequence of tasks required to complete the activity. Each task should be large enough to be meaningful, but small enough to be understood. Using these criteria each activity should contain between 6-12 tasks.

6. Once an activity is selected and placed in column 1 of Table 1: Risk and Impact Assessment Form, the associated tasks are identified and are also added, following the activity, in column 1. The occupational health and safety hazards, if any, associated with this task are then identified and entered on the form, column 2, one hazard code per row, together with the relevant injuries and/or losses in column 3 from the lists provided at Tables 2-4. The existing controls, including the management program, for this hazard are then entered into column 4, on the row in Table 1 with the respective safety hazard. Continue in this manner until all of the safety hazards have been identified for the first task, then do the same for task two and continue until all tasks and associated hazards have been identified for this activity. Repeat this for all activities selected to be assessed.

7. Repeat the process for each activity and associated tasks, but this time identify any associated environmental aspects and impacts from the lists provided at Tables 5 and 6 and enter them into Table 1, one aspect and impact per row. Add any current environmental aspect controls on the row with the respective aspect.

8. Sources of information that help to identify safety hazards and environmental aspects include:

- a. Material Safety Data Sheets;
- b. Accident and incident reports;
- c. Audits and inspections;
- d. Standard Operating Procedures (SOPs);
- e. Minutes of Formation Safety and Environment Committee (FSEMC) and Joint Occupational Safety and Health Committee minutes; and
- f. Environmental Assessments.

9. When this step is finished, each hazard and aspect is assessed for the level of risk and impact respectively, using the method described below.

## **Assessment**

10. The assessment of risk includes taking into account, the nature of the risk, the level of exposure, likelihood and duration of the risk, effects of the risk on people and the natural environment and control measures in place.

11. The risk associated with a safety hazard, and the impact associated with an environmental aspect are the product of the consequence should the injury/loss or impact occur, multiplied by the likelihood of the hazard or aspect causing an injury/loss or impact:

### **Risk or Impact = CONSEQUENCE x LIKELIHOOD**

12. The assessment is initially carried out for the identified safety hazards, and then a separate assessment is conducted for the environmental aspects. The results of both assessments are listed in alphabetical order by activity, and also combined to provide a single prioritized list

of safety hazards and environmental aspects. The hazard and aspect assessment is conducted by completing the Table 1 form, using the methods given in Tables 7 and 8 employing the steps described below:

### **Step 1 – Consider the Consequences**

13. For each safety hazard determine what the potential consequences would be if this hazard occurs. Input for the consequence evaluation can be obtained from incident reports and safety statistics such as those detailed in Part XIX of the Canada Labour Code. Look at the consequence descriptions in Table 7, Step 1, and assign a value from 1 – 5, (negligible to catastrophic) for each of the five factors. Enter the five values into columns 5-9 of Table 1 and enter the total into column 10.

### **Step 2 – Consider the Likelihood**

14. What is the likelihood of the consequences identified in Step 1 happening? Consider this with the current controls in place. Look at the descriptions given in Step 2, Table 7, choose the most appropriate likelihood and enter this into column 11 of Table 1. **N.B. the selected value represents the likelihood that the hazard will cause an injury or loss.** For example, for welding it is not the frequency of welding that determines the likelihood value, but the likelihood that welding will cause eye damage or exposure to toxic fumes.

### **Step 3 – Calculate the Risk of the Hazard/Impact**

15. The product of the sum of the consequences and likelihood (column 10 x column 11) is the risk of the hazard causing an injury and/or loss. This value is entered in column 12, and the Hazard Assessment legend of Table 7 is used to assess the hazard rating from the (consequences x likelihood) product score. This assessment rating is recorded in column 13 of Table 1.

16. The procedure is repeated until all of the hazards have been rated. Then the rows of Table 1 are rearranged in alphabetical order of the activities. The entries are reviewed to verify that each hazard has an appropriate rating compared to the other hazards. Note the workplace location, date of the assessment review and the positions of the persons completing and reviewing the hazards.

17. The procedure detailed in paragraphs 13-16 above is then repeated for environmental aspects using Table 1 and Table 8 for the Impact Assessment. In this case, it is not the frequency of fueling that determines the likelihood value, but the likelihood of a spill that could have an adverse impact on the environment. Note, by definition a significant aspect is one where the associated impact is determined to be significant.

18. When completed, the alphabetical hazards and aspects assessment lists are retained, and a combined list is prepared and sorted in descending order of the risk score in column 12. The prioritized list and the two alphabetical lists become the current Annex 3B, Occupational Health and Safety Hazards/Environmental Aspects.

## Control Measures

19. Where the controls are considered to need improvement, the recommended improvements are listed in column 14 of the table for each relevant row. The aim of controlling hazards and aspects is to prevent workers from being exposed to risks and to protect the environment from adverse impacts. Control measures are most effective when applied to the root cause of the risk or impact. Some methods of control are more efficient than others, and generally, a combination of methods, rather than relying on one method, is the best way to safeguard workers and protect the environment.

20. Identifying improved control measures is achieved by using a hierarchy of controls. The primary role of risk and impact control is to eliminate the risk or impact. If this is not possible, the risk or impact must be minimized to the lowest level that is reasonably practical using one of the control options from the hierarchy. Table 9, Hierarchy of Controls shows the control levels normally considered.

21. If improved controls are recommended, the area supervisor(s), workers and SMEs as necessary will review the recommendations with FSE, and jointly develop an action plan to improve controls. The Unit shall implement the action plan and FSE will follow up to ensure the action plan is implemented as scheduled.

22. Tables 10 and 11 are attached as examples of how to complete Table 1 for risks and impacts respectively.

## Records

Completed Forms  
Working Papers

**Table 1: Risk and Impact Assessment Form**

<b>Work location:</b>		<b>Date of completion:</b>		<b>Completed by:</b>					<b>Reviewed by:</b>				
Activities/Tasks	Hazards/Aspects Codes	Risks/Impacts Injury/loss Environmental Impact	Control Measures In place	Consequence (C)					Likelihood (L)	L x ΣC1-5	Residual Hazard Risk/ Impact Level	Control Measures Recommended	
				Worker Health or Community Health	Legal & Other Compliance	Unit/Material Loss or Impact on Natural Environment	Operational Impact	Public Perception					
Column 1	Column 2	Column 3	Column 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Column 14
<b>Add rows as required</b>													

**Table 2: Occupational Health and Safety Hazards**

Hazards	Hazard Definition
ASBESTOS	Exposure to friable forms of crocidolite, amosite, chrysotile, anthophyllite, tremolite or actinolite (amiante)
BIOLOGICAL	Exposure to disease, bacteria, micro-organisms
CAUGHT	Injury to a body part or damage to equipment or material as a result of being caught in, on, or between objects
CAVE IN	Soil collapse in a trench or excavation as a result of improper or inadequate shoring. Soil type is critical in determining the hazard.
COLD	Exposure to a cold source that can cause burns to the skin or damage to organs.
COLLISION	Collisions and crashes between inanimate objects. For example auto and truck accidents
CORROSIVE	Exposure to a chemical that, when it comes into contact with skin, metal, or other materials, damages the materials. Acids and bases are examples of corrosives.
ELECTRIC	Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart.
ERGONOMIC	A system design, procedure, or equipment that causes injury due to awkward positions, overexertion or repetitive motion.
EXPLOSION	Exposure to a sudden and violent release of a large amount of energy due to a chemical reaction or a significant pressure difference such as rupture in a boiler or compressed gas cylinder.
FALLS	Conditions that result in falls from height or traditional walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.).
FIRE	Fires require a heat source, fuel, and oxygen. Fires cause/create toxic material (smoke, heat and oxygen depletion).
HEAT	Exposure to a heat source that can cause burns to the skin or damage to organs.
IONIZING	Exposure to Alpha, Beta, Gamma, and X-rays that cause injury (tissue damage) by ionization of cellular components.
LASER	Exposure to laser beam and the non-beam hazards. Laser beam hazards include eye and skin burns which are due to laser beam shining on a person's body. Non-beam hazards are associated with the laser equipment or the hazardous substances released from the laser equipment.
LIGHTING	Exposure to lack or excess of lighting or obstructed vision that results in a hazard.
MECHANICAL	Typically occurs when devices exceed designed capacity or are inadequately maintained.
NOISE	Exposure to noise levels that result in hearing damage or inability to communicate safety-critical information. Continuous or Impact.
OXYGEN	Potential to be deprived of oxygen by submersion under liquids or free moving solids or confined spaces.
POWER LOSS	Safety-critical equipment failure as a result of loss of power.
PSYCHOLOGICAL	Exposure to stress, harassment, burnout, workplace violence, physical threat
RADIO FREQUENCY (NON-IONIZING)	Exposure to ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means. Radio and radar transmissions.
SPORTS	Injury to a body part as a result of sports related activities.

**Table 2: Occupational Health and Safety Hazards (continued)**

<b>Hazards</b>	<b>Hazard Definition</b>
STATIC	Discharge (spark) to the ground resulting in the ignition of flammables or damage to electronics or the body's nervous system.
STRUCK AGAINST	Injury to a body part as a result of coming into contact of a surface in which the person initiated action. (An example is when a screwdriver slips.)
STRUCK BY	Any object that strikes the body causing injury or damage of the equipment. (Examples are falling objects and projectiles.)
TEMPERATURE	Exposure to extreme temperatures that result in heat stress, exhaustion, or hypothermia.
TOXIC	Exposure to a chemical that when ingested, absorbed or inhaled causes illness, disease, or death. The amount of chemical exposure is critical in determining hazardous effects.
VIBRATION	Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure. (Examples are abraded slings and ropes, weakened hoses and belts.)
WEATHER	Snow, rain, wind, ice, lightning, tornado, flood, etc...

**Table 3: Types of Injuries**

<b>Injuries</b>	
Amputation	Hernia
Blister, Burn, Scalds	Infection
Breathing difficulty including Asphyxia and Suffocation	Muscular Skeletal Disorders (MSD) – including Leukemia
Cancer	Muscular Skeletal Injuries (MSI) – Dislocation, Fracture, Overexertion, Sprains, Strains
Cumulative Trauma Disorders (CTD)	Occupational disease – acute/ chronic such as Asbestosis
Death	Poisoning
Depression	Radiation effects
Dermatitis – includes rash, skin or tissue inflammation,	Respiratory damage
Drowning	Repetitive Strain Injuries (RSI)
Effects of Electric Currents (shock, burns, electrocution)	Shock
Exhaustion	Soft tissue injuries (STI) – includes abrasion, Contusion (crushing, bruise), Cut, Laceration, Puncture
Eye damage and/or vision impaired	Stress – job related
Head Associated Injuries - Fainting, Blackout, Loss of consciousness, Concussion	Stroke
Cold Related Injuries - Freezing, Frostbite, Hypothermia	Trauma
Hearing loss or impairment	Whiplash
Heat Related Injuries - heat exhaustion, heat stroke, sunstroke, heat related stress	

**Table 4: Types of Damages or Losses**

<b>Damage</b>
Damage to buildings
Damage to equipment
Damage to real estate property
Loss of material (stores inventory)
Loss of operational capability
Lost time accident

**Table 5: Environmental Aspects**

<b>Aspect Code</b>	<b>Aspect Definition</b>
AREA	Air emissions area sources
BALLAST	Ship effluent ballast
BLACK	Ship effluent black water/sanitary effluent from shore units
BILGE	Ship effluent bilge
COOLING	Cooling water effluent
ENERGY	Use of an energy resource
FUGITIVE	Air emissions from flanges, pump seals, valve stems, etc
GREY	Ship/shore effluent wash water
HABITAT	Disturbance, or destruction of habitat
HALO	Halocarbon potential for releases
HAZMAT	HazMat potential for leaks or spills
HAZWASTE	HazWaste disposal and potential for leaks or spills
HISTORY	Historical and archaeological sites
INFECT	Bio-infectious waste
INTL	International waste
LAND	Use of land resources
LEACH	Effluent from land source of leachate
MATERIAL	Use of material resources
MOBILE	Air emissions mobile sources
NATURAL	Use of natural resources
NOISE	Air emissions noise
ODOUR	Air emissions odour
PARTICULATE	Particulate matter
POINT	Air emissions point sources
PROCESS	Effluents from land sources
SOLID	Solid waste disposal
STORM	Storm-water effluent
VISUAL	Visual distraction
WATER	Use of water resources
WILDLIFE	Disturbance or death of wildlife

**Table 6: Environmental Impacts**

<b>Impacts</b>	
Adverse community health effects	Noise pollution
Air pollution	Ozone layer destruction
Climate change	Particulate soiling
Contaminated sites	Receiving body of water pollution
Energy resource use	Resource use – general
Ground water contamination	Smog
Habitat disturbance/destruction	Soil contamination
Invasive species infection	Storm water contamination
Land resource use	Surface water contamination
Loss of enjoyment of property	Water pollution
Loss/damage/destruction of artefacts	Water resource use
Marine mammal disturbance	Wildlife disturbance/destruction
Material resource use	XXX

**Table 7: Hazard Assessment Methodology**

Step 1 – Consider the consequences What are the consequences if this incident occurs? Look at the descriptions and choose the most suitable score for each Consequence.				Step 2 – Consider the likelihood What is the likelihood of the consequence identified in step 1 happening? Consider this without new or interim controls in place. Look at the descriptions and choose the most suitable Likelihood.			
Consequence	Workers' Health	Legal & Other Compliance	Unit / Materiel Losses	Operational Impact	Public Perception	Likelihood	Description
5 <b>Catastrophic</b>	Death or Permanent disability	Non-compliant with legislation – will take more than 12 months to correct	> \$1M, Total Loss	Operation delayed by > 1 month	International	5 Frequent	Will occur at least once during the next 30 days
4 <b>Critical</b>	Temporary disability	Non-compliant with legislation - will take 6 -12 months to correct	\$500K - \$1M Severe Damage Extended Loss	Degraded Operational capability, corrected in 1 week – 1 month	National	4 Probable	Will occur once during the next 6 months
3 <b>Major</b>	Physician visit	Non-compliant with legislation - will take less than 6 months to correct	\$100K - \$500K Major Damage Temp Loss	Operations restricted, corrected in 1 day - 1 week	Provincial	3 Occasional	Likely to occur sometime in the next 12 months
2 <b>Minor</b>	First aid treatment	Non-compliant with policy will take more than 6 months to correct	\$10K - \$100K Minor Damage Temp Loss	Minor operational restriction, corrected in 1 hour – 1 day	Municipal	2 Remote	Unlikely, but may occur once every 3 years
1 <b>Negligible</b>	No treatment	Non-compliant with policy – will take less than 6 months to correct	< \$10K, Minor Damage Continued Ops	Insignificant impact on operations, corrected in < 1 hour	Internal	1 Improbable	Improbable, not likely to occur.

Step 3 – Calculate the risks [(Sum of C) x L]		Consequences				
Likelihood		Negligible	Minor	Major	Critical	Catastrophic
Frequent		25	50	75	100	125
Probable		20	40	60	80	100
Occasional		15	30	45	60	75
Remote		10	20	30	40	50
Improbable		5	10	15	20	25

Hazard Assessment Legend	Description of Actions
<b>Intolerable (INT) (75-125)</b>	The existing/proposed task or activity MUST NOT proceed until it has been reviewed. Steps must be taken to eliminate, or reduce the risk to the lowest level reasonably achievable. In the case of an existing hazard, controls must be put in place immediately. A detailed SOP, or Safe Work Method, is required and its implementation must be monitored to verify the risk level.
<b>Undesirable (UND) (45-74)</b>	Action to eliminate or reduce the risk is required within a specified period. Resources may have to be allocated to reduce the risk. An SOP or Safe Work Method is required.
<b>Acceptable with monitoring (MON) (20-44)</b>	Control, monitor and develop and/or review SOPs to eliminate or further reduce the risk. Consideration should be given to cost effective solutions, or improvements that impose minimal or no additional cost burden while meeting requirements.
<b>Acceptable (ACC) (5-19)</b>	No further action required. Continue to monitor and control.

**Table 8: Impact Assessment Methodology**

Step 1 – Consider the consequences What are the consequences if this incident occurs? Look at the descriptions and choose the most suitable score for each Consequence.				Step 2 – Consider the likelihood What is the likelihood of the consequence identified in step 1 happening? Consider this without new or interim controls in place. Look at the descriptions and choose the most suitable Likelihood.			
Consequence	Community Health	Legal & Other Compliance	Impact on Natural Environment	Operational Impact	Public Perception	Likelihood	Description
5 Catastrophic	Widespread effect	Non-compliant with legislation – will take more than 12 months to correct	Long-term irreversible or difficult to reverse effects	Operation delayed by > 1 month	International	5 Frequent	Will occur at least once during the next 30 days
4 Critical	Localized effect	Non-compliant with legislation -will take 6 -12 months to correct	Long-term reversible effects	Degraded Operational capability, corrected in 1 week – 1 month	National	4 Probable	Will occur once during the next 6 months
3 Major	Moderate effect	Non-compliant with legislation -will take less than 6 months to correct	Medium to long-term reversible effects	Operations restricted, corrected in 1 day - 1 week	Provincial	3 Occasional	Likely to occur sometime in the next 12 months
2 Minor	Minimal effect	Non-compliant with policy will take more than 6 months to correct	Short-term reversible effects	Minor operational restriction, corrected in 1 hour – 1 day	Municipal	2 Remote	Unlikely, but may occur once every 3 years
1 Negligible	Negligible effect	Non-compliant with policy – will take less than 6 months to be corrected	No appreciable effects	Insignificant impact on operations, corrected in < 1 hour	Internal	1 Improbable	Improbable, not likely to occur.

Step 3 – Calculate the impacts [(Sum of C) x L]		Consequences				
Likelihood		Negligible	Minor	Major	Critical	Catastrophic
Frequent		25	50	75	100	125
Probable		20	40	60	80	100
Occasional		15	30	45	60	75
Remote		10	20	30	40	50
Improbable		5	10	15	20	25

Impact Assessment Legend		Description of Actions
<b>Intolerable (INT) (75-125)</b>		The proposed task or activity MUST NOT proceed until it has been assessed. Steps must be taken to eliminate or mitigate the impact to the lowest level reasonably achievable. In the case of an existing aspect, mitigation must be put in place immediately. A detailed SOP is required and its implementation monitored to show the impact has been reduced.
<b>Undesirable (UND) (45-74)</b>		Action to eliminate or mitigate the impact is required within a specified period. Resources may have to be allocated to reduce the impact.
<b>Acceptable with monitoring (MON) (20-44)</b>		Control, monitor and develop and/or review SOPs to eliminate or further mitigate the impact. Consideration should be given to cost effective solutions, or improvements that impose minimal or no additional cost burden.
<b>Acceptable (ACC) (5-19)</b>		No further action required. Continue to monitor and control.

**Table 9: Hierarchy of Controls**

Priority Order	Control	Examples	
		Safety	Environmental
First	Engineering (Eliminate, Substitute Isolate)	Removing the hazard, eg taking a hazardous piece of equipment out of service.	Remove the aspect, e.g., take a leaking tank out of service
		Replacing a hazardous substance or process with a less hazardous one, eg substituting a hazardous substance with a non-hazardous substance.	Replacing a material with an adverse impact on the environment, e.g., the replacement of ozone depleting substances (ODS). Replacing fossil fueled power stations with solar and wind powered units.
		Isolating the hazard from the person at risk, such as using a guard or barrier.	Isolating the environment from the impact, e.g., use of secondary containment.
		Redesign a process or piece of equipment to make it less hazardous.	Redesign a process or piece of equipment to eliminate or reduce pollution at the source, or at the “end-of-pipe”.
Second	Administrative	Adopting safe work practices and/or providing appropriate training, instruction or information. Developing a preventive maintenance program so that failures can be avoided that could result in a hazard to employees. Addressing newly identified hazards expeditiously	Adopting more environmentally friendly practices and/or providing appropriate training, instruction or information. Developing a preventive maintenance program so that failures can be avoided that could result in an adverse environmental impact. Addressing newly identified aspects and the resulting adverse impacts expeditiously
Third	Personal Protective Equipment (PPE)	The use of personal protective equipment could include using gloves, glasses, earmuffs, aprons, safety footwear, respirators.	NOT APPLICABLE.

Table 10: Example of Hazard Assessment

Work Location: Machine Shop		Date of Completion: 10 Nov 2006		Completed by: K. Penney						Reviewed by: C.L. Giffin						
Activity	Hazard / Aspect Code	Risk / Impact Environmental Impact	Injury/Loss Environmental Impact	Control Measures place	Consequences (C)						Likelihood (L)	$L \times \sum C_{1-5}$	Residual Hazard Risk/Impact Level	Control Measures Recommended		
					Workers' Health or Community Health	Legal & Other Compliance	Unit/Material Losses or Impact on Natural Environment	Operational Impact	Public Perception	$\sum C_{1-5}$						
Column 1	Column 2	Column 3		Column 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Column 13	Column 14		
<b>Lathe Operation</b>																
1 Blow off cutting fluid & metal shards from lathe mounting plate with compressed air	1 STRUCK BY	Lacerations, Abrasions, Eye damage, Vision impaired		General Safety program, Guards, PPE, SOP, Training	3	2	1	2	1	9	3	27	MON	Reduce air pressure		
2 Position tighten and fully secure part in lathe mounting plate	---	---														
3 Position cutter blades and coolant oil	---	---														
4 Turn on lathe and check position	---	---														
5 Turn off lathe	---	---														
6 Check part dimensions	---	---														
7 Blow off cutting blades with compressed air	2 STRUCK BY	Lacerations, Abrasions, Eye damage, Vision impaired		General Safety program, Guards, PPE, SOP, Training	3	2	1	2	1	9	3	27	MON	Reduce air pressure		
8 Tighten cutting blades and turn on lathe	---	---														
9 Position blades into cutting position	---	---														
10 Position coolant fluid hose	3 EXPOSURE	Occupational disease -chronic		General Safety program, Guards, PPE, SOP, Training	3	2	1	2	1	9	3	27	MON	Investigate less toxic fluid, air removal hood**		
11 Monitor cutting	4 EXPOSURE	Lacerations, Abrasions, Burns, Respiratory damage		General Safety program, Guards, PPE, SOP, Training	3	2	1	2	1	9	3	27	MON	Investigate less toxic fluid, air removal hood**		

Table 11: Example of Impact Assessment

Work Location: Machine Shop		Date of Completion: 10 Nov 2006		Completed by: K. Penney						Reviewed by: C.L. Giffin			
Activity	Hazard / Aspect Code	Risk / Impact Environmental Impact	Injury/Loss Environmental Impact	Control Measures place	Consequences (C)*					Likelihood (L)	$L \times \Sigma C_{1-5}$	Residual Hazard Risk/Impact Level	Control Measures Recommended
					Workers' Health or Community Health	Legal & Other Compliance	Unit/Material Loss/ or Impact on Natural Environment	Operational Impact	Public Perception				
Column 1	Column 2	Column 3	Column 4	Column 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Column 13	Column 14
<b>Lathe Operation</b>													
1 Blow of cutting fluid & metal shards from lathe mounting plate with compressed air	1 HAZWASTE	Material resource use, Resource use - general, Contaminated sites	HazMat Management Program, Directive, SOP, Training	1	2	2	1	2	8	2	16	ACC	None
2 Position tighten and fully secure part in lathe mounting plate	---	---											
3 Position cutter blades and coolant oil	---	---											
4 Turn on lathe and check position	---	---											
5 Turn off lathe	---	---											
6 Check part dimensions	---	---											
7 Blow off cutting blades with compressed air	2 HAZWASTE	Material resource use, Resource use - general, Contaminated sites	HazMat Management Program, Directive, SOP, Training	1	2	2	1	2	8	2	16	ACC	None
8 Tighten cutting blades and turn on lathe	---	---											
9 Position blades into cutting position	---	---											
10 Position coolant fluid hose	---	---											
11 Monitor cutting	---	---											

**ANNEX 3B – HAZARDS AND ASPECTS**

1. A standard list of hazards and activities was developed in FY 2012/2013 to simplify the comparison of “desk” assessments of risk with values obtained in the field. The risk scores for these hazards and activities which were determined, reviewed internally and adjusted accordingly are shown in Table 1 in alphabetical order of the activities.
2. The standard list of activities was also used to estimate the environmental risk using the current list of aspects, and these values are shown in Table 2 also in alphabetical order of the activities.
3. Table 3 is a combined table of the hazards and aspects in descending order of risk/impact scores of 40 and above. All three tables include the controls used to mitigate the risks from the safety hazards and the adverse impacts from the environmental aspects.

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

Work location: MARLANT		Date of completion: 11 June 2013		Completed by: PSol							Reviewed by: MARL SEO/FSEMSO			
Activities/Tasks	Hazards/Aspects Codes	Risks/Impacts Injury/loss Environmental Impact	Control Measures In place	Consequence (C)*						Likelihood (L)	L x ΣC5-9	Residual Risk/Impact Level	Control Measures Recommended	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	

Confined space entry	OXYGEN	Asphyxia, breathing difficulties, death	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	3	33	MON	JHA required, review current training
Confined space entry	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	4	2	2	2	3	13	3	39	MON	Review formation procedures and current training
Construction	CAVE IN	STI, MSI, death	GenSafe, PPE, SOPs, Training	4	1	2	2	3	12	1	12	ACC	None
Construction	FALLS	STI, MSI	GenSafe, PPE, SOPs, Training	4	2	2	2	3	13	3	39	MON	Review fall arrest program
Construction	LASERS	Eye damage, impaired vision	Rad Haz, PPE., SOPs, Training	3	2	2	2	2	11	2	22	MON	JHA required
Construction	NOISE	Hearing damage or impaired	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required
Construction	STRUCK BY	STI, MSI, death	GenSafe, PPE, SOPs, Training	4	2	3	2	3	14	3	42	MON	JHA required
Construction (measuring gauges)	IONIZING	Radiation effects	RadSafe, PPE, SOPs, Training	3	2	2	2	4	13	3	39	MON	JHA required

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Contaminated Sites	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	2	1	2	2	2	9	2	18	ACC	None	
Contaminated Sites	WEATHER	Heat and cold related injuries	GenSafe, PPE, Guards, SOPs, Training	2	1	1	2	2	8	2	16	ACC	None	
De-icing Aircraft	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	2	1	2	2	1	8	2	16	ACC	None	
De-icing Sidewalks	FALLS	STI, MSI	GenSafe, PPE, SOPs, Training	3	1	3	2	1	10	3	30	MON	Review procedures and current training	
De-icing Sidewalks	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	2	1	2	2	1	8	1	8	ACC	None	
Electrical maintenance	ELECTRIC	Effects of electric current	GenSafe, PPE, SOPs, Training	3	2	2	2	4	13	3	39	MON	JHA required	
Equipment operations	CAUGHT	Amputation, STI, MSI	GenSafe, PPE, Guards, SOPs, Training	2	2	2	2	1	9	3	27	MON	Review procedures and current training	
Equipment operations	NOISE	Hearing damaged or impaired	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>				
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Equipment operations	STRUCK BY, FALLS	STI, MSI, trauma, death	GenSafe, Guards, SOPs, Training, Inspections	4	2	2	2	4	14	4	56	UND	JHA required	
Equipment operations	VIBRATION	CTD, RSI	GenSafe, PPE, Guards, SOPs, Training	1	2	1	1	1	6	1	6	ACC	None	
Explosives storage	EXPLOSION	Trauma, STI, MSI, burns, respiratory damage	Barriers, PPE, SOPs, Training	3	1	3	3	3	13	1	13	ACC	None	
Explosives storage	FIREX, TOXIC	Burns, trauma, radiation effects, death	ExpSafe, PPE, SOPs, Training	4	2	3	3	4	16	2	32	MON	JHA required	
Fire fighting	ERGONOMIC	Breathing difficulties, STI, MSI, RSI	GenSafe, PPE, SOPs, Training	3	1	1	1	1	7	3	21	ACC	None	
Fire fighting	FIRE	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	4	1	2	4	2	13	1	13	ACC	None	
Fire fighting	HEAT, TEMPERATURE	Asphyxia, breathing difficulties, death	GenSafe, PPE., SOPs, Training	3	2	3	3	4	15	2	30	MON	JHA required	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>				
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Fire fighting	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	4	3	3	2	4	16	2	32	MON	JHA required	
Fire fighting	WEATHER	Heat and cold related injuries	GenSafe, PPE, Guards, SOPs, Training	1	1	1	1	1	5	2	10	ACC	None	
Fuel Storage	EXPLOSION	Trauma, STI, MSI, burns, respiratory damage	Barriers, PPE, SOPs, Training	4	2	2	3	2	13	1	13	ACC	None	
Fuel Storage	FIRE	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	3	2	1	2	1	9	2	18	ACC	None	
Fuel Storage	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	2	1	1	1	1	6	2	12	ACC	None	
Fuelling aircraft	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	3	2	1	2	11	4	44	MON	JHA required	
Fuelling ships	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	2	2	2	2	3	11	4	44	MON	JHA required	
Fuelling vehicles (cars & trucks)	TOXIC	Acute/chronic occupational disease	GenSafe, SOPs, Training, PPE	3	2	2	2	3	12	4	48	UND	JHA required	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Fuelling Aircraft	EXPLOSION	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	3	1	3	4	3	14	1	14	ACC	None	
Fuelling Aircraft	FIRE	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	2	1	2	3	2	10	1	10	ACC	None	
Fuelling Aircraft	STATIC	Burns, respiratory damage	GenSafe, PPE, SOPs, Training	1	1	1	2	2	7	1	7	ACC	None	
Fuelling Aircraft	WEATHER	Heat and cold related injuries	GenSafe, PPE, Guards, SOPs, Training	1	1	1	1	1	5	2	10	ACC	None	
Fuelling Ships	EXPLOSION	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	4	1	4	5	3	17	1	17	ACC	None	
Fuelling Ships	FIRE	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	3	1	3	4	3	14	1	14	ACC	None	
Fuelling Ships	STATIC	Burns, respiratory damage	GenSafe, PPE, SOPs, Training	2	1	2	2	2	9	2	18	ACC	None	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Fuelling Vehicles	EXPLOSION	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	4	1	4	5	3	17	1	17	ACC	None	
Fuelling Vehicles	FIRE	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	3	1	3	4	3	14	1	14	ACC	None	
Fuelling Vehicles	STATIC	Burns, respiratory damage	GenSafe, PPE, SOPs, Training	2	1	2	2	2	9	1	9	ACC	None	
Galley and mess operations	ERGONOMIC	STI, MSI, RSI	GenSafe, PPE, SOPs, Training	4	1	1	2	1	9	2	18	ACC	None	
Galley and mess operations	FIRE	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	3	1	3	3	2	12	1	12	ACC	None	
Galley and mess operations	STRUCK BY, STRUCK AGST, FALLS	STI, MSI, burns, scalds	GenSafe, PPE, SOPs, Training, Housekeeping, Inspections	3	2	2	2	2	11	4	44	MON	JHA required	
Heating plant, process heaters & boilers	FIREX, STRUCK BY	Burns, STI, MSI	GenSafe, Guards, PPE, SOPs, Training	3	3	3	2	2	13	3	39	MON	JHA required	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Heating plant, process heaters & boilers	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	2	3	2	2	2	11	3	33	MON	JHA required	
Janitorial services	ERGONOMIC	STI, MSI, RSI	GenSafe, PPE, SOPs, Training	4	1	2	2	1	10	3	30	MON	Review procedures and current training	
Janitorial services	FALLS	STI, MSI	GenSafe, PPE, SOPs, Training	3	1	1	2	1	8	2	16	ACC	None	
Janitorial services	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training, Housekeeping, Inspections	3	2	2	2	2	11	4	44	MON	JHA required, review contract for WHMIS requirements	
Machine shop operations	NOISE	Hearing damaged or impaired	GenSafe, PPE, SOPs, Training, Guards, Inspections	3	2	2	2	2	11	4	44	MON	JHA required	
Machine shop operations	STRUCK BY, FALLS, TOXIC, CAUGHT	STI, MSI, burns, death	GenSafe, Guards, Training, Inspections	3	2	2	3	3	13	4	52	UND	JHA required	
Machine shop operations	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Maintenance Activities	CAUGHT	Amputation, STI, MSI	GenSafe, PPE, SOPs, Training	2	1	1	2	1	7	2	14	ACC	None	
Maintenance Activities	FALLS	STI, MSI	GenSafe, PPE, SOPs, Training	2	1	1	2	1	7	3	21	MON	Review procedures and current training	
Maintenance Activities	MECHANICAL	STI, MSI	GenSafe, PPE, Guards, SOPs, Training	1	1	3	4	1	10	2	20	MON	Review procedures and current training	
Maintenance Activities	STRUCK AGNST	STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	3	1	2	2	1	9	2	18	ACC	None	
Maintenance Activities	STRUCK BY	STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	3	1	2	2	1	9	2	18	ACC	None	
Materials handling	CAUGHT	Amputation, STI, MSI	GenSafe, PPE, SOPs, Training	3	1	2	2	1	9	2	18	ACC	None	
Materials handling	ERGONOMIC	Breathing difficulties, STI, MSI	GenSafe, SOPs, Training, Housekeeping	4	2	2	2	3	13	4	52	UND	JHA required, review SOPs and use of equipment	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Materials handling	STRUCK BY, STRUCK AGAINST, OVER	MSI, trauma, death	GenSafe, SOPs, Training, Housekeeping	3	2	2	2	3	12	4	48	UND	JHA required	
Medical and dental operations (including BIW)	BIOLOGICAL	Infection	PPE, SOPs, Training	1	1	1	1	1	5	2	10	ACC	None	
Medical and dental operations (including BIW)	ERGONOMIC	STI, MSI, RSI	GenSafe, PPE, SOPs, Training	3	1	2	1	1	8	3	24	MON	Review procedures and current training	
Medical and dental operations (including BIW)	TOXIC	STI, infection	GenSafe, PPE, SOPs, Training	4	2	2	2	3	13	3	39	MON	JHA required	
Medical and dental x-rays	IONIZING	Radiation effects	RadSafe, PPE, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required	
Office work	ERGONOMIC, STRUCK BY, FALLS	STI, MSI	GenSafe, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required, investigate ergonomic assessment program	
Office work	NON-IONIZING	Radiation effects	Rad Haz, SOPs, Training	3	2	2	2	2	11	2	22	MON	JHA required	
Office work	PSYCHOLOGICAL	Stress	GenSafe, SOPs, Training	3	1	2	1	1	8	3	24	MON	None	
Office work	TEMPERATURE	Heat and cold related injuries	GenSafe, PPE, SOPs, Training	2	3	1	2	1	9	2	18	ACC	None	
Outside activities winter/summer	COLD, TEMPERATURE	Hypothermia, heat exhaustion/stroke	GenSafe, PPE, Training	2	2	2	2	2	10	4	40	MON	JHA required	
Outside activities winter/summer	FALLS	MSI	GenSafe, Training	3	2	2	2	2	11	4	44	MON	Investigate FCE program	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Outside activities winter/summer	WEATHER	Heat and cold related injuries	GenSafe, PPE, Guards, SOPs, Training	2	1	1	1	1	6	2	12	ACC	None	
Pesticide/herbicide application	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	4	2	2	2	3	13	3	39	MON	Review contracting process for procedures and PPE requirements	
POL Management	EXPLOSION	Trauma, STI, MSI, burns, respiratory damage	Barriers, PPE, SOPs, Training	3	3	3	2	3	14	1	14	ACC	None	
POL Management	FIRE	Trauma, STI, MSI, burns, respiratory damage	PPE, SOPs, Training	2	2	2	1	2	9	1	9	ACC	None	
POL Management	TOXIC	Acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	1	1	1	1	1	5	1	5	ACC	None	
Radar and communications systems operation and maintenance	NON-IONIZING	Radiation effects	RadHaz, SOPs, Training	3	3	2	3	3	14	4	56	UND	JHA required	
Range Operations	IONIZING	Radiation effects	RadSafe, PPE, SOPs, Training	2	1	2	2	1	8	2	16	ACC	None	
Range Operations	NOISE	Hearing damage or impaired	GenSafe, PPE, SOPs, Training	2	1	2	1	2	8	2	16	ACC	None	
Range Operations	STRUCK AGNST	STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	2	1	2	1	1	7	1	7	ACC	None	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>							<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Range Operations	STRUCK BY	STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	2	1	2	1	1	7	1	7	ACC	None	
Range Operations	TEMPERATURE	Heat and cold related injuries	GenSafe, PPE, SOPs, Training	2	1	2	2	1	8	2	16	ACC	None	
Range Operations	Laser	Eye damage, impaired vision	GenSafe, PPE, SOPs, Training	2	1	2	2	1	8	3	24	MON	Review procedures and current training	
Receiving goods	ERGONOMIC	MSI	GenSafe, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required, investigate use of equipment	
Receiving goods	STRUCK AGNST	STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	2	1	1	1	1	6	2	12	ACC	None	
Receiving goods	STRUCK BY	STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	2	1	1	1	1	6	2	12	ACC	None	
Refrigeration operation and maintenance	OXYGEN	Asphyxia, acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required	
Ship operations	ERGONOMIC	STI, MSI, RSI	GenSafe, PPE, SOPs, Training	4	2	1	2	1	10	3	30	MON	Review procedures and current training	
Ship operations	NOISE	Hearing damage or impaired	GenSafe, PPE., Class Manuals, Training	1	2	2	2	1	8	3	24	MON	JHA required	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>				
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Ship operations	STRUCK BY, STRUCK AGNST, FALLS, CAUGHT	STI, MSI, trauma, death	GenSafe, Guards, PPE., SOPs, Training	3	2	2	2	1	10	3	30	MON	JHA required	
Ship Operations	Laser	Eye damage, impaired vision	GenSafe, PPE, SOPs, Training	2	1	2	2	1	8	3	24	MON	Review procedures and current training	
Shore Operations	ERGONOMIC	STI, MSI, RSI	GenSafe, PPE, SOPs, Training	4	2	1	2	1	10	3	30	MON	Review procedures and current training	
Small boat operation	CAUGHT	Amputation, STI, MSI	SOPs, Training	2	3	1	2	1	9	4	36	MON	JHA required	
Small boat operation	STRUCK AGNST	STI, MSI, death	GenSafe, PPE, SOPs, Training	2	1	1	2	1	7	3	21	MON	Review procedures and current training	
Small boat operation	STRUCK BY	STI, MSI, death	GenSafe, PPE, SOPs, Training	2	1	1	2	1	7	3	21	MON	Review procedures and current training	
Solvent use	STATIC	Burns, respiratory damage	GenSafe, PPE, SOPs, Training	2	1	1	2	1	7	2	14	ACC	None	
Solvent use	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required	
Sports, Physical training	ERGONOMIC	STI, MSI, RSI	GenSafe, PPE, SOPs, Training	4	1	1	2	1	9	4	36	MON	Review procedures and current training	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>				
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Sports, Physical training	STRUCK BY, FALLS	MSI, death	GenSafe, Training	2	2	2	2	2	10	4	40	MON	Review PSP procedures	
Storage of radioactive materials	IONIZING	Radiation effects	RadSafe, SOPs, Training	4	2	2	2	3	13	3	39	MON	JHA required	
Surface coating	STATIC	Burns, respiratory damage	GenSafe, PPE, SOPs, Training	2	1	1	1	1	6	2	12	ACC	None	
Surface coating	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required	
Tank cleaning	TOXIC, OXYGEN	Asphyxia, acute/chronic occupational disease, death	GenSafe, PPE, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required	
Vehicle operations	CAUGHT, STRUCK BY, STRUCK AGNST	STI, MSI, trauma, death	GenSafe, PPE, Training	3	2	2	3	2	12	4	48	UND	Continue to monitor and control	
Vehicle operations	NOISE	Hearing damaged or impaired	PPE	3	2	2	2	2	11	4	44	MON	JHA required	

**Annex 3B Table 1: MARLANT Hazards-Alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>				
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers' Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	
Weapons firing	NOISE, STRUCK BY, STRUCK AGNST	Hearing damaged or impaired, STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required	
Weapons firing, weapons storage	IONIZING	Radiation effects	RadSafe, SOPs, Training	3	2	2	2	2	11	3	33	MON	JHA required	
Welding	TOXIC, NON-IONIZING	Eye damage, impaired vision, acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required	
Working at height	STRUCK BY, FALLS	MSI, trauma, death	GenSafe, PPE., SOPs, Training	3	2	2	3	3	13	4	52	UND	Improve education and awareness programs	

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14

Construction	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	1	2	1	3	1	8	2	16	ACC	No additional
Construction	HISTORY	Loss or damage to artefacts	Environmental Assessment, SOPs, Training	1	2	1	2	4	10	1	10	ACC	No additional
Construction	LAND	Contamination of soil, surface and ground water	Environmental Assessment, Contaminated Sites Mgmt., SOPs, Training	3	2	2	2	2	11	2	22	MON	Continue to monitor and control
Construction	LEACH	Contamination of soil, surface and ground water	Environmental Assessment, Contaminated Sites Mgmt., SOPs, Training	2	1	2	2	2	9	1	9	ACC	No additional
Construction	MATERIAL	Material use	Procurement Mgmt, SOPs, Training	3	1	2	1	3	10	1	10	ACC	No additional
Construction	NOISE	Loss of enjoyment of property	Environmental Assessment, SOPs, Training	2	1	2	1	2	8	2	16	ACC	No additional

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Construction	SOLID	Material/land use	Solid Waste Mgmt., SOPs, Training	2	2	2	2	1	9	2	18	ACC	No additional
Construction	STORM	Contamination of soil, surface and ground water	Effluent Mgmt., SOPs, Training	2	2	2	2	4	12	2	24	MON	Continue to monitor and control
Contaminated sites management	AREA	Contamination of soil, surface and ground water	Contaminated Sites Mgmt., SOPs, Training	2	2	2	3	1	10	2	20	MON	Continue to monitor and control
Contaminated sites management	HAZWASTE	Contamination of soil, surface and ground water	Contaminated Sites Mgmt., SOPs, Training	2	2	1	1	1	7	2	14	ACC	No additional
Contaminated sites management	LAND	Contamination of soil, surface and ground water	Contaminated Sites Mgmt., SOPs, Training	3	1	3	1	2	10	2	20	MON	Continue to monitor and control
Contaminated sites management	LEACH	Contamination of soil, surface and ground water	Contaminated Sites Mgmt., SOPs, Training	2	2	3	2	4	13	2	26	MON	Continue to monitor and control
Contaminated sites management	ODOUR	Contamination of soil, surface and ground water	Contaminated Sites Mgmt., SOPs, Training	2	2	2	2	1	9	2	18	ACC	No additional

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Contaminated sites management	STORM	Contamination of soil, surface and ground water	Contaminated Sites Mgmt., SOPs, Training	2	1	1	2	1	7	2	14	ACC	No additional
De-icing aircraft	STORM	Contamination of soil, surface and ground water	Effluent Mgmt., SOPs, Training, Containment	2	2	2	2	2	10	3	30	MON	Continue to monitor and control
De-icing sidewalks, roads and runways	STORM	Contamination of soil, surface and ground water	Effluent Mgmt, SOPs, Training, Containment	2	2	2	2	3	11	3	33	MON	Review FCE program
Electrical maintenance	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	3	3	3	2	2	13	3	39	MON	Continue to monitor and control
Equipment Operations	ENERGY	Air pollution and energy consumption	Climate Change Mgmt, SOPs, Training	1	1	2	2	1	7	1	7	ACC	No additional
Equipment Operations	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	1	2	2	2	1	8	2	16	ACC	No additional
Fire fighting	HAZMAT, HAZWASTE, STORM	Contamination of soil, surface and ground water	SOPs, Training	2	3	2	4	3	14	2	28	MON	Continue to monitor and control

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Fire fighting	STORM	Contamination of soil, surface and ground water	SOPs, Training	2	3	3	4	3	15	2	30	MON	Continue to monitor and control
Fuel storage	FUGITIVE	Air pollution	Climate Change Mgmt, SOPs, Training	2	2	1	2	1	8	1	8	ACC	No additional
Fuel storage	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	Storage Tank Mgmt., HazMat Mgmt, SOPs, Training, Containment	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Fuel storage	STORM	Contamination of soil, surface and ground water	Effluent Mgmt, SOPs, Training, Containment	1	1	3	2	1	8	2	16	ACC	No additional
Fueling Aircraft	HAZMAT	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	1	1	1	1	1	5	3	15	ACC	No additional
Fueling Aircraft	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	1	1	1	1	1	5	5	25	MON	Continue to monitor and control
Fueling Aircraft	STORM	Contamination of soil, surface and ground water	Effluent Mgmt, SOPs, Training, Containment	1	1	1	1	1	5	2	10	ACC	No additional
Fueling ships	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt., Class Manuals, Training	3	3	3	3	3	15	4	60	UND	Continued vigilance required

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Fueling vehicles (cars & trucks)	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt, SOPs, Training	2	3	2	1	2	10	4	40	MON	Continue to monitor and control
Fueling vehicles	STORM	Contamination of soil, surface and ground water	Effluent Mgmt, SOPs, Training, Containment	1	1	1	1	1	5	1	5	ACC	No additional
Galley and mess operations	PROCESS	Water pollution	Effluent Mgmt., SOPs, Training	1	1	1	2	1	6	1	6	ACC	No additional
Galley and mess operations	SOLID	Material/land use	Solid Waste Mgmt., SOPs, Training	1	2	1	2	2	8	4	32	MON	Review Formation process and SOPs
Galley and mess operations	WATER	Water resource use	Water Mgmt., SOPs, Training, Preventive Maintenance	1	1	3	2	1	8	2	16	ACC	No additional
Heating plant, process heaters & boilers	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	1	1	2	2	8	3	24	MON	Continue to monitor and control
Heating plant, process heaters & boilers	POINT	Air, water and soil pollution, adverse community health	Climate Change Mgmt., SOPs, Training	2	2	3	3	3	13	4	52	UND	Continued vigilance required. Investigate other fuel sources
Janitorial services	GREY	Water pollution	Effluent Mgmt., Class Manuals, Training	1	1	1	1	1	5	1	5	ACC	No additional

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Janitorial services	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	2	2	2	1	9	4	36	MON	Review contract requirements
Janitorial services	SOLID	Material/land use	Solid Waste Mgmt., SOPs, Training	1	2	2	1	1	7	5	35	MON	Continue to monitor and control
Machine shop operations	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt, SOPs, Training	2	2	2	3	2	11	4	44	MON	Continue to monitor and control
Machine shop operations	SOLID	Resource use material and land	Solid Waste Mgmt, SOPs, Training	1	2	2	2	2	9	4	36	MON	Continue to monitor and control
Maintenance activities	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Materials handling	SOLID	Material/land use	Solid Waste Mgmt., SOPs, Training	1	1	1	1	1	5	5	25	MON	Continue to monitor and control
Medical and dental operations	PROCESS	Water pollution	Effluent Mgmt., SOPs, Training	2	3	2	2	3	12	3	36	MON	Continued vigilance required
Medical and dental operations (including BIW)	HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt, SOPs, Training	4	2	2	2	3	13	3	39	MON	Continue to monitor and control

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Medical and dental operations (including BIW)	INFECTION	Contamination of surface and ground water	SOPs, Training	2	1	1	1	1	6	5	30	MON	Continue to monitor and control
Office work	ENERGY	Air pollution and energy consumption	Climate Change Mgmt, SOPs, Training	1	1	1	1	1	5	5	25	MON	Continue to monitor and control
Office work	SOLID	Material/land use	Solid Waste Mgmt., SOPs, Training	1	1	1	1	1	5	3	15	ACC	No additional
Outside activities	SOLID	Material/land use	Solid Waste Mgmt., SOPs, Training	2	2	1	1	1	7	3	21	MON	Continue to monitor and control
Overseas deployment	INTL	Invasive species	HazMat Mgmt., SOPs, Training	2	3	3	2	4	14	2	28	MON	Investigate use of Invasive Species ID and control cards
Pesticide/herbicide application	HABITAT	Wildlife/habitat disturbance	Training Area Mgmt, SOPs, Training	2	2	1	2	2	9	2	18	ACC	No additional
Pesticide/herbicide application	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	IPM, SOPs, Training	3	2	3	2	4	14	2	28	MON	Continue to monitor and control

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Pesticide/herbicide application	WILDLIFE	Wildlife/habitat disturbance	Training Area Mgmt, SOPs, Training	2	1	2	2	1	8	2	16	ACC	No additional
POL Management	FUGITIVE	Air pollution	Climate Change Mgmt, SOPs, Training	1	1	1	1	1	5	2	10	ACC	No additional
POL Management	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt., Storage Tank Mgmt., Contaminated Sites	3	3	3	3	3	15	4	60	UND	Continued vigilance required
POL Management	STORM	Contamination of soil, surface and ground water	Effluent Mgmt, SOPs, Training, Containment	2	1	2	1	1	7	2	14	ACC	No additional
Range operations (sea and shore)	NOISE	Habitat and wildlife disturbance	Training Area Mgmt., SOPs, Training	2	1	1	1	2	7	2	14	ACC	No additional
Range operations (sea and shore)	WILDLIFE, HABITAT	Wildlife/habitat disturbance	Training Area Mgmt, SOPs, Training	2	2	2	2	2	10	4	40	MON	Review training area management plans
Receiving goods	SOLID	Material/land use	Solid Waste Mgmt., SOPs, Training	1	1	3	1	1	7	3	21	MON	No additional

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Refrigeration operation and maintenance	HALO	Ozone layer destruction, climate change	Halocarbon Mgmt., MARCORD G19, SOPs, Training	3	2	5	2	4	16	4	64	UND	MARCORD review and continued vigilance required
Ship operations	BALLAST, GREY	Water pollution	Effluent Mgmt., Class Manuals, Training	1	2	4	2	1	10	3	30	MON	Continue to monitor and control
Ship operations	MOBILE	Air pollution	Climate Change Mgmt, Class Manuals, SOPs, Training	2	2	3	2	2	11	4	44	MON	Continue to monitor and control
Ship operations	SOLID	Material/land use	Solid Waste Mgmt, Class Manuals, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Ship operations (liquid effluent)	BILGE, BLACK, HAZMAT	Water pollution	Effluent Mgmt., Class Manuals, Training	3	3	3	3	3	15	4	60	UND	Continued vigilance required
Shore operations	BLACK, GREY	Water pollution	Effluent Mgmt, Treatment	1	3	2	2	2	10	4	40	MON	Review or develop unit SOPs
Shore operations	PROCESS	Water pollution	Effluent Mgmt., SOPs, Training	3	3	3	3	3	15	4	60	UND	Continued vigilance required
Shore operations	SOLID	Material/land use	Solid Waste Mgmt, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Shore operations (paved areas)	STORM	Water pollution	Effluent Mgmt, SOPs, Berms, Treatment	1	3	2	2	3	11	4	44	MON	Continue to monitor and control
Small boat operations	HAZMAT	Contamination of soil surface and ground water	SOPs, Training	1	1	2	1	1	6	5	30	MON	Continue to monitor and control
Small boat operations	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	1	1	2	2	8	2	16	ACC	No additional
Solvent use	AREA	Air pollution	Climate Change Mgmt, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Solvent use	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	1	1	1	2	7	4	28	MON	Continue to monitor and control
Sonar	WILDLIFE	Marine mammal disturbance	Training Area Mgmt., SOPs, Training	1	2	3	3	4	13	3	39	MON	Review new MARCORD and MOAMP
Surface coating	AREA	Air pollution	Climate Change Mgmt, SOPs, Training	3	3	2	2	1	11	4	44	MON	Continue to monitor and control
Surface coating	HAZMAT	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	1	1	2	1	7	2	14	ACC	No additional

**Annex 3B Table 2: MARLANT Aspects in alphabetical order of activities**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Surface coating	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	1	1	2	1	7	2	14	ACC	No additional
Tank cleaning	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	1	1	2	1	7	4	28	MON	Continue to monitor and control
Vehicle operations	MOBILE	Air pollution	Climate Change Mgmt, SOPs, Training	2	2	3	2	2	11	4	44	MON	Continue to monitor and control
Vehicle operations	NOISE	Loss of enjoyment of property	Environmental Assessment, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Vehicle operations	STORM	Contamination of soil, surface and groundwater	Effluent Mgmt., SOPs, Training, Containment	1	1	3	1	1	7	2	14	ACC	No additional
Water use for process, cooling or domestic	BLACK	Water pollution	Effluent Mgmt., Class Manuals, Training	2	1	1	2	1	7	5	35	MON	Continue to monitor and control
Water use for process, cooling or domestic	COOLING	Water pollution	Effluent Mgmt., Training	1	1	1	1	1	5	1	5	ACC	No additional
Water use for process, cooling or domestic	GREY	Water pollution	Effluent Mgmt., Class Manuals, Training	1	1	3	1	1	7	2	14	ACC	No additional
Water use for process, cooling or domestic	WATER	Water resource use	Water Mgmt., SOPs, Training, Preventive Maintenance	1	1	2	2	1	7	4	28	MON	Continue to monitor and control

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<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Weapons firing	HAZWASTE	Contamination of soil, surface and ground water	HazMat & HazWaste Mgmt, SOPs, Training	2	1	3	1	1	8	2	16	ACC	No additional
Weapons firing	LAND	Contamination of soil, surface and ground water	Training Area Mgmt, SOPs, Training	2	1	1	1	2	7	3	21	MON	Continue to monitor and control
Weapons firing	NOISE	Habitat and wildlife disturbance	Training Area Mgmt., SOPs, Training	3	2	3	2	3	13	4	52	UND	Investigate monitoring
Welding	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water, use of landfill	HazMat Mgmt, SOPs, Training	2	2	2	2	1	9	4	36	MON	Continue to monitor and control

**Annex 3B Table 3: MARLANT Hazards/Aspects – Order of Risk**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	<b>ΣC<sub>1-5</sub></b>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14

Ship operations (liquid effluent)	BILGE, BLACK, HAZMAT	Water pollution	Effluent Mgmt., Class Manuals, Training	3	3	3	3	3	15	4	60	UND	Continued vigilance required
POL Management	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt., Storage Tank Mgmt., Contaminated Sites	3	3	3	3	3	15	4	60	UND	Continued vigilance required
Shore operations	PROCESS	Water pollution	Effluent Mgmt., SOPs, Training	3	3	3	3	3	15	4	60	UND	Continued vigilance required
Fueling ships	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt., Class Manuals, Training	3	3	3	3	3	15	4	60	UND	Continued vigilance required
Equipment operations	STRUCK BY, FALLS	STI, MSI, trauma, death	GenSafe, Guards, SOPs, Training, Inspections	4	2	2	2	4	14	4	56	UND	JHA required
Radar and communications systems operation and maintenance	NON-IONIZING	Radiation effects	RadHaz, SOPs, Training	3	3	2	3	3	14	4	56	UND	JHA required

**Annex 3B Table 3: MARLANT Hazards/Aspects – Order of Risk**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Machine shop operations	STRUCK BY, FALLS, TOXIC, CAUGHT	STI, MSI, burns, death	GenSafe, Guards, Training, Inspections	3	2	2	3	3	13	4	52	UND	JHA required
Materials handling	ERGONOMIC	Breathing difficulties, STI, MSI	GenSafe, SOPs, Training, Housekeeping	4	2	2	2	3	13	4	52	UND	JHA required, review SOPs and use of equipment
Working at height	STRUCK BY, FALLS	MSI, trauma, death	GenSafe, PPE., SOPs, Training	3	2	2	3	3	13	4	52	UND	Improve education and awareness programs
Heating plant, process heaters & boilers	POINT	Air, water and soil pollution, adverse community health	Climate Change Mgmt., SOPs, Training	2	2	3	3	3	13	4	52	UND	Continued vigilance required. Investigate other fuel sources
Weapons firing	NOISE	Habitat and wildlife disturbance	Training Area Mgmt., SOPs, Training	3	2	3	2	3	13	4	52	UND	Investigate monitoring
Fuelling vehicles	TOXIC	Acute/chronic occupational disease	GenSafe, SOPs, Training, PPE	3	2	2	2	3	12	4	48	UND	JHA required
Materials handling	STRUCK BY, STRUCK AGAINST, OVER	MSI, trauma, death	GenSafe, SOPs, Training, Housekeeping	3	2	2	2	3	12	4	48	UND	JHA required

**Annex 3B Table 3: MARLANT Hazards/Aspects – Order of Risk**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Medical and dental x-rays	IONIZING	Radiation effects	RadSafe, PPE, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required
Vehicle operations	CAUGHT, STRUCK BY, STRUCK AGNST	STI, MSI, trauma, death	GenSafe, PPE, Training	3	2	2	3	2	12	4	48	UND	Continue to monitor and control
Refrigeration operation and maintenance	OXYGEN	Asphyxia, acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required
Weapons firing	NOISE, STRUCK BY, STRUCK AGNST	Hearing damaged or impaired, STI, MSI, death	GenSafe, PPE, Guards, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required
Tank cleaning	TOXIC, OXYGEN	Asphyxia, acute/chronic occupational disease, death	GenSafe, PPE, SOPs, Training	3	2	2	2	3	12	4	48	UND	JHA required
Machine shop operations	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt, SOPs, Training	2	2	2	3	2	11	4	44	MON	Continue to monitor and control
Construction	NOISE	Hearing damage or impaired	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required

**Annex 3B Table 3: MARLANT Hazards/Aspects – Order of Risk**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Equipment operations	NOISE	Hearing damaged or impaired	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required
Fuelling aircraft	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	3	2	1	2	11	4	44	MON	JHA required
Fuelling ships	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	2	2	2	2	3	11	4	44	MON	JHA required
Galley and mess operations	STRUCK BY, STRUCK AGST, FALLS	STI, MSI, burns, scalds	GenSafe, PPE, SOPs, Training, Housekeeping, Inspections	3	2	2	2	2	11	4	44	MON	JHA required
Janitorial services	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training, Housekeeping, Inspections	3	2	2	2	2	11	4	44	MON	JHA required, review contract for WHMIS requirements
Machine shop operations	NOISE	Hearing damaged or impaired	GenSafe, PPE, SOPs, Training, Guards, Inspections	3	2	2	2	2	11	4	44	MON	JHA required
Machine shop operations	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required

**Annex 3B Table 3: MARLANT Hazards/Aspects – Order of Risk**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	$\Sigma C_{1-5}$				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Office work	ERGONOMIC, STRUCK BY, FALLS	STI, MSI	GenSafe, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required, investigate ergonomic assessment program
Outside activities winter/summer	FALLS	MSI	GenSafe, Training	3	2	2	2	2	11	4	44	MON	Investigate FCE program
Receiving goods	ERGONOMIC	MSI	GenSafe, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required, investigate use of equipment
Solvent use	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required
Surface coating	TOXIC	Occupational disease acute/chronic	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required
Vehicle operations	NOISE	Hearing damaged or impaired	PPE	3	2	2	2	2	11	4	44	MON	JHA required
Surface coating	AREA	Air pollution	Climate Change Mgmt, SOPs, Training	3	3	2	2	1	11	4	44	MON	Continue to monitor and control

**Annex 3B Table 3: MARLANT Hazards/Aspects – Order of Risk**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>						<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception	ΣC <sub>1-5</sub>				
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Vehicle operations	MOBILE	Air pollution	Climate Change Mgmt, SOPs, Training	2	2	3	2	2	11	4	44	MON	Continue to monitor and control
Welding	TOXIC, NON-IONIZING	Eye damage, impaired vision, acute/chronic occupational disease	GenSafe, PPE, SOPs, Training	3	2	2	2	2	11	4	44	MON	JHA required
Shore operations (paved areas)	STORM	Water pollution	Effluent Mgmt, SOPs, Berms, Treatment	1	3	2	2	3	11	4	44	MON	Continue to monitor and control
Construction	STRUCK BY	STI, MSI, death	GenSafe, PPE, SOPs, Training	4	2	3	2	3	14	3	42	MON	JHA required
Sports, Physical training	STRUCK BY, FALLS	MSI, death	GenSafe, Training	2	2	2	2	2	10	4	40	MON	Review PSP procedures
Fuel storage	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	Storage Tank Mgmt., HazMat Mgmt, SOPs, Training, Containment	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Vehicle operations	NOISE	Loss of enjoyment of property	Environmental Assessment, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control

**Annex 3B Table 3: MARLANT Hazards/Aspects – Order of Risk**

<b>Work location: MARLANT</b>		<b>Date of completion: 11 June 2013</b>		<b>Completed by: PSol</b>						<b>Reviewed by: MARL SEO/FSEMSO</b>			
<b>Activities/Tasks</b>	<b>Hazards/Aspects Codes</b>	<b>Risks/Impacts</b> Injury/loss Environmental Impact	<b>Control Measures</b> In place	<b>Consequence (C)*</b>					<b>Likelihood (L)</b>	<b>L x ΣC5-9</b>	<b>Residual Risk/Impact Level</b>	<b>Control Measures Recommended</b>	
				Workers Health or Community Health	Legal & Other Compliance	Losses or Impact on Natural	Operational Impact	Public Perception					
Column (Col) 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14
Solvent use	AREA	Air pollution	Climate Change Mgmt, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Shore operations	BLACK, GREY	Water pollution	Effluent Mgmt, Treatment	1	3	2	2	2	10	4	40	MON	Review or develop unit SOPs
Shore operations	SOLID	Material/land use	Solid Waste Mgmt, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Maintenance activities	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt, SOPs, Training	2	2	2	2	2	10	4	40	MON	Continue to monitor and control
Fueling vehicles (cars & trucks)	HAZMAT, HAZWASTE	Contamination of soil, surface and ground water	HazMat Mgmt, SOPs, Training	2	3	2	1	2	10	4	40	MON	Continue to monitor and control
Outside activities winter/summer	COLD, TEMPERATURE	Hypothermia, heat exhaustion/stroke	GenSafe, PPE, Training	2	2	2	2	2	10	4	40	MON	JHA required

## ANNEX 3C - APPLICABLE LEGAL AND OTHER REQUIREMENTS

The Federal, Provincial, Municipal and Other requirements applicable to safety hazards and environmental aspects of MARLANT's integral and lodger Units and hence the Formation are given in Tables 1-4.

**Table 1 - APPLICABLE FEDERAL LEGAL REQUIREMENTS**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>FEDERAL LEGISLATION<sup>1</sup></b>
BLACK, GREY, BILGE, BALLAST, HABITAT, WILDLIFE	Effluent Mgmt, RTAM, Nat Res Mgmt	Arctic Waters Pollution Prevention Act and regulations
ALL ASPECTS	All environmental programs	Auditor General Act
ALL HAZARDS	All safety programs	Canada Labour Code Part II
ALL HAZARDS	All safety programs	Aviation Occupational Health and Safety Regulations
ALL HAZARDS	All safety programs	Canada Occupational Health and Safety Regulations
TOXIC	General safety	Indoor Air Quality in Office Buildings: A Technical Guide
TOXIC	General safety	Laboratory Bio-safety Guidelines
ALL HAZARDS	All safety programs	Maritime Occupational Health and Safety Regulations
ALL HAZARDS	All safety programs	Safety and Health Committees and Representatives Regulations
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	Canada Marine Act
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Canada National Marine Conservation Areas Act
BLACK, GREY, BILGE, BALLAST, ALL HAZARDS	Effluent Mgmt	Canada Shipping Act, 2001 and regulations
BALLAST	Effluent Mgmt	A Guide to Canada's Ballast Water Control and Management Regulations (TP 13617)
WATER	Water Mgmt	Canada Water Act
BLACK, GREY, BILGE, BALLAST, PROCESS, STORM	Effluent Mgmt	Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments
BIOLOGICAL, WATER	Water Mgmt	Guidelines for Canadian Drinking Water Quality
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Canada Wildlife Act and regulations
ALL ASPECTS	All environmental programs	Canadian Biodiversity Strategy
ALL ASPECTS	All environmental programs	Canadian Environment Week Act
ALL ASPECTS	All environmental programs	Canadian Environmental Assessment Act, 2012 and regulations
ALL ASPECTS	All environmental programs	Canadian Environmental Protection Act, 1999 and regulations
ALL ASPECTS	All environmental programs	Canadian Environmental Quality Guidelines
HAZMAT, HAZWASTE	HazMat Mgmt	Disposal at Sea Regulations
HAZMAT, HAZWASTE	HazMat Mgmt	Environmental code of practice for aboveground and underground storage tank systems containing petroleum and allied petroleum products

**Table 1 - APPLICABLE FEDERAL LEGAL REQUIREMENTS (CONTINUED)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>FEDERAL LEGISLATION<sup>1</sup></b>
HALOCARBON	Halocarbon Mgmt, Climate Change Mgmt	Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigerant and Air Conditioning Systems
HALOCARBON	Halocarbon Mgmt	Environmental code of practice on Halons
AREA, EXPLOSION, FIRE, HAZMAT	HazMat Mgmt	Environmental Emergency Regulations
HALOCARBON	Halocarbon Mgmt	Federal Halocarbon Regulations, 2003
AREA, HAZMAT, HAZWASTE, MOBILE, POINT, PROCESS, SOLID	HazMat Mgmt, Solid Waste Mgmt, Climate Change Mgmt	National Pollutant Release Inventory
HALOCARBON	Halocarbon Mgmt, Climate Change Mgmt	Ozone Depleting Substances Regulations, 1998
HAZMAT, HAZWASTE	HazMat Mgmt	Regulations Respecting Applications for Permits for Disposal at Sea
HAZMAT, HAZWASTE	HazMat Mgmt	PCB Regulations
HAZWASTE	HazMat Mgmt	PCB Waste Export Regulations, 1996
HAZMAT, HAZWASTE	HazMat Mgmt	Release and Environmental Emergency Notification Regulations
HAZMAT, HAZWASTE	HazMat Mgmt	Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations
ALL ASPECTS	All environmental programs	CCME Guidelines (as applicable)
ALL ASPECTS	All environmental programs	Contraventions Act and regulations
HABITAT, WILDLIFE	All environmental programs	DFO Policy for the Management of Fish Habitat
ALL ASPECTS	All environmental programs	Environmental Enforcement Act
ALL ASPECTS	All environmental programs	Environmental Violations Administrative Monetary Penalties Act
EXPLOSION, FIRE	Explosives Safety	Explosives Act and regulations
HABITAT	RTAM, Nat Res Mgmt	Federal Policy on Wetland Conservation
BLACK, GREY, BILGE, BALLAST, HAZMAT, HAZWASTE, HABITAT, WILDLIFE	RTAM, Nat Res Mgmt, Effluent Mgmt, HazMat Mgmt	Fisheries Act and regulations
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Guidelines for the Use of Explosives in or near Canadian Fisheries Waters
ALL HAZARDS	All safety programs	Government Employees Compensation Act
BIOLOGICAL, WATER	Water Mgmt	Guidance for Providing Safe Drinking Water in Areas of Federal Jurisdiction
HABITAT, HAZWASTE, TOXIC	RTAM, Nat Res Mgt, HazMat Mgmt, General Safety	Hazardous Products Act and regulations:
HAZMAT, HAZWASTE, TOXIC	HazMat Mgmt, General Safety	Controlled Products regulations
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Migratory Birds Convention Act, 1994

**Table 1 - APPLICABLE FEDERAL LEGAL REQUIREMENTS (CONTINUED)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>FEDERAL LEGISLATION<sup>1</sup></b>
HAZMAT, ALL HAZARDS	HazMat Mgmt, General Safety	National Building Code of Canada 2010
EXPLOSION, FIRE, HAZMAT	HazMat Mgmt, Explosives Safety, General Safety	National Fire Code of Canada 2010
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Navigable Waters Protection Act and regulations
TOXIC	General Safety	Non-smokers Health Act and regulations
IONIZING	Radiation Safety	Nuclear Safety and Control Act
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Oceans Act and regulations
HAZMAT, TOXIC	HazMat Mgmt, General Safety, Int Pest Mgmt	Pest Control Products Act and regulations
IONIZING	Radiation Safety	Radiation Emitting Devices Act
IONIZING	Radiation Safety	Radiation Emitting Devices Regulations
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Species at Risk Act
HAZMAT, HAZWASTE	HazMat Mgmt	Transportation of Dangerous Goods Act, 1992 and regulations

**NOTE 1:** Whenever an act applies, some or all the relevant regulations, codes and guides also apply.

**Table 2 - APPLICABLE PROVINCIAL LEGAL REQUIREMENTS**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>PROVINCIAL LEGISLATION<sup>1</sup></b>
<b>NEWFOUNDLAND</b>		
HAZMAT, HAZWASTE	HazMat Mgmt	Dangerous Goods Transportation Act
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Endangered Species Act
ALL ASPECTS	All environmental programs	Environmental Protection Act and regulations
EXPLOSION, FIRE, HAZMAT	HazMat Mgmt, Explosives Safety, General Safety	Fire Protection Services Act and regulations
HABITAT, NATURAL	RTAM, Nat Res Mgmt	Forest Protection Act
HABITAT, NATURAL	RTAM, Nat Res Mgmt	Forestry Act and regulations
ALL HAZARDS	All safety programs	Occupational Health and Safety Act and regulations (only applies to contractors)
WATER	Water Mgmt	Water Resources Act
BLACK	Effluent Mgmt	Environmental Control Water and Sewage Regulations, 2003
WATER	Water Mgmt, Effluent Mgmt	Well Drilling Regulations, 2003
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	Wilderness and Ecological Reserves Act

**Table 2 - APPLICABLE PROVINCIAL LEGAL REQUIREMENTS (continued)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>PROVINCIAL LEGISLATION<sup>1</sup></b>
<b>NOVA SCOTIA</b>		
HAZMAT, HAZWASTE	HazMat Mgmt	Dangerous Goods Transportation Act
WILDLIFE, HABITAT	RTAM, Nat Res Mgmt	Endangered Species Act
ALL ASPECTS	All environmental programs	Environment Act and regulations
EXPLOSION, FIRE, HAZMAT	HazMat Mgmt, Explosives Safety, General Safety	Fire Safety Act and Regulations
BLACK, GREY, HAZMAT, HAZWASTE, HABITAT, WILDLIFE	RTAM, Nat Res Mgmt, Effluent Mgmt, HazMat Mgmt	Fisheries and Coastal Resources Act
HABITAT	RTAM, Nat Res Mgmt	Forests Act
PROCESS, STORM	Water Mgmt, Effluent Mgmt	Halifax Regional Water Commission Act (Schedule B)
COLLISION	General Safety	Motor Vehicle Act
ALL HAZARDS	All safety programs	Occupational Health and Safety Act and regulations (only applies to contractors)
HAZWASTE, TOXIC	HazMat Mgmt, General Safety	Code of Practice for Removal of Friable Asbestos Containing Materials
HAZWASTE, TOXIC	HazMat Mgmt, General Safety	Code of Practice for Working with Lead
NATURAL, WILDLIFE	HazMat Mgmt, Nat Res Mgt, Int Pest Mgmt	Weed Control Act and regulations
WILDLIFE	RTAM, Nat Res Mgmt	Wildlife Act

**NOTE 1:** Whenever an act applies, some or all the relevant regulations, codes and guides also apply.

**Table 3 - APPLICABLE MUNICIPALITY LEGAL REQUIREMENTS**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>MUNICIPAL LEGISLATION<sup>1</sup></b>
<b>CAPE BRETON REGIONAL MUNICIPALITY</b>		
FIRE, HAZMAT	HazMat Mgmt, General Safety	Burning By-law B-400
NOISE	General Safety	Noise By-law N-100
PROCESS, STORM	Effluent Mgmt	Wastewater Discharge By-law W-100
SOLID	Solid Waste Mgmt	Solid Waste Resource Management By-law S-300
<b>HALIFAX REGIONAL MUNICIPALITY</b>		
NOISE	General Safety	Noise – HRM By-law N-200
FIRE, EXPLOSION, HAZMAT, HAZWASTE	General Safety, Explosives Safety, HazMat Mgmt	Emergency Measures - HRM By-law E-100
FIRE, HAZMAT	HazMat Mgmt, General Safety	Fire Prevention – HRM By-law F-100
HISTORY	Env Assessment	Heritage Property – HRM By-law H-200
HAZMAT, TOXIC	HazMat Mgmt, Int Pest Mgmt, General Safety	Pesticides, Herbicides and Insecticides - HRM By-law P-800
FIRE, HAZMAT	HazMat Mgmt, General Safety	Respecting Open Air Burning- HRM By-law O-109

**Table 3 - APPLICABLE MUNICIPALITY LEGAL REQUIREMENTS (continued)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>MUNICIPAL LEGISLATION<sup>1</sup></b>
SOLID	Solid Waste Mgmt	Solid Waste Collection and Disposal- HRM By-law S-600
NATURAL	Nat Res Mgmt	Trees on Public Lands – HRM By-law T-600
PROCESS, STORM	Effluent Mgmt	Wastewater Discharge – HRM By-law W-101
<b>ST. JOHN'S</b>		
SOLID	Solid Waste Mgmt	Anti-litter by-law No. 1382
NOISE	General Safety	Noise By-law No. 1405
FIRE, HAZMAT	HazMat Mgmt, General Safety	Open Air Fire Regulations By-law No. 1306
SOLID	Solid Waste Mgmt	Recycling Policy
BLACK	Effluent Mgmt	Rural Sanitation By-law No. 1389
BLACK	Effluent Mgmt	Sanitation Regulations No. 985
NATURAL	Nat Res Mgmt	Tree By-law No. 1226
WATER	Water Mgmt	Water Conservation Order
WATER	Water Mgmt	Water Meter By-law No. 1547
HAZMAT, HAZWASTE, PROCESS	Effluent Mgmt	Water Pollution By-law No. 293

**NOTE 1:** Whenever a By-Law applies, some or all the relevant policies, codes and guides also apply.

**Table 4 - APPLICABLE OTHER REQUIREMENTS**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>APPLICABLE OTHER REQUIREMENTS</b>
HALOCARBON	Halocarbon Mgmt	ADM(IE) Instruction 01/03 Halon Management Policy 2003
PROCESS, STORM	Effluent Mgmt	1 CAD Effluent Monitoring Manual
ALL ASPECTS	All environmental programs	1 CAD Order 1-109 Environmental Protection and Resource Conservation
ALL HAZARDS, ALL ASPECTS	All safety programs, All environmental programs	CSA Standards (as applicable)
HAZMAT, HAZWASTE	HazMat Mgmt, Contaminated Sites Mgmt	DND Contaminated Sites Management Framework
ALL ASPECTS	All environmental programs	DND Environmental Assessment Manual
ALL ASPECTS	All environmental programs	EMS in DND/CF – The National Level (DGE EMS)
ALL ASPECTS	All environmental programs	Defence Environmental Strategy
HAZMAT	HazMat Mgmt	Guide to Spill Prevention for National Defence 97CS
NON-IONIZING	RadHaz Safety	Limits of human exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3kHz to 300GHz (Safety Code 6)
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	RCN SEMS Manual
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARLANT Base Emergency Response Plan (BERP)

**Table 4 - APPLICABLE OTHER REQUIREMENTS (CONTINUED)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>APPLICABLE OTHER REQUIREMENTS</b>
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARLANT Commander's Safety and Environmental Policy
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARLANT Safety and Environmental Management System (SEMS)
HAZMAT, HAZWASTE	HazMat Mgmt, Storage Tank Mgmt	MARLANT Storage Tank Management Plan
BILGE, BALLAST, BLACK, GREY, HAZMAT, HAZWASTE, SOLID	HazMat Mgmt, Solid Waste Mgmt, Effluent Mgmt	MARPOL 73/78 International Protocol
IONIZING	Radiation Safety	Nuclear Safety Instructions
IONIZING	Radiation Safety	Nuclear Safety Orders and Directives (NSODs)
HAZMAT	HazMat Mgmt	QHM Harbour Control Instructions
IONIZING	Radiation Safety	Radiation Protection and Safety for Industrial X-ray Equipment (Safety Code 34)
IONIZING	Radiation Safety	Radiation Protection in Dentistry: Recommended Safety Procedures for the Use of Dental X-ray Equipment (Safety Code 30)
IONIZING	Radiation Safety	Requirements for the Safe Use of Baggage X-ray Inspection Systems (Safety Code 29)
HAZMAT, HAZWASTE, LEACH	HazMat Mgmt, Effluent Mgmt	TB Policy on Management of Real Property
ALL HAZARDS	All safety programs	A-GG-040-001/AG-001 General Safety Program, Volume 1, Policy and Program
ALL HAZARDS	All safety programs	A-GG-040-003/AG-001 General Safety Program, General Safety Training Manual
HAZMAT, HAZWASTE	HazMat Mgmt	A-GG-040-004/AG-001 General Safety Program, Hazardous Material Safety and Management Manual
ALL HAZARDS	All safety programs	A-GG-040-005/AG-001 General Safety Program, Occupational Safety and Health Workplace Committee Guide
EXPLOSION	Explosives Safety	A-GG-040-006/AG-001 DND Explosives Safety Program
EXPLOSION	Explosives Safety	A-GG-040-006/AG-002 DND Ammunition Accident/Incident/Defect/Malfunction Reporting
ALL HAZARDS	All safety programs	A-GG-040-007/AG-001 General Safety Program, Handbook on The Safety Program Development and Evaluation Technique (SPDET)
ALL HAZARDS	All safety programs	A-GG-040-009/AG-001 General Safety Program, Return to Work Program Manual
HAZMAT, HAZWASTE	HazMat Mgmt	A-LM-158-005/AG-001 Transportation Manual
EXPLOSION, FIRE	Explosives Safety	B-GL-381-001/TS-000 Training Safety
EXPLOSION	Explosives Safety	B-GL-381-003/TS-000 Range and Unexploded Explosive Ordnance Clearance Handbook
LASER	Laser Safety	C-02-040-002/TS-001 Laser Safety
ALL HAZARDS	All safety programs	C-02-040-009/AG-001 General Safety Program, Volume 2, General Safety Standards
ALL HAZARDS	All safety programs	C-02-040-007/TS-001 General Safety Precautions
EXPLOSION	Explosives Safety	C-09-153-001/TS-000 Ammunition and Explosives Safety Manual Vol. 1, Storage and Transportation
EXPLOSION	Explosives Safety	C-09-153-003/TS-000 Explosives Safety Manual Vol. 3 - Naval Vessels

**Table 4 - APPLICABLE OTHER REQUIREMENTS (CONTINUED)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>APPLICABLE OTHER REQUIREMENTS</b>
NON-IONIZING	RadHaz Safety	C-55-040-001/TS-001 Radio Frequency Safety Program
TOXIC	General Safety	C-87-040-000/MS-001 DND Respiratory Protection Program
ALL HAZARDS	General Safety	CFAO 24-1 Casualties – Reporting and Administration
ENERGY	Climate Change Mgmt	CFAO 29-7 Energy Management and Conservation
BIOLOGICAL, WATER	Water Mgmt	CFAO 34-6 Water Supplies at DND Establishments
ALL HAZARDS	All safety programs	CFAO 34-23 Occupational Health
HABITAT, HAZMAT, HAZWASTE, WILDLIFE, TOXIC	HazMat Mgmt, Int Pest Mgmt	CFAO 34-46 Pest Control
ALL HAZARDS	All safety programs	DAOD 2007-0 Safety
ALL HAZARDS	All safety programs	DAOD 2007-1 General Safety Program
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	DAOD 2008-3 Issue and Crisis Management
LASER	Laser Safety	DAOD 2050-0 Laser Safety
LASER	Laser Safety	DAOD 2050-1 Laser Safety Program
EXPLOSION	Explosives Safety	DAOD 3002 Series - Ammunition and Explosives
HAZMAT	HazMat mgmt.	DAOD 3015-0 Green Procurement
HAZMAT	HazMat Mgmt	DAOD 3015-1 Management of Green Procurement
NON-IONIZING	RadHaz Safety	DAOD 3026-1 Radio Frequency Safety Programme
IONIZING	Radiation Safety	DAOD 4002-0 Nuclear Technology Regulation and Control
IONIZING	Radiation Safety	DAOD 4002-1 Nuclear and Ionizing Radiation Safety
ALL ASPECTS	All environmental programs	DAOD 4003-0 Environmental Protection and Stewardship
HAZMAT, HAZWASTE	HazMat Mgmt	DAOD 4003-1 Hazardous Materials Management
ALL ASPECTS	All environmental programs	DAOD 4003-2 Environmental Assessment
EXPLOSION, FIRE	General Safety	DAOD 4007-0 Fire Protection Services
EXPLOSION, FIRE	General Safety	DAOD 4007-1 Fire or Incident Reporting and Investigating
EXPLOSION, FIRE	General Safety	DAOD 4007-2 Emergency Fire Operations in Respect of DND and CF Infrastructure
EXPLOSION, FIRE	General Safety	DAOD 4007-4 Fire Fighter Physical Fitness Maintenance Program
EXPLOSION, FIRE, IONIZING, TOXIC, HAZMAT	General Safety, HazMat Mgmt, Radiation Safety	DAOD 4007-5 Initial Response by Fire Fighters to Hazardous Material Incidents or Chemical, Biological, Radiological and Nuclear Incidents
ALL HAZARDS	All safety programs	DAOD 5003-0 Restrictions on Duty and Individual Limitations
ALL HAZARDS	All safety programs	DAOD 5003-1 Restrictions on Duty
TOXIC	General Safety	DAOD 5018-2 Report of Injuries and Exposure to Toxic Substances
TOXIC	General Safety	DAOD 5021-1 Respiratory Protection
EXPLOSION	Explosives Safety	DAOD 8000-0 Explosive Ordnance Disposal
EXPLOSION	Explosives Safety	DAOD 8000-1 Conduct of Explosive Ordnance Disposal
HAZMAT	HazMat Mgmt	ED 4003-1/2003 Environmental Directive, Spill Reporting

**Table 4 - APPLICABLE OTHER REQUIREMENTS (CONTINUED)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>APPLICABLE OTHER REQUIREMENTS</b>
ALL ASPECTS	All environmental programs	ED 4003-3 Responding to Environmental Enforcement Actions
HAZMAT, TOXIC	HazMat Mgmt, Int Pest Mgmt, General Safety	ED 4003-4/07 Environmental Directive, To Reduce the Use of Pesticides on DND Properties
HALOCARBON	Halocarbon Mgmt	ED 4003-05 Environmental Directive, Halocarbon Management
HAZMAT, HAZWASTE	HazMat Mgmt	ED 4003-6 Environmental Directive, Hazardous Materials Advisory Committee (HMAC) Terms of Reference
LEACH, PROCESS, STORM	Effluent Mgmt	ED 4003-07 Environmental Directive, Management and Monitoring of Liquid Effluents
HAZMAT	HazMat Mgmt	ED 4003-9 Hazardous Materials Management Plan
ALL ASPECTS	All environmental programs	MARCORD 4-12 Environmental Program
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARCORD 4-35 MARCOM Range and Training Area Management
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARCORD 21-02 Technical Investigations
EXPLOSION, FIRE, HAZMAT	General Safety, HazMat Mgmt, Explosives Safety	MARCORD 30-03 Fire Protection and Emergency Services in HMC Dockyards
NON-IONIZING	RadHaz Safety	MARCORD 43-2 Radio Frequency (RF) Hazards (RADHAZ) Safety Policy and Procedures
EXPLOSION	Explosives Safety	MARCORD 46-08 Ammunition and Explosives Safety
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	MARCORD 46-13 Marine Mammal Mitigation Procedures (MMMP)
HAZMAT, HAZWASTE	HazMat Mgmt	MARCORD 46-402 Replenishment of Fuel and Stores
EXPLOSION	Explosives Safety	MARCORD 46-502 Maritime Explosive Ordnance Disposal Policy
ALL HAZARDS	All safety programs	MARCORD 66-01 General Safety Program
LASER	Laser Safety	MARCORD 66-04 Laser Safety Program
HAZMAT, HAZWASTE	HazMat Mgmt	MARCORD 66-05 Hazardous Material Management
IONIZING	Radiation Safety	MARCORD 66-11 Ionizing Radiation Safety
EXPLOSION	Explosives Safety	MARCORD CS-06 Transportation of Explosives and Ammunition by Motor Transport, Ammunition Lighter, and Military Aircraft Within Maritime Command
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARCORD G-03 Operational Deficiency (OPDEF) Reports
ALL HAZARDS, ALL ASPECTS	RTAM	MARCORD G-16 Operational Range and Training Area Management
BLACK, GREY, BILGE, BALLAST, SOLID	Solid Waste Mgmt, Effluent Mgmt	MARCORD G-18 Environmental Management of Shipboard Waste
HALOCARBON	Halocarbon Mgmt	MARCORD G-19 Halocarbon Management
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARLANTORD 4-13 Reporting of Significant Issues/Incidents
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARLANTORD 21-1 Boards of Inquiry, Summary Investigations, CF 1159s, Commanding Officers' Investigations and Technical Investigations

**Table 4 - APPLICABLE OTHER REQUIREMENTS (CONTINUED)**

<b>SAFETY HAZARDS/ENVIRONMENTAL ASPECTS</b>	<b>LINKED PROGRAMS</b>	<b>APPLICABLE OTHER REQUIREMENTS</b>
IONIZING	Radiation Safety	MARLANTORD 34-26 Safety and Management of Nuclear Powered/Nuclear Capable (NPV/NCV) Vessel Visits
IONIZING	Radiation Safety	MARLANTORD 34-27 MARLANT Nuclear Emergency Response
HABITAT, WILDLIFE	RTAM, Nat Res Mgmt	MARLANTORD 44-3 Fishing Zones – Halifax and Local Area
EXPLOSION, FIRE	Explosives Safety	MARLANTORD 46-8 East Coast Ammunition Working Group
ELECTRIC	General Safety	MARLANTORD 66-3 Lockout/Tagout Program
BLACK	Effluent Mgmt, Storage Tank Mgmt	MARLANTORD 66-7 Procedure for Cleaning and Working on Sanitary Tanks/Systems
ALL HAZARDS, ALL ASPECTS	All safety programs All environmental programs	MARLANTORD 66-8 Safety and Environmental Management

**ANNEX 3D – SAFETY AND ENVIRONMENTAL MANAGEMENT PROGRAM (SEMP) PROCEDURES****Purpose**

1. To provide instructions on how to document, get approval, implement and maintain SEMPs and related projects.

**Definitions**

2. Program – a series of activities considered necessary to achieve Department, Command and Formation safety and environmental policy.

3. Project – a discrete planned undertaking, task or study used to implement a program.

4. Plan – a description of the steps and timing involved in implementing a project or program.

**Roles and Responsibilities**

5. **Safety and Environmental Management Program OPIs:** FSE personnel assigned by the FSEO, as appropriate to their work function and/or subject matter expertise, to manage, implement and maintain safety and environmental management programs (SEMPs). They:

- a. prepare a documented comprehensive program management plan and review it annually for currency;
- b. prepare a program submission that is sent, through the respective section head, to the FSE AdminO annually by mid July. This includes the projects for the plan year including the objectives, targets and resources for the assigned program(s) and associated projects;
- c. verify the program requirements in the draft capability plan are correct, or revise them, as necessary, by mid February prior to finalization of the capability plan;
- d. monitor program progress and take any remedial action necessary to accomplish target(s);
- e. submit program and project progress reports to FSE AdminO through respective Section Heads quarterly, or as requested; and
- f. prepare the annual submissions for the historic report and the management review. This documents the work completed and the status of assigned program(s) and associated projects.

6. **FSE AdminO:** FSE AdminO coordinates the implementation of safety and environmental programs by:

- a. coordinating the project approval process;
- b. providing advice regarding the expenditure of funds;
- c. assisting with prioritization and submission of funding requests to the chain of command for approval;
- d. preparing tri-annual expenditure reports;
- e. compiling reports at prescribed frequencies on safety and environmental performance using input provided by program managers;
- f. maintaining complete files on program and associated projects; and
- g. preparing the capability plan based on annual submissions by program OPIs.

7. **FSE Section Heads:** are responsible for:

- a. reviewing program submissions from their sections;
- b. providing the reviewed submissions to FSE AdminO;
- c. ensuring program and project progress reports submitted to them, by OPIs under their jurisdiction, are timely, complete, accurate, logical, reflect the actual status and are written in an easy to understand text, before they are sent to the FSE AdminO; and
- d. monitoring program implementation to ensure budgets are controlled and milestones, objectives and targets met.

### **Documentation of Programs and Projects**

8. The preparation of program documentation is the responsibility of the assigned OPI and includes:

- a. a comprehensive management program plan; and
- b. an annual submission that includes;
  - i. a brief description of the program and the resource requirements for the plan year and two years out;
  - ii. project synopses; and
  - iii. objectives and targets.

9. Instructions for completing these documents are given below.

### **Comprehensive Program Management Plan**

10. Comprehensive program management plans are reviewed annually, but only revised when changes are required by either internal or external changes in circumstances. The section titles for the comprehensive program management plans are listed below with guidance for their preparation:

- a. Cover Page: The cover page contains the title of the program as given in MARLANT SEMS, Annex 3E and the header and footer used for document identification and control.
- b. Table of Contents: Show the location of all key sections of the plan.
- c. References: Provide references for applicable background information.
- d. Definitions and Acronyms: Provide definitions of key concepts and the acronyms used in the plan.
- e. Introduction/Background: Describe in detail the rationale for the program in terms of prior work, the legal and/or policy pressures that drive it and link to the hazards and/or environmental aspects that the program addresses.
- f. Scope: Describe where the program applies, such as the physical location, throughout the Formation, or the part(s) of the Formation.
- g. Responsibilities: Identify the position/units responsible for accomplishing the various planned tasks and reaching program objectives, such as the program OPI and support personnel.
- h. Program Description and Purpose: Provide a detailed description and substantiation of the program. This should expand on the one given in MARLANT SEMS, Annex 3E.
- i. Program Planning and Implementation Method: Describe in detail how the program will be implemented. Document the overall program objective(s), noting how legal and other requirements and all safety hazards and significant environmental aspects were taken into account when setting objectives and targets and consideration given to:
  - i. technological options;
  - ii. financial, operational and business requirements;
  - iii. the views of interested parties;
  - iv. results of audits and inspections; and

- v. the need for continual improvement.
- j. Reporting: Provide an outline of the contents of required reports and their frequency.

## **Annual Planning Cycle**

11. A program implementation plan is submitted annually through the section heads to the FSE AdminO to update, as necessary, objectives, targets and projects and to estimate resource needs for the plan year and two years out. This provides input for the annual capability plan, ensures that programs remain current and addresses the commitment to continual improvement. The annual planning cycle comprises of:

- a. an initial program submission NLT mid July for the next FY;
- b. verification or revision of program funding for the next FY mid February; and
- c. a notice of allocation of program funds at the beginning of the FY in April/May.

12. For planning purposes, these steps are facilitated using the forms attached at Appendices 1 and 2. The instructions for completion of these forms are given below.

## **13. Appendix 1 – Program Annual Capability Plan Submission**

- a. Program ID: provided by system administrator.
- b. Program Title: Provide title of program as given in MARLANT SEMS, Annex 3E.
- c. Brief Program description: Give the brief program description given in MARLANT SEMS, Annex 3E.
- d. Scope: Indicate where program applies, either throughout MARLANT or restricted to fleet or shore units, etc..
- e. OPI: Identify the individual assigned responsibility for the program.
- f. Program objectives and targets for plan year: List the overall objectives and targets for the plan year. Note, safety and environmental targets are measurable performance indicators that are set and measured to demonstrate progress to meeting the overall program objectives.
- g. Reporting requirements: Indicate the type and frequency of reports that will be used to monitor achievement of objectives/targets.
- h. Confirm program document has been reviewed and verified current: The comprehensive program management plan must be reviewed every year, but only

revised as necessary. This section is a sign off that this review has been done. Also indicate whether revisions were in fact made.

- i. Program resources required for plan year and two years out: Provide an estimate of the percentage of each individual's time required for the program.
- j. Number of Projects in plan year: If the program has no projects, the initial submission is complete at this point. However, if the program has scheduled projects for the plan year, and/or two years out, the number is provided in the space provided here.
- k. Additional Resources Required: An estimate of the financial resources needed for each project, are provided for the plan year and two years out as O&M and Capital, using the table provided. SWE is only estimated by the program OPI if human resources, in addition to indeterminate and approved term staff, are required to implement a project.
- l. Use as many project resource tables as required and then include the total for the program including all the projects, using the table provided.
- m. Provide any relevant Miscellaneous Recurring Request (MRR) numbers.
- n. The FSE Admin O uses this input to prepare the draft Capability Plan.
- o. The initial form(s) are verified, and updated if necessary, by the program OPIs prior to finalizing the capability plan in February.

14. **Appendix 2 - Project Synopsis.** If projects or initiatives are needed to implement a program these are outlined and approved using the form attached at Appendix 2. The form is completed for each project as described below.

- a. Program Title: Provide the program title as given in MARLANT SEMS, Annex 3E.
- b. Project OPI: Provide the project OPI's name.
- c. Project Title: The OPI gives the project a title.
- d. Project No.: The FSE AdminO assigns an eight digit project number, where the first four digits denote the plan year, the next two digits are the same as the associated program I.D. number given in Annex 3E, and the last two digits represent the project's priority where “-01” is the highest priority, “-02” is second highest and so on.
- e. Description: Provide a brief description of the project and substantiate why it is necessary.

- f. Scope: Define where the project applies, such as the physical location, throughout the Formation or part of the Formation.
- g. Associated hazard or environmental aspect: Identify the safety hazard and/or environmental aspect the project is designed to mitigate.
- h. Source of pressure: Describe the pressure(s) that make the project necessary, such as legislation, policy and/or DES/Defence OHS Strategy.
- i. Priority Factor: Assign the project a priority factor from 1-4 based on the priority:
  - 1 risk to human health;
  - 2 non-compliance with legislation;
  - 3 risk to the environment or non-compliance with policy; and
  - 4 restoration/enhancement of the workplace/natural environment.
- j. Risk impact statement: Provide a descriptive statement of the risk/liability to MARLANT, if resources are not made available, to support the assigned priority factor.
- k. Description of benefit: Provide a descriptive statement of the benefit(s) that would accrue to MARLANT if the resources are made available.
- l. Latest launch date: Provide the latest date for project launch consistent with project tasks and need to spend budget by 31 March.
- m. Tasks/Milestones: List the principal tasks scheduled for the plan year. Identify the key milestones and associated date.
- n. Is an EA screening required: Indicate whether the project triggers an EA under CEAA or due diligence. If the answer is yes, provide the timetable for completion of the EA process.
- o. Resources required: Identify the financial resources, in addition to the program resources, required for the plan year and two years out as O&M and Capital. If additional human resources are being requested, the project OPI estimates additional SWE required. If Capital is requested, note the reason and description in the form.
- p. Approval: Send the form to the appropriate section head and then through the relevant section heads to the FSEO for approval.

**ANNEX 3D APPENDIX 1 - PROGRAM ANNUAL CAPABILITY PLAN SUBMISSION FOR FY 2013/2014**

<b>Program ID</b>			
<b>Program Title</b>			
<b>Brief Program Description</b>			
<b>Scope</b>			
<b>OPI</b>			

<b>Program Objectives and Targets for Plan Year</b>	
<b>Objectives</b>	<b>Targets</b>
<b>Reporting Requirements</b>	
<b>Confirm Program Management Plan has been Reviewed and Verified Current (Y/N):</b>	

<b>Program Resources Required for Plan Year and Estimations for Two Years Out</b>					
<b>Resource Type</b>	<b>Plan Year</b>		<b>Out Year One</b>		<b>Out Year Two</b>
<b>SWE %'s</b>	<b>Position</b>	<b>% Position</b>		<b>% Position</b>	<b>%</b>
<b>SWE</b>					
<b>O&amp;M</b>					
<b>Capital</b>					
<b>TOTAL</b>		0		0	0

<b>Number of Projects in Plan Year:</b>	
---	--

<b>Additional Resources Required*</b>					
<b>Project Title:</b>					
<b>Project #:</b>					
<b>Initial Submission (\$)</b>					
<b>Resource Type</b>	<b>Plan Year</b>	<b>Out year one</b>	<b>Out year two</b>		
<b>SWE 111</b>	\$0	\$0	\$0		
<b>SWE 112</b>	\$0	\$0	\$0		
<b>O&amp;M 101</b>	\$0	\$0	\$0		
<b>O&amp;M 117</b>	\$0	\$0	\$0		
<b>Capital</b>	\$0	\$0	\$0		
<b>TOTAL</b>	\$0	\$0	\$0		

<b>Total Resource Requirements for Project/Initiatives</b>					
<b>Resource Type</b>	<b>Plan Year</b>	<b>Out Year One</b>	<b>Out Year</b>		
<b>SWE 111</b>					
<b>SWE 112</b>					
<b>O&amp;M 101</b>					
<b>O&amp;M 117</b>					
<b>Capital</b>					
<b>TOTAL</b>	\$0	\$0	\$0		

<b>Have miscellaneous recurring requests (MRRs) been entered into the MRR database for all of the capital listed above? (Y/N):</b>
MRR Numbers:

## ANNEX 3D APPENDIX 2 – SEMP PROJECT SYNOPSIS FOR FY 2013/2014

Program Title:			
Project OPI:			
Project Title:			
Project No.:			
Description:			
Scope:			
Associated hazard or environmental aspect (use codes given in Annex 3A):			
Source of pressure:			
Priority Factor:			
Risk impact statement:			
Description of Benefit:			
Latest Launch Date:			
Tasks:		Milestones:	
Is Environmental Assessment Screening Required (Y/N):			
If yes, what is status?			

Resource Required:			
Resource Type	Plan Year	Out Year One	Out Year Two
SWE L111			
SWE L112			
O&M L101			
O&M L117			
Capital L501			
TOTAL	\$0	\$0	\$0

If not requesting L101 or L117; provide reason/description:

Approval:			
Section Head (print):		FSEO (print):	
Signed:		Signed:	
Date:		Date:	

## **ANNEX 3E – SAFETY AND ENVIRONMENTAL MANAGEMENT PROGRAMS (SEMPs)**

The Formation Safety and Environmental Management Programs are established to meet MARLANT objectives. These programs and assigned program OPIs are listed in Table 1 to Table 5.

**Table 1 – SAFETY MANAGEMENT PROGRAMS**

PROGRAM I.D.#	PROGRAM	DESCRIPTION	Program OPI
01	General Safety Program	Addresses occupational safety and accident prevention for military personnel, civilian employees and Non-public Funds (NPF) personnel employed in the Formation. Occupation health expertise is provided by Health Canada and the Canadian Forces Health Services Centre (Atlantic). The program also has sub-programs designed to meet various legislated and policy requirements, such as occupational health, ergonomics, return to work and WHMIS.	FSafeO
02	Ionizing Radiation Safety Program (RSP)	Provides direction, coordination and information to minimize the exposure of personnel to ionizing radiation to as low as reasonably achievable to the extent compatible with their duties and within the applicable radiation health standard(s).	SO Rad Safety
03	Non-ionizing Radiation Safety Program (RASP)	Provides direction, coordination and information on non-ionizing electromagnetic Radiation Hazards (RadHaz) Safety Policy and Procedures	SO Rad Haz and Laser Safety
04	LASER Safety Program (LSP)	Provides direction, coordination and information to ensure that the appropriate measures and controls are in place to protect personnel while working near, or operating laser systems, equipment and devices.	SO RadHaz and Laser Safety
05	Explosives Safety Program	Provides direction, coordination and information for explosives and ammunition safety and accident prevention by focusing on proper storage, handling and use of explosives and ammunition.	SO Exp Safety

**Table 2 – MANAGING FOR SUSTAINABLE DEVELOPMENT**

<b>PROGRAM I.D.#</b>	<b>Program</b>	<b>Program Description</b>	<b>Program OPI</b>
06	Safety & Environmental Management Systems	Implementation and maintenance of the Formation's hierarchy of management systems that is consistent with CSA Z1000 and ISO 14001. This includes: <ul style="list-style-type: none"> <li>• The MARLANT SEMS;</li> <li>• Implementation and maintenance of the Ship Class Manuals;</li> <li>• Conducting combined compliance and system verifications; and</li> <li>• Conducting safety and environmental training needs analyses and provision of the required training.</li> </ul>	FSEMSO (SO Audit and SO FltMgmt Sys)
07	Environmental Assessment	Provide oversight of MARLANT's adherence to CEAA and DND policy with respect to the preparation of environmental assessments (EAs) required by CEAA legislation and/or due diligence. Includes review of draft EAs prior to CO approval and registration of EAs with the Canadian Environmental Assessment Agency.	SO Env Assess
08	Range and Training Area Management	The assessment of the adverse environmental impacts of operational activities on the natural resources in training areas. Assessment results are used to develop Training Area Management plans that mitigate the impact of operations.	SO Range and Trg Area Mgmt
09	Natural Resource Management	The conduct of inventory studies of DND properties within MARLANT's jurisdiction to identify, natural resources and species at risk. Based on the findings, integrated management plans are developed, such as for forestry management, that balance harvesting of resources with preservation of the natural environment. This includes protection of species at risk and their habitat found on MARLANT's property.	SO Nat Res Mgmt
10	Integrated Pest Management	The development, implementation and oversight of an integrated pest management plan for MARLANT including the procurement, use, storage and reporting of all pesticides used by the Formation.	SO Nat Res Mgmt

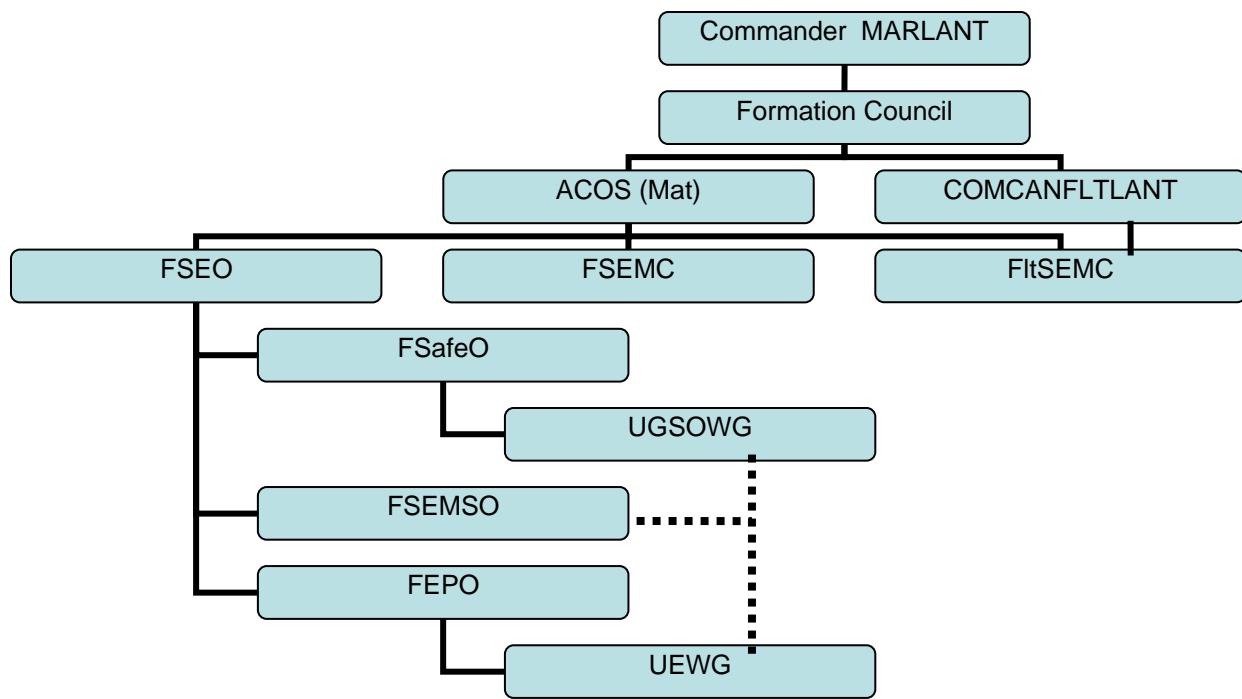
**Table 3 – ENVIRONMENTAL PROTECTION**

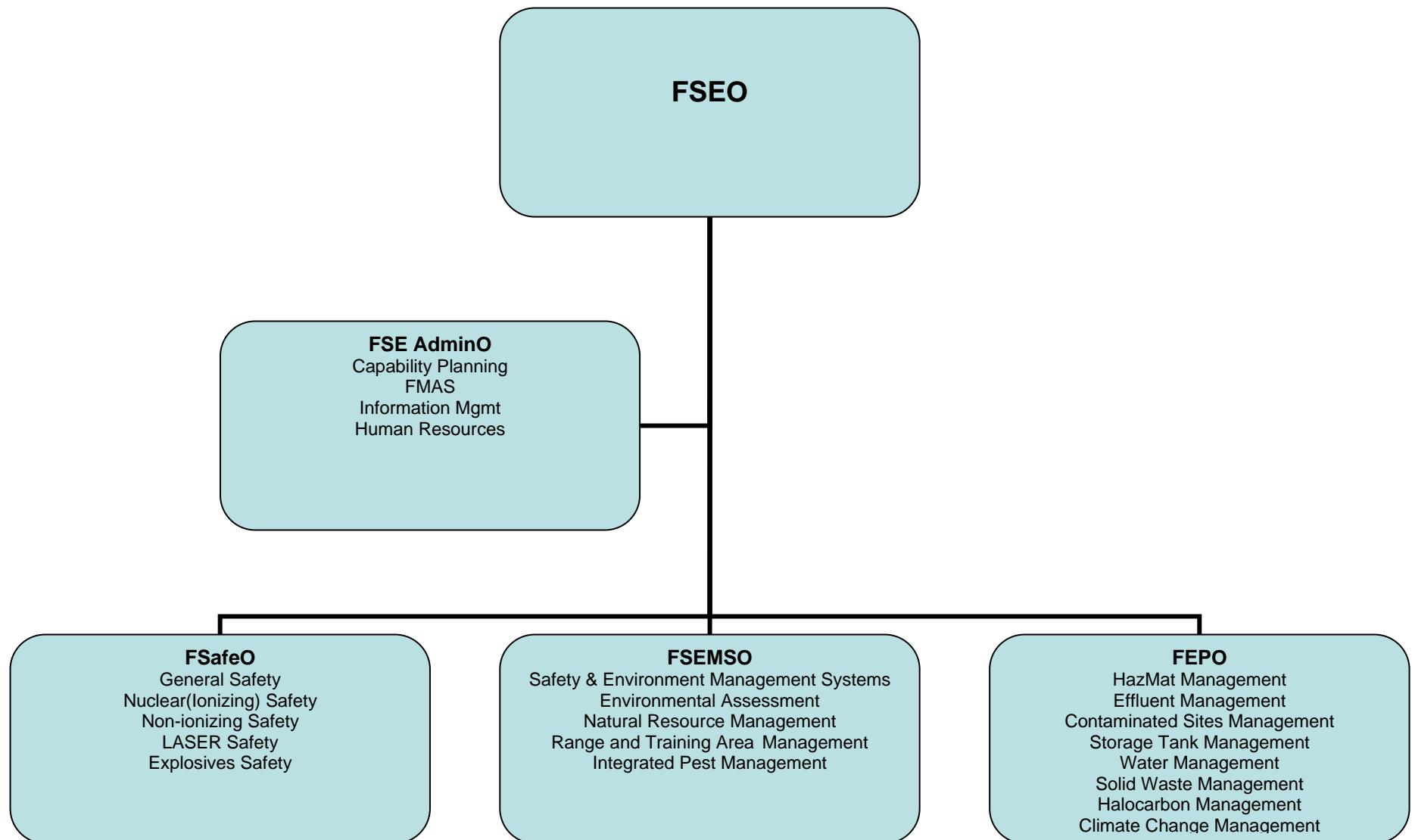
<b>PROGRAM I.D.#</b>	<b>Program</b>	<b>Program Description</b>	<b>Program OPI</b>
11	HazMat Management	<p>The Hazardous Material Management Program covers the procurement, use, storage and disposal of hazardous material. Important components of the program include:</p> <ul style="list-style-type: none"> <li>• Inspections to identify concerns with HazMat, HazWaste and PCBs, etc.;</li> <li>• Control of HazMat purchases; and</li> <li>• Use of HMRA to address inventory and MSDS issues.</li> </ul> <p>The integration of pollution prevention plans into HazMat management. This involves studying potential changes to the type and quantity of materials used and exploring opportunities for recycling and reuse to minimize hazardous waste.</p>	SO HazMat
12	Effluent Management	Monitoring of liquid effluents from MARLANT property to identify areas of concern, and developing and implementing corrective action plans where required.	SO Poll Prev
13	Contaminated Sites Management	The management of contaminated sites using the DND Contaminated Sites Framework. This includes the identification, remediation or risk management of contaminated sites and closure of sites no longer considered to be contaminated. Includes conducting underwater geophysical surveys to identify potential UXO sites and using the data to evaluate risk and develop remediation strategies.	FEPO (Cont Sites Eng and FSEMSO)
14	Storage Tank Management	Provides oversight of MARLANT's adherence to the Federal legislated and/or guidance requirements for fuel storage tanks.	Contaminated Sites Proj Eng
15	Water Management	Monitoring water use, maintenance of the water distribution system and the identification and implementation of efficiencies.	SO Poll Prev
16	Solid Waste Management	The identification of potential reduction in the use of resources by application of the 3Rs to MARLANT's management of non-hazardous solid waste for routine operations and construction / demolition projects.	SO HazMat
17	Halocarbon Management	The development and implementation of a Halocarbon Management plan that addresses phase out and the reduction of the environmental impact of halocarbon releases.	SO Climate Change
18	Climate Change Management	Development and implementation of a plan to conserve energy, while reducing emissions of green-house gases from stationary and mobile sources.	SO Climate Change

**ANNEX 4A – SAFETY AND ENVIRONMENTAL ORGANIZATION**

1. Figures 1 and 2 show MARLANT's overall safety and environmental chain of command, and the Formation Safety and Environmental (FSE) SPR organization respectively. Additional details are provided in the following terms of reference (TORs):

- a. Appendix 1 - TOR for the Formation Safety and Environmental Management Committee (FSEMC);
- b. Appendix 2 - TOR for the Fleet Safety and Environmental Management Committee (FltSEMC);
- c. Appendix 3 - TOR for the UGSO Working Group (UGSOWG);
- d. Appendix 4 - TOR for the UEnvO Working Group (UEWG);
- e. Appendix 5 - TOR for Unit General Safety Officer (UGSO);
- f. Appendix 6 - TOR for Unit Environment Officer (UEnvO);
- g. Appendix 7 - TOR Formation SO HazMat and Unit HazMat Coordinator;
- h. Appendix 8 - Formation Safety and Environmental (FSE) Roles and Responsibilities;
- i. Appendix 9 - TOR for Unit RadHaz Officer (URadHazO);
- j. Appendix 10 - TOR for Unit Laser System Safety Officer (ULSSO); and
- k. Appendix 11 – TOR for UAR and UESO.

**Figure 1 – MARLANT Safety and Environment Governance**

**Figure 2 – Formation Safety and Environment (FSE) Organization**

## **ANNEX 4A APPENDIX 1 - TERMS OF REFERENCE (TOR) FOR THE FORMATION SAFETY AND ENVIRONMENTAL MANAGEMENT COMMITTEE (FSEMC)**

### **BACKGROUND**

1. The FSEMC is comprised of SPRs and COs and senior management from integral and lodger units. The FSEMC chair and secretary are the Assistant Chief of Staff Material (N4 Mat), and the Formation Safety and Environment Officer (N48) respectively.
2. The FltSEMC (TOR at Appendix 2), conducts the annual Fleet Management Review and provides strategic direction for improvement of the Fleet's safety and environmental performance. Results of the Fleet Review are reported to the FSEMC by the Formation Safety Environmental Officer (FSEO).
3. The UGSOWG (TOR at Appendix 3), and UEWG (TOR at Appendix 4) provide forums for the exchange of information, discussion of safety and environmental programs and implementation of unit safety and environmental management systems (SEMS).
4. The FSEMC provides oversight of the MARLANT's safety and environmental programs, and addresses matters of policy and practice, which directly impact MARLANT and its lodger units. It also addresses issues and concerns raised by Workplace Health and Safety Committees. The FSEMC combines the functions of the Formation General Safety Council and General Safety Committee.

### **COMPOSITION AND RESPONSIBILITIES**

5. The following members shall constitute the Formation Safety and Environmental Management Committee:

<b>Chairperson:</b> N4 Mat
<b>Secretary:</b> N48

<b>Members:</b>		
RCSU (A)	N43	CFNOS
N41	CFAD Bedford	FMFCS
12 Wing	CCFL/MOG 5	N49
CFNES	N3	N45
CFHSvcsC (A)	1 Dental Unit	N45
N6	CFS St.John's	FDU (A)
N41	HMCS SCOTIAN	HMCS CABOT
NO2PA	N42	DRDC

<b>Ex-officio Members:</b>		
FSafeO	FSEMSO	FEPO
AJAG Rep	SO SEMS Admin	---

6. The FSEMC is responsible for overseeing the implementation and maintenance of the MARLANT SEMS through the annual management review process that evaluates the SEMS for its suitability, adequacy and effectiveness. The Committee addresses the following two-part agenda:

**Part 1**

- a. Review the status of safety and environmental objectives, targets and programs, and verification/inspection findings;
- b. Review policy;
- c. Update safety hazards and environmental aspects and their significance;
- d. Propose changes to SEMS;
- e. Propose new objectives and targets; and
- f. Evaluate the SEMS for suitability, adequacy and effectiveness.

**Part 2**

Review the results of the fleet and shore units' management reviews.

7. N48 on behalf of N4 Mat will summarize and minute the results of the Formation Management Review. The results of the Management Review are presented by N4 Mat to the Commander MARLANT, at a Formation Council Meeting, and also to RCN at the annual RCN SEMC Management Review meeting.

8. The FSEMC discharges its responsibilities as the Formation Safety Council by addressing:

- a. safety policy and overall safety program matters;
- b. matters referred by subordinate health and/or safety committees, senior staff officers, COs of lodger and integral units and by the FSEO or other specialist safety officers;
- c. hazardous occurrence experience, major accidents, trends, status, goals, etc.;
- d. safety budgetary requirements;
- e. matters beyond local Unit capability and resources;
- f. improvement and strengthening of the Unit and Formation safety programs;

- g. significant findings of safety surveys, OHS inspections, CF medical inspections, and Human Resources and Skills Development Canada (HRSDC) interventions; and
- h. safety organization, training and education, motivation, special campaigns, activities, etc.

9. The FSEMC shall meet at least once per year, and more often if required, as directed by N4 Mat. Minutes of all meetings will be taken and kept as records.

**ANNEX 4A APPENDIX 2 - TERMS OF REFERENCE FOR THE FLEET SAFETY AND ENVIRONMENTAL MANAGEMENT COMMITTEE (FltSEMC)****PURPOSE**

1. The FltSEMC conducts the annual Fleet management review and provides strategic direction for improvement of the Fleet's safety and environmental performance.

**RESPONSIBILITIES AND COMPOSITION**

2. The FltSEMC is responsible for conducting an annual management review of the Fleet IAW the process described below. The following members shall constitute the FltSEMC:

<b>Chairperson:</b> COMCANFLTLANT
<b>Secretary:</b> N48 Staff

<b>Members:</b>		
TGTO CANFLTLANT	N42	MOG 5 AWGTO
MOG 5 UWGTO	CO CANSEATRAINLANT (STA)	All ship COs

<b>Ex-officio Members:</b>		
FSafeO	FEPO	FSEMSO
SO SEMS Admin	---	---

3. The FltSEMC meets once per year, or as directed by the chair.

4. If necessary, separate measures will be put in place to accommodate the COs of units who cannot attend due to operational constraints.

**FLEET MANAGEMENT REVIEW PROCESS**

5. The annual ships' management review is scheduled to allow the COs to report the results to the FltSEMC.

6. The review(s) cover progress in meeting objectives and targets during the review year and the objectives and targets proposed for the current year. The meeting also reviews incidents and accidents reports and any results from the Formation verification process, inspections/surveys and SPDETs. Ships report on the suitability, adequacy and effectiveness of the ship class manuals and suggest ways these can be improved.

**ANNEX 4A APPENDIX 3 – TOR FOR THE UNIT GENERAL SAFETY OFFICERS’ WORKING GROUP (UGSOWG)****BACKGROUND**

1. The Unit General Safety Officers’ Working Group (UGSOWG) is one of the working groups that comprise the second tier of the Formation’s safety and environment management system.

**PURPOSE**

2. The UGSOWG provides a forum for the exchange of ideas regarding safety programs and issues and the implementation and maintenance of the MARLANT and unit management systems.

**RESPONSIBILITIES AND COMPOSITION**

3. The UGSOWG is responsible for:

- a. reviewing the status of safety management programs;
- b. facilitating the implementation and maintenance of unit SEMSs consistent with CSA Z1000/ISO 14001;
- c. identifying and discussing opportunities for the improvement of safety performance through the SEMS;
- d. identifying and sharing common components of the SEMSs, such as standard operating procedures (SOPs);
- e. consolidating information on unit hazards and significance criteria as input to the Formation Risk Prevention Program;
- f. identifying and discussing unit training needs; and
- g. planning of, and assistance with, communication and awareness promotional activities.

4. The UGSOWG members comprise all ship and shore UGSOs and FSE safety personnel. The Working Group is co-chaired by FSafeO and FSEMSO to address management system issues.

5. The UGSOWG meets quarterly.

**ANNEX 4A APPENDIX 4 - TERMS OF REFERENCE FOR THE UNIT ENVIRONMENT OFFICERS' WORKING GROUP (UEWG)****BACKGROUND**

1. The Unit Environmental Officers Working Group (UEWG) is one of the working groups that comprise the second tier of the Formation's safety and environment management system.

**PURPOSE**

2. The UEWG provides a forum for the exchange of ideas regarding environmental programs and issues and the implementation and maintenance of the MARLANT and unit SEMSs.

**RESPONSIBILITIES AND COMPOSITION**

3. The UEWG is responsible for:

- a. reviewing the status of environmental management programs;
- b. facilitating the implementation and maintenance of unit SEMSs consistent with CSA Z1000/ISO 14001;
- c. identifying and discussing opportunities for the improvement of environmental performance through the SEMS;
- d. identifying and sharing common components of the SEMS, such as standard operating procedures (SOPs);
- e. consolidating information on unit aspects and significance criteria to ensure congruency between the Formation and unit SEMS;
- f. identifying and discussing unit training needs; and
- g. planning of, and assistance with, communication and awareness promotional activities.

4. The UEWG members comprise all ship and shore UEnvOs and FSE environmental personnel. The working group is co-chaired by FEPO and FSEMSO to address management system issues.

5. Due to the large membership of the UEWG, during workshops the group will be separated into ship and shore units to facilitate discussion. Regular informal meetings and information sessions will be held with all members.

6. The UEWG will meet at least once per year.

**ANNEX 4A APPENDIX 5 - TERMS OF REFERENCE FOR UNIT GENERAL SAFETY OFFICERS (UGSOs)**

1. Details of the UGSOs' responsibilities are listed in Chapter 2 of the Safety Policy and Program – A-GG-040-001-AG-001, Vol 1, Chapter 2, paragraph 10 and summarized below.
2. The UGSO is responsible to his/her commander to develop and manage the organization's general safety program as follows:
  - a. facilitating the implementation and maintenance of unit SEMSs consistent with CSA Z1000/ISO 14001;
  - b. develop, plan, coordinate and administer the organization's general safety program and ensure its compliance with the Departmental General Safety Program;
  - c. review the existing local occupational health and safety program and suggest revisions where problem areas exist;
  - d. conduct occupational health and safety surveys of the organization and sub-organizations on at least a yearly basis;
  - e. develop, in conjunction with the line authority, and verify safety inspection checklists;
  - f. brief line-officers on weaknesses found on safety inspections and surveys to enable corrective action and program development;
  - g. maintain a file system to regulate inspection schedules, hold inspection report records and keep available various inspection checklist formats;
  - h. develop, prepare and administer the annual allocated general safety budget;
  - i. recommend changes to safety policies, standards and procedures that will improve local operations;
  - j. assist subordinate organizations in implementing and administering their own general safety programs;
  - k. develop, plan, coordinate, host, instruct, evaluate and verify a wide gamut of general safety, return to work and WHMIS training and education programs;
  - l. respond to problems and queries arising from the field of general safety;
  - m. promote good health and safety attitudes and motivate individuals to improve their occupational health and safety performance and practice and accident prevention;

- n. administer the accident prevention, investigation, reporting, data compilation and analysis procedures based on the hazardous occurrence form and the occupational health and safety module in the Human Resource Management System (HRMS);
- o. sit on various boards and committees as a safety advisor;
- p. act as the Return to Work Program Advisor; and
- q. assist the UEnvO to conduct awareness briefings.

**ANNEX 4A APPENDIX 6 - TERMS OF REFERENCE FOR UNIT ENVIRONMENT OFFICERS (UEnvOs)**

1. The UEnvO is appointed by the CO and should be of the minimum rank Lt (N). If not already qualified, the UEnvO should be loaded on the first available UEnvO course. The UEnvO is responsible for:

- a. facilitating the implementation and maintenance of unit SEMSs consistent with CSA Z1000/ISO 14001;
- b. developing and maintaining a list of the unit's environmental roles and responsibilities;
- c. controlling environmental documents and managing records for the unit;
- d. disseminating reports and updating changes to legal and other requirements;
- e. acting as the principal advisor on compliance with environmental regulations;
- f. monitoring the unit's environmental compliance and reporting any infractions to the CO and acting under the CO's authority to stop any activity that he/she believes contravenes an order or regulation pertaining to the environment;
- g. advising the HazMat and Solid Waste Coordinators in carrying out their duties;
- h. ensuring environmental management programs (EMPs) are implemented to meet environmental objectives and targets, assigning OPIs to manage the implementation and reviewing program status;
- i. identifying environmental training needs and providing for the continuing education of the unit's company in environmental stewardship. Planning for and providing assistance to the UGSO with awareness briefings and reporting annually to FSE on the number of personnel who received awareness briefings;
- j. acting as the liaison between the Unit Environment Committee and FSE environmental staff;
- k. ensuring environmental communications are distributed to all concerned parties;
- l. assigning OPIs to collect and evaluate environmental monitoring data;
- m. investigating environmental incidents, accidents and other non-conformances with the SEMS and verifying corrective action has been successfully implemented;
- n. coordinating FSE verifications, inspections and surveys;
- o. assisting the CO with the management review;

- p. presenting a progress report on the status of EMPs at the management review meeting;
- q. identifying and implementing, where possible, opportunities for the continual improvement of environmental performance;
- r. attending environment committee meetings;
- s. conducting spot checks of contractors to ensure compliance with legislation and policy and conformance with the SEMS;
- t. appointing a Solid Waste Coordinator if necessary; and
- u. assisting UGSO with conduct of awareness briefings.

**ANNEX 4A APPENDIX 7 - TERMS OF REFERENCE FOR THE UNIT HAZMAT Coordinator**

1. The CO appoints the unit HazMat Coordinator who is responsible for the management of HazMat including:
  - a. answering queries related to HazMat;
  - b. maintaining an inventory of the types and locations of all hazardous material held by the unit, and ensuring the Hazardous Material Reference Application (HMRA) database is updated at least once per quarter;
  - c. assessing the requirement for, and ensuring the procurement of, all necessary hazardous material handling equipment;
  - d. identifying HazMat training needs and providing for the continuing education of the unit's company in HazMat/HazWaste management;
  - e. reviewing all incidents involving HazMat to evaluate the need to improve procedures to prevent similar incidents;
  - f. maintaining copies of the master file of current MSDSs for all HazMat on site;
  - g. ensuring all spaces that contain HazMat are correctly identified and the relevant MSDSs are available;
  - h. ensuring HazMat acquisitions are recorded;
  - i. advising unit personnel on the safe storage of all HazMat;
  - j. ensuring the proper disposal of all HazWaste, whether it results from normal usage or from an accidental spill;
  - k. ensuring HazMat spill cleanup actions are coordinated;
  - l. ensuring rounds are conducted to ensure that all HazMat is stored as itemized in the HMRA database;
  - m. ensuring HazMat/HazWaste are properly packaged, WHMIS labelled, prepared for transport, reaches the approved storage site and/or is disposed of correctly; and
  - n. attending Unit Safety/Environmental Committee meetings.

**ANNEX 4A APPENDIX 8 - FORMATION SAFETY AND ENVIRONMENT (FSE)  
ROLES AND RESPONSIBILITIES**

1. The Formation Safety and Environment Officer (FSEO) is the Single Point of Responsibility (SPR) for safety and environmental issues within MARLANT. This includes the provision of safety and environmental management services for integral and assigned lodger units and the provision of specialist technical advice and liaison with RCN and outside agencies on safety and environmental matters. The roles and responsibilities of the FSEO and the SPR's Section Heads are outlined below.

**2. The Formation Safety and Environmental Officer (FSEO)**

- a. Reports to the ACOS Mat. As the SPR the FESO is responsible for the overall direction, coordination and administration of the safety and environmental programs within MARLANT, and is the SEMS Management Representative;
- b. Directs the preparation, for approval by the chain of command, of MARLANT's safety and environmental policy, orders, guidelines, directives, processes and procedures to manage the Formation's safety and environmental programs;
- c. Directs and coordinates the preparation of the safety and environmental sections of the Formation's Level 2 and FSE's Level 3 Business Plan including budget(s);
- d. Directs and oversees the implementation of the Formation's safety and environmental programs/projects and budget. The FSEO is responsible for results and reports on progress through the chain of command;
- e. Directs the implementation and maintenance of the Formation's SEMS;
- f. Evaluates legal and policy compliance issues identified by the Formation verification process, and reports findings to the chain of command; and
- g. Ensures safety and environmental incidents and safety incidents/accidents are investigated and reported.

**3. Formation Safety Officer (FSafeO)**

- a. Reports to the FSEO and is responsible for the Formation's General Safety, Ionizing Radiation Safety, Non-ionizing Radiation Safety, Laser Safety and Explosives Safety programs;
- b. Assist with the development of MARLANT's policy, orders, guidelines, directives and procedures for areas under the position's jurisdiction;
- c. Provides input into the level 3 capability plan and manages the related budget;
- d. Oversees the implementation and maintenance of assigned programs/projects,

including the provision of technical advice and recommendations;

- e. Ensures safety program/project implementation and maintenance conforms to the SEMS requirements;
- f. Promotes safety awareness and compliance with legislation and policy throughout the Formation; and
- g. Oversees the investigation and reporting of safety incidents/accidents throughout the Formation.

#### 4. **Formation Safety and Environment Management System Officer (FSEMSO)**

- a. Reports to the FSEO and is responsible for the Formation's Safety and Environmental Management System (SEMS), Environmental Assessment, Range and Training Area Management, Natural Resources and Integrated Pest Management programs. The position also directs unexploded ordnance (UXO) projects through the contaminated sites program;
- b. Assist with the development of MARLANT's policy, orders, guidelines, directives and procedures for areas under the position's jurisdiction;
- c. Provides input into the level 3 capability plan and manages the related budget;
- d. Oversees the implementation and maintenance of assigned programs/projects, including the provision of technical advice and recommendations;
- e. Provides oversight for the implementation and maintenance of the Formation's SEMS, including the verification process, management review, training, policy and manual review, and updating safety hazards, environmental aspects and monitoring policy and legislation changes;
- f. Promotes environmental awareness and compliance with legislation and policy throughout the Formation; and
- g. Oversees the investigation and reporting of environmental incidents within the position's area of responsibility.

#### 5. **Formation Environmental Protection Officer (FEPO)**

- a. Reports to the FSEO and is responsible for the Formation's HazMat, Effluent, Contaminated Sites, Storage Tank, Water, Solid Waste, Halocarbon and Climate Change Management programs;
- b. Assist with the development of MARLANT's policy, orders, guidelines, directives and procedures for areas under the position's jurisdiction;

- c. Provides input into the level 3 capability plan and manages the related budget;
- d. Oversees the implementation and maintenance of assigned programs/projects, including the provision of technical advice and recommendations;
- e. Ensures assigned program/project implementation and maintenance conforms to the SEMS requirements;
- f. Promotes environmental awareness and compliance with legislation and policy throughout the Formation; and
- g. Oversees the investigation and reporting of environmental incidents within the position's area of responsibility.

**ANNEX 4A APPENDIX 9 - TERMS OF REFERENCE FOR UNIT RADHAZ OFFICER**

1. The CO appoints the Unit RadHaz Officer (URadHazO) who is responsible for the management of RadHaz including:
  - a. ensure unit personnel are well informed of and adhere to RF safety policies, standards and procedures;
  - b. develop and implement an RF training program that is appropriate for all unit's personnel according to their duties;
  - c. maintain pertinent information dealing with RF policy documentation, fitted emitters, survey reports, incidents, and actions taken;
  - d. provide assistance to resolve RF related work conflicts between units;
  - e. ensure that all RF devices within their area of jurisdiction are properly installed, maintained, surveyed and operated in accordance with relevant instructions.
  - f. conduct annual Radiation Hazard Safety Program (RASP) self audits;
  - g. co-ordinate unit surveys with the SO RadHaz Safety; and
  - h. ensure that unit RadHaz safety infractions, EMI and overexposure incidents are promptly investigated and reported to the SO RadHaz Safety.

**ANNEX 4A APPENDIX 10 - TERMS OF REFERENCE FOR UNIT LASER SYSTEM SAFETY OFFICER**

1. The CO appoints the Unit Laser System Safety Officer (ULSSO) who is responsible for the management of laser safety including:
  - a. ensure that unit personnel are well informed of and adhere to laser safety policies, standards and procedures;
  - b. develop and implement a training program that is appropriate to all units' personnel, according to their employment;
  - c. maintain pertinent information dealing with policy documentation, fitted emitters, survey reports, incidents, and actions taken;
  - g. provide assistance to resolve laser safety related work conflicts between units;
  - h. ensure that all laser devices classified as 3B or 4 within their jurisdiction are properly installed, maintained, surveyed and operated in accordance with relevant instructions and details of these devices forwarded to SO Laser Safety;
  - i. co-ordinate unit surveys with SO Laser Safety; and
  - j. ensure that unit laser safety infractions and overexposure incidents are promptly investigated and reported to SO Laser Safety.

**ANNEX 4A APPENDIX 11 - TERMS OF REFERENCE FOR UNIT AMMUNITION  
REPRESENTATIVES AND EXPLOSIVES SAFETY OFFICERS**

1. The CO appoints the Unit Ammunition Representative (UAR) who is responsible for the management of ammunition and explosives storage lock-ups including:

- a. provide advice on unit ammunition and explosives safety;
- b. store ammunition and explosives;
- c. receive ammunition and explosive;
- d. maintain unit ammunition and explosives inventory;
- e. return ammunition and explosives;
- f. provide advice on the transportation of ammunition and explosives;
- g. return ammunition salvage and aids to production;
- h. maintain unit ammunition and explosives storage lock-up;
- i. assist in the conduct of their unit ammunition and explosive safety program;
- j. report ammunition defects and malfunctions;
- k. assist in the reporting of ammunition accidents and incidents; and
- l. identify Ammunition, Packaging and Aids to Production.

2. The CO appoints the Unit Explosives Safety Officer (UESO) who is responsible for the overall management of unit ammunition and explosives safety including:

- a. provide advice to commanders on unit ammunition and explosives safety matters;
- b. manage unit ammunition and explosives safety;
- c. maintain an effective unit ammunition and explosives accident/incident investigation process;
- d. coordinate unit ammunition and explosives safety training and education;
- e. evaluate the effectiveness of the unit ammunition and explosives safety program;
- f. perform inspections of their unit ammunition and explosives storage lock-up(s);
- g. maintain unit ammunition and explosives safety records;

- h. analyze unit ammunition and explosives safety records to improve accident/incident prevention;
- i. identify ammunition, packaging and aids to production;
- j. develop unit ammunition and explosives safety program; and
- k. maintain an effective unit ammunition and explosives accident and incident reporting system.

**ANNEX 4B – FSE QUALIFICATIONS AND TRAINING MATRIX**

<b>N48 PERSONNEL</b>		FSEO	FSEM/SO	SO RTAM	SO Flt Mgmt Sys	SO Nat Res Mgmt	SO Verification	SO SEMS Admin	SO EA	FEPO	SO Climate Change	SO HazMat	SO Poll Prev	SO Env Eng	Env Prot Tech (HazMat)	Env Prot Tech (2)	FSE Admin/O	Geomatics Tech	FSafeO	Safe Prog Admin	SO OHS	SO Rad Safe	SO RadHaz/Laser	SO Exp Safe
		QUALIFICATION	Degree relevant to position or equivalent experience	M	M	M	M	M	M	M	M	M	M	M	M	M	O	O	O	M	O	M	M	
Verifier		M	M	O	M	O	M	O	O	M	M	M	M	M	O	O	M	M	O	M	M	M		
Lead Verifier		M	M		O		M			M								M		M	M	M	M	
Basic WHMIS		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
First Aid		O	O	O	M	O	O	O	O	O	O	O	O	O	O	M	O	M	O	O	O	M	M	
Safety/environmental awareness briefs		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
HMRA course						M				M		M	O		M	O								
UEnvO		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	O	O	O	O	O	O	O	
CEAA 101		M	M	M		M	M		M	O														
CEAA Cumulative Effects			M	M		O			M															
Can. Assoc. for Lab Accreditation (CALA) Auditing												M												

Legend: M = Mandatory :: O = Optional :: Blank = Not required

<b>N48 PERSONNEL</b>		FSEO	FSEM/SO	SO RTAM	SO Flt Mgmt Sys	SO Nat Res Mgt	SO Verification	SO SEMS Admin	SO EA	FEPO	SO Climate Change	SO HazMat	SO Poll Prev	SO Env Eng	Env Prot Tech (HazMat)	Env Prot Tech (2)	FSE Admin/O	Geomatics Tech	FSafeO	Safe Prog Admin	SO OH/S	SO Rad Safe	SO RadHaz/Laser	SO Exp Safe
		ISO 14001 Standard	M	M	M	M	M	M	M	M	M	M	M	O	M	M	O	M	M	M	M	M	M	
CSA Z1000		CSA Z1000	M	M	O	M	M							O	M	M	M	M	M	M	M	M	M	
TDG Clear language		TDG Clear language			O		O	M							O		M	M	M	M	M	M	M	
Haz Material Pkg (Supply Tech course - ME)		Haz Material Pkg (Supply Tech course - ME)							M			O												
HazMat Control (Supply Tech course - TB)		HazMat Control (Supply Tech course - TB)							M			O												
HazMat Control (Supply Tech course - 3K)		HazMat Control (Supply Tech course - 3K)							O			O												
CFFA HazMat Awareness/Operation		CFFA HazMat Awareness/Operation						O	M		O	O												
CFFA HazMat Technician		CFFA HazMat Technician							O	O		O												
CFFA HazMat Incident Commander		CFFA HazMat Incident Commander						O	O															
HAZWOPER		HAZWOPER						O	M	O														
QHM - HazMat Spill Awareness Training	O	QHM - HazMat Spill Awareness Training	O	O	O	O	O	O	M	O	O	O	O											
QHM - POL Workplace Spill Training	O	QHM - POL Workplace Spill Training	O	O	O	O	O	O	M	O	O	O	O											

Legend: M = Mandatory :: O = Optional :: Blank = Not required

<b>N48 PERSONNEL</b>		FSEO	FSEMSO	SO RTAM	SO Flt Mgmt Sys	SO Nat Res Mgt	SO Verification	SO SEMS Admin	SO EA	FEPO	SO Climate Change	SO HazMat	SO Poll Prev	SO Env Eng	Env Prot Tech (HazMat)	Env Prot Tech (2)	FSE AdminO	Geomatics Tech	FSafeO	Safe Prog Admin	SO OHS	SO Rad Safe	SO RadHaz/Laser	SO Exp Safe
<b>QUALIFICATION</b>																								
CCG Marine Spill Training				O					O															
ODS (HRAI) Env Awareness Training				O					O	M	O													
EMO (1) Basic Emergency Management	O							O	O									O		O		O		
EMO (2) Operation Centre Management	O							O	O															
EMO (3) CBRN Advance								O	O									O		O				
CRSP Designation																		O		O	O			
Basic Safety Officers Training Course	O	O	M		M		O											M	O	M	O	O	O	O
Hazardous Occurrence Investigation Course	O																	M	O	M	M	M	M	M
Return to Work Program	M	M					M											M	O	M				
Return to Work Advisors / Committees Course	O																	M		O				
Basic LASER Training																		O			M			
Explosive Safety Training (Basic)																		M			M			
Fall Arrest Basic					O													O		M				
Fall arrest Inspector																		O		M				
Fall Arrest Trainer																		O		M				

Legend: M = Mandatory :: O = Optional :: Blank = Not required

<b>N48 PERSONNEL</b>		FSEO	FSEMSO	SO RTAM	SO Flt Mgmt Sys	SO Nat Res Mgt	SO Verification	SO SEMS Admin	SO EA	FEPO	SO Climate Change	SO HazMat	SO Poll Prev	SO Env Eng	Env Prot Tech (HazMat)	Env Prot Tech (2)	FSE AdminO	Geomatics Tech	FSafeO	Safe Prog Admin	SO OHS	SO Rad Safe	SO RadHaz/Laser	SO Exp Safe
<b>QUALIFICATION</b>																								
Non Ionizing Radiation Training	O																	O			M			
Occupational Health Course	O										O							M	M					
Respiratory Protection Program - Fit Testing			O	O						M		O					O	M						
Confined Spaces			O					O	M								M	M						
Safety Legislation	O	O	O	O				O	O								M	M	M	O	O	O		
Safety Program Evaluators (SPDET)					O												M	M	O	O	O			
Supervisor Safety Responsibilities	M	M							M							M	M							
Project Management	O	O	O	O				O	O	O	O	O				O	O	O						
Section 34 Course	M														M									

Legend: M = Mandatory :: O = Optional :: Blank = Not required

**ANNEX 4C - DOCUMENT MASTER LIST****TABLE 1 - SEMS MANUAL**

<b>Document</b>	<b>Prepared By</b>	<b>Reviewed By</b>	<b>Approved By</b>	<b>Date of Issue</b>
Cover page	SO SEMS Admin	FSEO	ACOS Mat	Mar 2009
Formation Safety/Environment Policy	FSEO	ACOS Mat	Commander	Feb 2009
<b>FOREWORD</b>				
Table of Contents	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Authority	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Manual Owner	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Manual Distribution	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Revision History	FSEMSO	FSEO	Commander/ACOS Mat	May 2009
<b>PART I – ADMINISTRATION</b>				
SEMS Text, Chapters 1-6	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 1A – Units within SEMS Scope	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 1B – Glossary	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 1C – Acronyms	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 3A – Identification and determination of significance for safety hazards and environmental aspects.	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 3B – Safety hazards and environmental aspects	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 3C – Legal & Other Requirements	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 3D – Safety and Environmental Management Programs (SEMPs) Procedures	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 3E –SEMPs	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 4A – Safety and Environmental Organization	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
App. 1 - TOR for FSEMC	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
App. 2 - TOR for FltSEMC	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
App. 3 – TOR for UGSOWG	FSafeO	FSEO	Commander/ACOS Mat	Mar 2009
App. 4 – TOR for UEWG	FEPO	FSEO	Commander/ACOS Mat	Mar 2009
App. 5 – TOR for UGSO	FSafeO	FSEO	Commander/ACOS Mat	Mar 2009
App. 6 - TOR for UEnvO	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
App. 7 – TOR UHazMat Coord	FEPO	FSEO	Commander/ACOS Mat	Mar 2009
App. 8 – FSE Roles & Responsibilities	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
App. 9 – TOR for URadHazO	FSafeO	FSEO	Commander/ACOS Mat	Feb 2014
App. 10 – TOR for ULSSO	FSafeO	FSEO	Commander/ACOS Mat	Feb 2014
App. 11 – TOR for UAR and UESO	FSafeO	FSEO	Commander/ACOS Mat	Feb 2014

**TABLE 1 - SEMS MANUAL (continued)**

Document	Prepared By	Reviewed By	Approved By	Date of Issue
Annex 4B – FSE Personnel Qualifications and Training Needs	FSafeO FSEMSO FEPO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 4C - Document control master list	FSEMSO	FSEO	Commander/ACOS Mat	May 2009
Annex 5A - Non-conformance report form	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 5B - Records master lists	FSEMSO	FSEO	Commander/ACOS Mat	Mar 2009
Annex 6A – Instructions for conducting a management review	FSEMSO	FSEO	Commander/ACOS Mat	May 2009
App. 1 – Safety and Environmental Performance Data	FSEMSO	FSEO	Commander/ACOS Mat	May 2009
App. 2 – Guidelines for Providing Safety Performance Data	FSEMSO	FSEO	Commander/ACOS Mat	May 2009
<b>PART II – DIRECTIVES SAFETY</b>				
#S1 - Lockout/Tagout	FSafeO	FSEO	ACOS Mat	Mar 2009
#S2 – Tools and machinery	FSafeO	FSEO	ACOS Mat	Mar 2009
#S3 – Reporting off-duty accidents and Physical Fitness Safety	FSafeO	FSEO	ACOS Mat	Mar 2009
#S4 - Hazardous Occurrence Investigation, Reporting and Analysis	FSafeO	FSEO	ACOS Mat	Mar 2009
#S5 - Return to Work Program	FSafeO	FSEO	ACOS Mat	Mar 2009
#S6 – Fall Protection	FSafeO	FSEO	ACOS Mat	Mar 2009
#S7 – Safety Permit Program	FSafeO	FSEO	ACOS Mat	Mar 2009
#S8 - Personal Protective Equipment	FSafeO	FSEO	ACOS Mat	Mar 2009
#S9 – Respiratory Protection Program	FSafeO	FSEO	ACOS Mat	Mar 2009
#S10 - Confined Space Entry	FSafeO	FSEO	ACOS Mat	Mar 2009
#S11 – Hot Work	FSafeO	FSEO	ACOS Mat	Mar 2009
#S12 - Non-ionizing Radiation Safety Program	FSafeO	FSEO	ACOS Mat	Mar 2009
#S13 - LASER Safety Program	FSafeO	FSEO	ACOS Mat	Mar 2009
#S14 - LASER Ranges	FSafeO	FSEO	ACOS Mat	Mar 2009
#S15 – Ionizing Radiation Safety	FSafeO	FSEO	ACOS Mat	Mar 2009
#S16 – Explosives Safety	FSafeO	FSEO	ACOS Mat	Mar 2009
#S17 – Occupational Health Program (new)	FSafeO	FSEO	ACOS Mat	Mar 2009
#S18 - Safety Committees (new)	FSafeO	FSEO	ACOS Mat	Mar 2009
#S19 – Ergonomics Program (new)	FSafeO	FSEO	ACOS Mat	Mar 2009
#S20 – General Safety Program, Roles and Responsibility (new)	FSafeO	FSEO	ACOS Mat	Mar 2009
#S21 - Accommodating Persons with Environmental Illness / Multiple Chemical Sensitivity	FSafeO	FSEO	ACOS Mat	Jun 2011

**TABLE 1 – SEMS MANUAL (continued)**

Document	Prepared By	Reviewed By	Approved By	Date of Issue
<b>PART II – DIRECTIVES INTEGRATED (safety/environmental)</b>				
#SE1 – Hazardous Materials	FEPO/FSafeO	FSEO	ACOS Mat	Mar 2009
#SE2 – Procurement and contracting	FSE AdminO	FSEO	ACOS Mat	TBD
#SE3 – Asbestos Management	FEPO/FSafeO	FSEO	ACOS Mat	Mar 2009
#SE4 – Agency Inspections and Investigations	FSEMSO/FEPO/FSafeO	FSEO	ACOS Mat	Mar 2009
#SE5 – Safety and Environmental Training Program	FSEMSO/FSafeO	FSEO	ACOS Mat	Mar 2009
#SE6 – Formation Verification Process, Inspections/Surveys and SPDET	FSEMSO/FEPO/FSafeO	FSEO	ACOS Mat	Mar 2009
#SE7 – Water Management	FSEMSO/FEPO/FSafeO	FSEO	ACOS Mat	Feb 2014
<b>PART II – DIRECTIVES ENVIRONMENTAL</b>				
#E1 – Spill Prevention and Reporting	FEPO	FSEO	ACOS Mat	Mar 2009
#E2 – Contaminated Sites	FEPO	FSEO	ACOS Mat	Mar 2009
#E3 – Environmental Assessment	FSEMSO	FSEO	ACOS Mat	Mar 2009
#E4 – Integrated Pest Management	FSEMSO	FSEO	ACOS Mat	Mar 2009
#E5 – Solid Waste Mgmt	FEPO	FSEO	ACOS Mat	Mar 2009
#E6 – Storage Tank Mgmt	FEPO	FSEO	ACOS Mat	Mar 2009
#E7 – Halocarbon Management	FEPO	FSEO	ACOS Mat	Mar 2009
#E8 – Effluent Management	FEPO	FSEO	ACOS Mat	Mar 2009
#E10 – Climate Change Management	FEPO	FSEO	ACOS Mat	Mar 2009
#E11 – Natural Resource Management	FSEMSO	FSEO	ACOS Mat	Mar 2009
#E12 – Range and Training Area Management	FSEMSO	FSEO	ACOS Mat	Mar 2009

Document	Prepared By	Reviewed By	Approved By	Date of Issue
<b>PART III – FORMATION EMERGENCY RESPONSE PLANS</b>				
Summary of MARLANT emergency preparedness & response plans	FEPO	FSEO	ACOS Mat	Mar 2009

**Non-compliance-Major:** Not complying with legislation or regulation, etc. or many minors. **Non-compliance-Minor:** Not complying with policy.

**Non-conformance-Major:** Element missing/not effective, or many minors in same area. **Non-conformance-Minor:** Element has small/occasional mistakes.

**ANNEX 5A – NON-CONFORMANCE REPORT****NCR ID#**

(ELEMENT NAME)			
<u>OBSERVATIONS</u>			
<u>FINDING</u>			
Non- Compliance: <input type="checkbox"/>	Non-conformance : <input type="checkbox"/>	Major: <input type="checkbox"/>	Minor : <input type="checkbox"/>
<u>COMMENTS</u>			
Lead Auditor/Investigator: Date:			
<u>CORRECTIVE AND PREVENTIVE ACTION</u>			
Action to be taken by (OPI): Action to be completed by (Date): Action approved by: Date:			
<u>VERIFICATION OF CORRECTIVE ACTION</u> Comments:			
Lead Auditor or UEnvO or UGSO: Date:			

**ANNEX 5B - RECORDS MASTER LISTS****Table 1 – Safety Records**

Safety Record	File Number <sup>1</sup>	Location	Minimum Retention Time (years)	Person Responsible
Accident/Incident Reports	1006-7	S-90 Rm#348	10	FSafeO
Ammunition dummy and display registers	11300-1	S-90 Rm#348	Indefinitely	SO ExpSafe
Ammunition licences (CF 1004)	11300-11	S-90 Rm#348	Indefinitely	SO ExpSafe
Annual ammunition inspections and unit audits	11300-11	S-90 Rm#348	5	SO ExpSafe
Decommissioning requests	3311-2 <sup>2</sup>	S-90 Rm#348	Indefinitely	SO RadSafe
Decommissioning surveys and certificates	1546-13-0100	S-90 Rm#348	Indefinitely	SO RadSafe
Hazardous Occurrence investigation reports	1006-7	S-90 Rm#348	30	FSafeO
Ionizing Radiation Annual Reports	1630-1 (N48-1-5)	S-90 Rm#348	Indefinitely	SO RadSafe
Ionizing Radiation Swipe/Leak Test Results (CFB Halifax only)	6740-2-0100	S-90 Rm#348	Indefinitely	SO RadSafe
Records of Safety Officer Appointments	1006-1	SID	Until superceded	FSafeO
Radiation Emitters , inventory, audits and surveys.	1006/5	S-90 Rm#348	Indefinitely	SO RADHAZ/Laser Safe
Radiation General Correspondance	1006/4	S-90 Rm#348	Indefinitely	SO RADHAZ/Laser Safe
Radiation Permits	<sup>3</sup>	S-90 Rm#348	Indefinitely	SO RadSafe
Radiation inspections Halifax only - 0100)	<sup>4,5</sup>	S-90 Rm#348	Indefinitely	SO RadSafe
Radiation inventory listings (CFB Halifax only)	--	S-90 Rm#348	Indefinitely	SO RadSafe
RADHAZ Control Chits (DND 2145)	1006/5	S-90 Rm#348	5	SO RADHAZ/Laser Safe
Safety training	4500-1	SID	Indefinitely	FSafeO

**NOTE**

- 1 Method of filing is - alpha numeric in reverse chronological order.
- 2 This is the current file number, but should request a more current/appropriate number.
- 3 Currently has no file extension, MWO Butler, RMO should be asked to provide sub-directories to current index.
- 4 Radiation inspections are documented in a DGNS Form. It is downloaded as required, but has no I.D. – it is available at DGNS 2.06, Annex C.
- 5 Until July 2005, the test results came via the EDRMS – hard copies were made and kept by SO Rad Safe. Now only available on-line, but hardcopies are still printed and retained.

**Table 2 – Environmental Records**

<b>Environmental Record</b>	<b>File Number<sup>1</sup></b>	<b>Location</b>	<b>Minimum Retention Time (years)</b>	<b>Person Responsible</b>
Baseline Studies – environmental	--	Library	Indefinitely	SO SEMS Admin
Contaminated Sites Reports	--	Library	Indefinitely	SO SEMS Admin/ SO Poll Prevention
Corporate Environmental Program	1262-3	Central	7	SO SEMS Admin
Environmental Assessments	1262-7	SO EA	Indefinitely	SO EA
General environmental correspondence	1262-1	Central	Indefinitely	SO SEMS Admin
Incident/release Reports (POL) – completed	1262-6	Central	Indefinitely	SO SEMS Admin
Incident/Release Reports (Halocarbons) – completed	1262-5	Central	Indefinitely	SO SEMS Admin
Investigations Summary	1080	SO FITMS/ Central	Indefinitely	SO FltMS
Investigations – Technical	1080	SO FltMS/Central	Indefinitely	SO FltMS
Inspections HazMat	1262-4	Central	Indefinitely	SO HAZMAT
Legislation and policy monitoring	--	FSEMSO	Indefinitely	SO Verifiacton Process/SO SEMS Admin
Sustainable Development Strategy	--	Central	10	SO SEMS Admin
UEnvO Training Records	--	Central	Indefinitely	FSEMSO
Unit training records are kept in FSEMC Management Review file	--	Central	Indefinitely	FSEMSO

**NOTE**

1 Method of filing is - alpha numeric in reverse chronological order.

**Table 3 – Common Records**

<b>Common Record</b>	<b>File Number<sup>1</sup></b>	<b>Location</b>	<b>Minimum Retention Time (years)</b>	<b>Person Responsible</b>
Allocation/reconciliation completed forms	--	FSE AdminO	7	FSE AdminO
Annual Safety and Environmental Reports	1006-1	S-90 Library	Indefinately	SO SEMS Admin
Capability Plans –FSE	1950	FSEO/Central	7	FSE AdminO
Committee - FSEMC	1180	Central	Indefinitely	SO SEMS Admin
Committee – MCEMC	1180	Central	Indefinitely	SO SEMS Admin
Committee - UEWG	1180	Central	Indefinitely	SO SEMS Admin
Committee – Other	1180	Central	Indefinitely	SO SEMS Admin
Complaints and irregularities	1170	Central	Indefinitely	SO SEMS Admin
Equipment inventory	Distribution Account	SCA FLog	Indefinitely	Exec Admin Assist
Expenditure Reports	e-files	FSE AdminO	indefinitely	FSE AdminO
Fire/police notifications	1006-7	S-90 Rm#348	10	FSafeO
FSE Training Records	e-files	UTC	Indefinitely	UTC
Historical Report	1262-1	FSEO/Central	Indefinitely	SO SEMS Admin
Objectives & Targets (see Capability Plan)	1950	Admin Office	7	FSE AdminO
Obsolete documents	--	Central	Indefinitely	SO SEMS Admin
Planning Workshops' completed forms	--	Central	3	SO SEM Admin
Program Management Plans	--	Central	7	SO SEMS Admin
Program Progress Reports	1262-1	Central	7	SO SEMS Admin
Program Submissions completed forms	--	FSE AdminO	7	FSE AdminO
Project Synopses completed forms	--	FSE AdminO	7	FSE AdminO
Verification Reports	1262-8	SO Audit/Central	Indefinitely	SO Audit/ SO SEMS Admin
Verification Schedule	--	SO Audit	5	SO Audit

**NOTE**

1 Method of filing is - alpha numeric in reverse chronological order.

**ANNEX 6A - INSTRUCTION FOR CONDUCTING A MANAGEMENT REVIEW****PURPOSE**

1. To describe the procedure used to conduct a management review of a safety/environmental management system that meets the requirements of CSA Z1000/ISO 14001.

**SCOPE**

2. The instruction applies to all MARLANT integral and lodger units with a stand-alone management system.

**RESPONSIBILITIES**

3. The UGSO and UEnvO are responsible for providing the input for the management review.

4. The CO is responsible for conducting and reporting the results of the ship/shore unit's management review. The normal forum for the review is the ships/shore unit's Safety/Environmental Committee.

5. ACOS (Mat) conducts the Formation Management Review and the results are reported to the Commander MARLANT at a Formation Council Meeting, and to the RCN Compt at a meeting of the RCN Safety and Environment Management Committee (RCN SEMC).

**INSTRUCTION**

6. Conducting a management review involves four steps:

- a. scheduling;
- b. preparing for management review;
- c. conducting the meeting; and
- d. reporting results.

The activities within each step are discussed below.

**Scheduling**

7. Ship/shore unit management reviews are scheduled to meet the requirements of the annual MARLANT and RCN management reviews for the previous fiscal year, which are conducted by mid-June and end-June respectively.

8. Ships conduct their annual management reviews NLT end of April, since the results of ship reviews are presented to the FltSEMC at the end of May.

9. Shore Units conduct their reviews before mid-May and the results are presented by the COs to the FSEMC meeting in early June.

10. Since there is a high potential for conflicts between time commitments, and the time it takes to assemble the review material, it is recommended that meeting dates are set by the end of February.

### **Preparing for Management Review**

11. Management review involves collecting information on safety and environmental performance which is then reviewed by an appropriate committee to evaluate whether the organization's safety/environmental performance has improved compared to the previous year.

12. The safety/environmental performance data to be collected is listed as a "fill-in-the-blanks" form at Appendix 1. Guidelines for providing the safety performance data requested in the form, are attached at Appendix 2. The form is completed as appropriate by the UEnvO and the UGSO. The completed form is then distributed, along with the management review agenda, to committee members, Section Heads and COs approximately one month before the meeting date.

13. The agenda includes:

- a. discussion of safety/environmental performance based on the performance data presented;
- b. review/revise safety hazards and environmental aspects;
- c. status of achievement of unit objectives/targets for the review year;
- d. proposed unit objectives/targets for current year;
- e. need for changes to the unit safety/environmental policy and/or SEMS;
- f. opportunities for improvement; and
- g. any other business.

### **Conducting a Ship/Shore Management Review**

14. The CO, or designate conducts the management review, and the results are reported to the FltSEMC and/or the FSEMC as outlined below in "Reporting the Results of the Management Review". The meeting follows the above agenda and discusses, as relevant, the information presented in the completed Appendix 1, Safety and Environmental Performance Data.

15. The discussion should include an analysis of this information in terms of the safety and environmental performance of the unit compared to the previous year, and the progress towards meeting the safety and environmental objectives and targets set for the review year.

16. Other potential topics include, as relevant:

- a. communications from workers, workers representatives and external interested parties, including complaints;
- b. follow-up actions from previous management reviews; and
- c. changing circumstances, including developments in applicable legal and policy requirements.

17. The review committee evaluates all the information and reaches consensus on whether the unit's SEMS is suitable, adequate and effective. This finding and other results of the unit's management review are documented as meeting minutes, distributed to staff and kept as SEMS records. The minutes document decisions and action points related to:

- a. the need for changes to the ship/unit's policy and objectives;
- b. improvements in the effectiveness of the safety/environmental management system and its procedures and processes;
- c. the extent to which objectives and targets have been met;
- d. the allocation of resources; and
- e. the need to continually improve safety and environmental performance.

18. The information gathered at the management review meeting is used to develop an action plan to correct any identified deficiencies and address opportunities for improvement.

## **Reporting the Results of the Management Review**

### **General**

19. The format for reporting the results of ship and shore unit management reviews shall be a PowerPoint presentation showing the agenda followed, the safety and environmental performance data presented for review, the key discussions and action points arising from the review and the conclusions. Detailed supporting data/information shall be included in the notes' pages. The completed Appendix 1 form, as well as, the Power Point presentation should be sent to the SO SEMS Administration one week prior to the FltSEMC or FSEMC.

20. Units that cannot attend shall submit a written report with the same content as the PowerPoint presentation outlined above, and a completed Appendix 1 form. The report and completed form shall be submitted to the SO SEMS Administration one week prior to the FltSEMC or FSEMC.

## **Ships**

21. The CO, or designate conducts the unit management review following the prescribed agenda and format. The Review Committee discusses the information provided, and evaluates the unit's safety and environmental performance and the SEMS efficiency and effectiveness. The results of the review are documented as meeting minutes, kept as SEMS records and presented by the CO to COMCANFLTLANT at the FltSEMC.

## **Shore Units**

22. The CO, or designate, conducts the unit management review following the prescribed agenda and format. The Review Committee discusses the information provided, and evaluates the unit's safety and environmental performance and the SEMS efficiency and effectiveness. The results of the review are documented as meeting minutes, kept as SEMS records and presented by the CO to ACOS Mat at the FSEMC.

## **Formation Management Review**

23. MARLANT-level topics that may be introduced by the FSEO at the FSEMC include:

- a. the three-year schedule for the Formation Verification Process;
- b. safety and environmental performance compared to objectives/targets for the review year; and
- c. proposed Formation safety and environmental objectives and targets for current year.

24. The overall results of the Formation management review are documented as meeting minutes and kept as a SEMS record.

25. The overall results of the Formation Management Review are presented to the MARLANT Commander at the Formation Council and to the RCN Compt at the RCN SEMC meetings.

## **RECORDS**

Minutes of SEMS Management Review meetings  
Relevant briefs and records

## **ATTACHMENTS**

Appendix 1: Safety and Environmental Performance Data;  
Appendix 2: Guidelines for Providing Safety Performance Data.

**ANNEX 6A APPENDIX 1 – SAFETY AND ENVIRONMENTAL PERFORMANCE DATA**

MARLANT Program(s)	MARL SE Program OPI	Performance Data Required	Applicable Unit(s)	Reporting Frequency	Responses: (indicate “0” if response is “zero”)
General Safety	Safety Officer	1. (a) Number of safety inspections scheduled to be completed by the Safety Committee;	All Units	Annually	
		(b) Number of safety inspections actually completed by the Safety Committee;			
		(c) Number of hazards identified as a result of these safety inspections;			
		(d) Number of hazards corrected; and			
		(e) Number of hazards not corrected.			
		2. (a) Number of hazardous occurrences (disabling and non-disabling accidents) and number of near misses reported and investigated using the DND663;	All Units	Annually	
		(b) Number of hazardous occurrences and number of near misses requiring corrective action;			
		(c) Number of hazardous occurrences and number of near misses corrected and resolved as per investigator's recommendations; and			
		(d) Number of hazardous occurrences and number of near misses not corrected.			
		3. (a) Number of SPDETs conducted;	All Units	Annually	
(b) SPDET score;					
(c) Number of program elements that received a score of 70 or less;					
(d) Number of program elements where the score increased from 70 or less previously to 100 due to corrective action taken;					
(e) Number of Program Elements where the score of 70 or less previously has not yet increased to 100; and					
(f) Number of monthly corrective action reports submitted to MARL SE.					
4. Number of OSH grievances received.	Units with Civilians Only	Annually			

MARLANT Program(s)	MARL SE Program OPI	Performance Data Required	Applicable Unit(s)	Reporting Frequency	Responses: (indicate “0” if response is “zero”)
General Safety	Safety Officer	5. (a) Number of OSH complaints received at the Safety Committee level;	Units with Civilians Only	Annually	
		(b) Number of OSH complaints received by the Safety Committee that are now resolved; and	Units with Civilians Only	Annually	
		(c) Number of OSH complaints received by the Safety Committee that are not yet resolved.			
		6. (a) Number of work refusals received;	Units with Civilians Only	Annually	
		(b) Number of work refusals resolved; and			
		(c) Number of work refusals that remain unresolved.			
		7. (a) Number of Directions issued by HRSDC;	Units with Civilians Only	Annually	
		(b) Number of Directions corrected; and			
		(c) Number of Directions not corrected.			
		8. Number of days lost.	All Units	Annually	
		9. Number of light duty days.	All Units	Annually	
		10. Number of off-duty accidents resulting in time lost and/or light duty days.	All Units	Annually	
		11. (a) Number of personnel who received safety training and the type of training received; and	All Units	Annually	
		(b) Number of personnel who require safety training and what training is required.			
		12. Number of workplace Safety Committees created to meet the CLC Part II requirements.	Units with Civilians Only	Annually	
13. Number of other Safety Committees created to meet the requirements of the DND General Policy and Program Manual Vol. 1.	All Units	Annually			
14. (a) How many members on the workplace safety and health committee?	All Units	Annually			
(b) How many of these members have taken training required by GSP Vol 1, Ch 3, para 62?					
		15. Number of Return to Work Committees established within the unit.	Units with Civilians Only	Annually	

MARLANT Program(s)	MARL SE Program OPI	Performance Data Required	Applicable Unit(s)	Reporting Frequency	Responses: (indicate “0” if response is “zero”)
General Safety	Safety Officer	<p><b>16.</b> (a) How many managers are there in the unit?</p> <p>(b) How many have taken the SMC?</p> <p>(c) How many have attended Compliance Awareness training?</p> <p>(d) How many supervisors are in the unit?</p> <p>(e) How many supervisors have attended the SMC?</p> <p>(f) How many supervisors have attended the Compliance Awareness training?</p>	All Units	Annually	
SEMS	SO SEMS Admin	<p><b>17.</b> (a) Total unit strength;</p> <p>(b) Number of Military personnel; and</p> <p>(c) Number of Civilian personnel.</p> <p><b>18.</b> (a) The number of personnel who are current with safety and environmental awareness briefing/training (received training every two years); and</p> <p>(b) Total number of safety summary investigations;</p> <p>(c) Total number of safety technical investigations;</p> <p>(d) Total number of environmental summary investigations; and</p> <p>(e) Total number of environmental technical investigations.</p>	All Units	Annually	
SEMS	SO Audit	<p><b>19.</b> (a) Number of audits scheduled; and</p> <p>(b) Number of audits conducted.</p>	MARL SE	Annually	
Environmental Assessment	SO Environmental Assessment	<p><b>20.</b> (a) Number of conducted EAs that were triggered by CEAA;</p> <p>(b) Number of CEAA EAs that were monitored;</p> <p>(c) Number of mitigations recommended for monitored CEAA EAs;</p> <p>(d) Number of mitigations recommended for monitored EAs that were implemented; and</p>	MARL SE	Annually	

MARLANT Program(s)	MARL SE Program OPI	Performance Data Required	Applicable Unit(s)	Reporting Frequency	Responses: (indicate “0” if response is “zero”)
Environmental Assessment	SO Environmental Assessment	(e) Percentage of mitigations implemented for completed EAs; (Review 50% of mitigations required for 20% of CEAA EAs).	MARL SE	Annually	
Range and Training Areas	SO Range and Training Area Management	21. (a) Amount of lead released into the environment at land ranges; and  (b) Amount of lead recovered at land ranges.	BCE, MARL SE, CFNOS, BOpsO	Annually	
		22. (a) Total MARLANT land area (millions of square meters);  (b) Area of active range and training areas (millions of square meters);  (c) Area restricted for range and training use by species at risk recovery programs and critical habitat;  (d) Area restricted fro range and training use based on environmental sensitivities other than critical habitat (i.e., buffer zones and wetland, etc.) (millions of square meters); and  (e) Percentage of active range and training areas restricted by environmental sensitivities.	BCE, MARL SE	Annually	
		23. (a) Pieces of UXO detonated; and  (b) Amount of UXO scrap (kg).	MARL SE, FDU	Annually	
Integrated Pest Management	SO Natural Resource Management	24. (a) Total volume in litres or weight in kilograms of active ingredient(s) applied; and  (b) The concentration and name of active ingredient for each type of pesticide.	BCE, PMed, PSP	Annually	
Hazardous Material Management	SO Hazardous Materials	25. Update unit HazMat inventory quarterly and provide updated inventory to MARL SE by 15 October.  26. Confirm HazMat inventory with MARL SE.	All Units	Annually NLT 15 October	
		27. (a) Number of Unit Emergency Response exercises conducted; and  (b) Number of Unit Emergency Response exercises assessed unsatisfactory.	All Units	Annually	

MARLANT Program(s)	MARL SE Program OPI	Performance Data Required	Applicable Unit(s)	Reporting Frequency	Responses: (indicate “0” if response is “zero”)
Hazardous Material Management	SO Hazardous Materials	28. (a) Solid hazardous waste sent for disposal (kg) by category;	BLog	Annually	
		(b) Total solid hazardous waste recycled (kg) by category;	BLog	Annually	
		(c) Total liquid hazardous waste sent for disposal (l) by category;			
		(d) Total liquid hazardous waste recycled (l) by category; and			
		(e) Total liquid hazardous waste reused (l) by category.			
Hazardous Material Management	Environmental Protection Officer	29. (a) Number of HazMat spills including fuels; and	All Units	Upon occurrence/ Annually	
		(b) Volume of HazMat spills including fuels (litres).			
Effluent Management	SO Pollution Prevention	30. Provision of effluent data collected:	MARL SE	Annually	
		(a) Total number of sample points; and			
		(b) Number of sample points in compliance.			
Contaminated Sites	CSites Project Engineer	31. (a) Liability of sites at the end of the fiscal year.	MARL SE	Annually	
Storage Tank Management	CSites Project Engineer	32. (a) Number of tank compliance checks conducted; and	BCE	Annually	
		(b) Number of tank compliance checks passed.			
Water Management	SO Pollution Prevention	33. (a) Water use by location and for individually metered buildings where available (m3); and	BCE	Annually	
		(b) Number of adverse drinking water quality incidents.	BCE, PMed		
Solid Waste Management	SO Hazardous Materials	34. Total weight in tonnes of:	BLog	Annually	
		(a) recycled;			
		(b) reused;			
		(c) composted;			
		(d) construction & demolition;			
		(e) solid waste sent to landfill; and			
		(f) international waste.			

MARLANT Program(s)	MARL SE Program OPI	Performance Data Required	Applicable Unit(s)	Reporting Frequency	Responses: (indicate “0” if response is “zero”)		
Climate Change Management	SO Climate Change	<b>35.</b> Energy consumption for Infrastructure for all MARLANT and individually metered buildings where available: (a) Electricity kilowatts/hour; (b) #2 oil; (c) #6 oil; (d) Propane; (e) Diesel; and (f) Steam (individually metered buildings only).	BCE	Annually			
				<b>36.</b> Energy consumption by MSE excluding SMP vehicles: (a) Gasoline; (b) Diesel; (c) Biodiesel; (d) Propane; (e) Off-Base fuel procurement (i.e. ARI Card Purchases); (f) Number of kilometres travelled by vehicle type excluding MSE EMD (forklift). (g) Number of “Green Vehicles” procured for MARLANT LCHD vehicles as identified in FMS and restricted to the type of vehicles identified in Part II and III of the Government Motor Vehicle Ordering Guide. This will include hybrid vehicles; and (h) Total number of vehicles.	BLog/TEME	Annually	
				<b>37.</b> Energy consumption for DCD Training School: (a) Propane.	BLog	Annually	
		<b>38.</b> Energy consumption by Ships: (a) Ship distillate; and (b) Aviation fuel.	N31	Annually			

MARLANT Program(s)	MARL SE Program OPI	Performance Data Required	Applicable Unit(s)	Reporting Frequency	Responses: (indicate “0” if response is “zero”)
Halocarbon Management	SO Climate Change	39. Update halocarbon inventory mass in kg.	All Units	Annually	
		40. (a) Number of halocarbon released.	All Units	Upon occurrence/ Annually	
		(b) Mass and type of halocarbon released.			
		41. Amount and type of halocarbons disposed of.	BLog, BCE, FMFCS	Annually	

**ANNEX 6A APPENDIX 2  
GUIDELINES FOR PROVIDING SAFETY PERFORMANCE DATA.**

**1a. Number of safety inspections scheduled to be completed by the Safety Committee**  
All Safety Committees, including those established IAW the CLC Part II and those established within Fleet Units, are required to conduct monthly inspections. Therefore, a minimum of 12 inspections per year should be scheduled. The number of inspections conducted will depend upon the size, complexity, and internal requirements of the unit. Committees representing larger and/or complex units should have inspection schedules developed since it may be necessary to have more than one committee member inspect various locations each month to ensure the entire workplace is inspected within the year.

**1b. Number of safety inspections actually completed by the Safety Committee**

As indicated above, it may be necessary for the Safety Committee to conduct more than 12 inspections to ensure the entire workplace is inspected within the year. Regardless of how many inspections were scheduled, provide the number of inspections that were actually completed and documented.

**1c. Number of hazards identified as a result of these safety inspections**

The inspection checklists used by the Safety Committees should indicate whether an item/area is satisfactory or unsatisfactory and any identified hazards should be included under “unsatisfactory”. The number of items identified as unsatisfactory is the number of hazards identified. If the sum of the number of hazards corrected (1d), and the number of hazards not corrected (1e) does not equal the number of hazards identified (1c), the reason for this discrepancy must be clearly articulated to MARL SE.

**1d. Number of hazards corrected**

Obtaining this information will depend upon how the unit captures and documents hazard information. Providing that appropriate information is being documented, the safety inspection checklists and/or Safety Committee minutes should provide the information necessary to respond to this question.

**1e. Number of hazards not corrected**

These are the number of hazards that remain uncorrected, or are in the process of being corrected.

**2a. Number of hazardous occurrences (disabling and non-disabling accidents) or near misses reported and investigated using the DND663**

This refers to the number of disabling and non-disabling accidents, as well as the number of near misses, or incidents, that occurred within the workplace. All accidents and incidents are reported using a DND663 form. Therefore, a total of all DND663s submitted for accidents during the fiscal year is reported, and a total of all DND663s submitted for near misses is reported separately. Do not use CF98s or WCB Reports to provide this information since all CF98s and WCB Reports require an accompanying DND663 and you risk counting hazardous occurrences more than once. However, should WCB Reports or CF98s exist that do not have accompanying DND663s, the supervisor who signed these forms must be advised that an accompanying DND663 is required and it will be included in the final number for this report.

An accident is an unplanned/undesired event that results in injury or illness to an employee, damage to property or loss to process

An incident is an undesired event, which under slightly different circumstances, could have resulted in injury or illness, damage to property or loss to process. In other words - a near miss.

Disabling Injury means an employment injury or an occupational disease that:

- (a) Prevents an employee from reporting for work or from effectively performing all the duties connected with the employee's regular work on any day subsequent to the day in which the injury or disease occurred, whether or not that subsequent day is a working day for that employee.
- (b) Results in the loss by an employee of a body member or part thereof or in the complete loss of the usefulness of a body member or part thereof, or
- (c) Results in the permanent impairment of a body function of an employee.

Non-disabling Injury

A work-related injury or illness, which results in medical attention beyond First Aid, but involves no lost time beyond the day, shift or watch on which the injury occurred.

First Aid Injuries include minor scratches, cuts, etc); do not result in subsequent medical attention by a physician; do not include suturing or use of specialized equipment; or use of prescription medicines.

First Aid injuries **are not** reported on DND663s. The first aid attendant records these types of injuries in the First Aid Treatment Register. Information pertaining to first aid injuries is not required for these purposes.

**2b. Number of hazardous occurrences and near misses requiring corrective action**

Most, if not all, DND663s will require corrective action. The investigator's comments on the DND663 will indicate whether corrective action is necessary. If the sum of the number of hazardous occurrences corrected (2c), and the number of hazardous occurrences not corrected (2d) does not equal the number of hazardous occurrences identified (2b), the reason for this discrepancy must be clearly articulated to MARL SE.

**2c. Number of hazardous occurrences or near misses corrected and resolved as per investigator's recommendations**

Regardless of whether an accident was disabling, non-disabling, resulted in property damage or property loss, or was a near-miss occurrence; an investigation is required to identify all the contributing factors. Therefore, it is the investigator who should determine what corrective action is required to avoid similar situations and this should be indicated in the DND663 as part of their recommendation. Only corrective action that has been satisfactorily implemented should be counted as the number corrected.

**2d. Number of hazardous occurrences or near misses not corrected**

Depending on the type of hazardous occurrence, it is understood that corrective action may take a long time to remedy. Report the number of hazardous occurrences where the corrective action has not been completed at the time of reporting.

**3a. Number of SPDETs conducted during previous year.**

Questions 3(a) to 3(e) refer to SPDETs completed for previous calendar year and submitted to MARL SE in February of the current calendar year. Depending upon the size and/or complexity of a unit, more than one SPDET may have been completed.

**3b. SPDET score.**

Refers to the score out of 100 the unit received once the SPDET was completed.

**3c. Number of Program Elements that received a score of 70 or less on the SPDET.**

Refers to the number of Program Elements where a score of 70 or less was achieved. The number for this question will be a combination of (3d) and (3e)

**3d. Number of Program elements where the score increased from 70 or less to 100 due to the appropriate corrective action implemented.**

An action plan must be completed as part of the SPDET. Therefore, this refers to the number of Program Elements where a score of 70 or less was obtained during the SPDET, however, that score improved to 100 through corrective action being successfully implemented.

**3e. Number of Program Elements where the score of 70 or less has not yet increased to 100.**

Refers to the number of Program Elements that received a score of 70 or less on the SPDET, and despite completing an action plan, have not sufficiently improved to achieve a score of 100. This number includes (i) elements where the score has remained unchanged from when the SPDET was completed, and (ii) elements where, although the score has improved, 100 has not yet been achieved.

**3f. Number of monthly corrective action reports submitted to MARL SE.**

Refers to the number of monthly corrective action reports submitted to MARL SE.

**4. Number of OSH Grievances received**

Refers to the number of times an employee feels aggrieved by the interpretation or application by the employer of any safety directive or policy which has been agreed to by the National Joint Council on OHS, and which has been approved by the appropriate executive body of the government, and as result presents a grievance to the National Council.

**5a. Number of OSH complaints received at the Safety Committee level**

Refers to civilian employees only and includes only those formal complaints that have been forwarded to the Safety Committee following the Internal Complaint Resolution Process (ICRP), as defined in the CLC Part II, s. 127.1(1).

**5b. Number of OSH Complaints received by the Safety Committee that are now resolved**

Refers to the number of complaints that, as a result of investigation by the Safety Committee, are resolved in accordance with the CLC Part II, s.127.1(1).

**5c. Number of OSH complaints received by the Safety Committee that remain unresolved**

Refers to the number of complaints that are not yet resolved as per the CLC Part II, s. 127.1(1). This includes those that are still being investigated by the Safety Committee, or those that require HRSDC's involvement.

**6a. Number of work refusals received**

This refers to Civilian employees who follow the “Refusal to Work If Danger”, as outlined in CLC Part II, s. 128.(1).

**6b. Number of work refusals resolved**

Refers to those work refusals where the safety issue(s) concerning the employee has been resolved to their satisfaction and they have returned to normal duties.

**6c. Number of work refusals that remain unresolved**

Refers to those work refusals where the safety issue(s) concerning an employee has not been resolved to the employee’s satisfaction and/or the employee has not returned to normal duties due to the refusal. The employee may be appealing the decision of the Human Resources Skills Development Canada (HRSDC) Health and Safety Officer, therefore, this would be considered unresolved.

**7a. Number of Directions issued by HRSDC**

These are Directions issued from an HRSDC Health and Safety Officer who is of the opinion that a provision of the CLC Part II, s. 145.(1) is (or has been) contravened, and directs the employer and/or the employee concerned to:

- (a) terminate the contravention within a time specified by the Officer; and
- (b) take the steps to ensure the contravention does not continue to reoccur.

**7b. Number of Directions corrected**

Refers to the number of Directions the unit has corrected to HRSDC’s satisfaction, as per the written Directions issued to the unit.

**7c. Number of Directions not corrected**

Refers to the number of Direction not corrected to the satisfaction of HRSDC’s satisfaction, as per the written Direction issued to the unit.

**8. Number of days lost**

Refers to the number of days lost as a result of on-duty accidents only. Any DND 663 reporting a “time-lost” injury will have the number of days the person lost as a result of the injury. If the DND663 is for a disabling injury and the number of days lost has not been provided on the report, obtain this information from the injured person’s supervisor.

**9. Number of light duty days**

Refers to the number of days on light duty as a result of on-duty accidents only. Any DND663 reporting the injured person has been placed on light duty should also provide the number of days they will remain on light duty. In some cases, this information is not available at the time of completing the DND663, therefore, obtain the most current information from the injured person’s supervisor if they have not updated the DND663. Responses to this question also include persons under the Civilian Return to Work Program on modified (light) duties.

**10. Number of off-duty accidents resulting in time lost and/or light duty days**

Refers to those off-duty accidents that occur while participating in authorized activities and results in time lost and/or light duty days. Although Chapter 4, paragraph 24(d) of the DND Policy and Program Manual Vol. 1 urges (it does not mandate) units to investigate these types of accidents, it is beneficial to do so since these accidents can negatively impact operations, especially when they result in time lost or light duty.

**11a. Number of personnel who received safety training and the type of training received**

This refers to safety-related training only (e.g. DSafeG courses, fall arrest training, etc.). It does not refer to safety talks, safety briefs, etc. The personnel include all employees within the unit.

**11b. Number of personnel who require safety training and what training is required**

This refers to the number of personnel within the unit who, although identified as requiring safety-related training, have not yet received that training.

**12. Number of workplace Safety Committees created to meet the CLC Part II requirements**

These are the committees required to be established under the CLC Part II where 20 or more civilian personnel are normally employed. This does not apply to ships or exclusively military units.

**13. Number of other Safety Committees created to meet the requirements of the DND General Policy and Program Manual Vol. 1**

This does not include Safety Committees established under CLC Part II. This pertains to (i) Safety Committees established onboard ships (ii) workplaces composed exclusively of military personnel (iii) safety committees established as a sub-committee to those Committees required by the CLC Part II, and/or (iv) Safety Committees established within units where less than 20 civilians are employed but sufficient personnel are employed to require a Safety Committee.

**14a. How many members on the workplace safety and health committee?**

This refers to the number of member on the unit workplace safety and health committee.

**14b. How many of these members have taken training required by GSP Vol 1, Ch 3, para 62?**

This refers to the number of members on the unit workplace safety and health committee who completed training required by GSP Vol 1, Ch3, para 62:

The following minimum training standards are to be met by all workplace committees and their members.

**i. Basic Safety Officer Training Course.** The two co-chairs of the workplace committee must attend this course as soon as practicably possible upon being named to the position. This will ensure that they are able to dispense with their responsibilities as co-chairs and provide positive direction to the workings of the workplace committee.

**ii. Safety Management Course.** All other members of the workplace committee must attend this course as soon as practicably possible upon being named as a member of the workplace committee. This will ensure that they receive the minimum training required to be able to perform their duties as a member of the workplace committee.

**iii. Occupational Health Course.** Although occupational health expertise is available from the Senior Medical Officer and/or Preventive Medical Technician, a few members of the workplace committee, especially those representing workplaces comprising significant, special or numerous hazards, should attend this course. This would ensure an increased level of expertise within the workplace committee thus allowing it to deal with questions and situations arising out of occupational health issues.

**iv. Safety Program Evaluator's Course.** At least one of the members of the workplace committee must attend this course. This course will ensure that this member is able to perform the duties of the SPDET evaluator, as described in Chapter 9, when the workplace committee performs its annual General Safety Program evaluation.

**v. Hazardous Occurrence Investigation Training.** At least two members of the workplace committee, preferably one from management and one from the bargaining agent, must attend this training. This is to ensure that the workplace committee has the required expertise on-hand to perform the Hazardous Occurrence Investigation and Reporting requirements as outlined in Chapter 4.

**15. Number of Return to Work Committees established within the unit**

This includes all Return to Work Committees within the unit formed under the requirement of the DND Civilian Return to Work Program.

**16a. How many managers are there in the unit?**

This refers to the total number of managers in the unit.

**16b. How many have taken the SMC?**

This refers to the number of managers in the unit who have completed the Safety Management Course (SMC).

**16c. How many have attended Compliance Awareness training?**

This refers to the number of managers in the unit who have completed the Compliance Awareness training.

**16d. How many supervisors are in the unit?**

This refers to the total number of supervisors in the unit.

**16e. How many supervisors have attended the SMC?**

This refers to the number of supervisors in the unit who have completed the Safety Management Course (SMC).

**16f. How many supervisors have attended the Compliance Awareness training?**

This refers to the number of supervisors in the unit who have completed the Compliance Awareness training.

## DIRECTIVE #S1 - LOCKOUT/TAG OUT PROGRAM

### References

- A. Canadian Occupational Health and Safety Regulations, Part VIII, Electrical Safety
- B. C-02-040-009/AG-001 General Safety Program, Volume 2, General Safety Standards
- C. C-03-005-033/AA-000 Naval Engineering Manual
- D. MARCORD 66-1, August 2007, Annex I
- E. CANFORGEN 009/06 VCDS 001/06 231514Z Jan 06
- F. AJAG/D Safe G direction via email to N48 dated 8/10 Mar 06

### Purpose

1. To provide direction and assign responsibility for implementing the MARLANT Lockout/tag out Program. Note: Where this Directive contains direction, which conflicts with higher authority, such as Departmental or Command direction or legislation, the higher authority shall take precedence.

### Scope

2. This Directive applies to all persons working for or on behalf of MARLANT in shore or ship units under the jurisdiction of Commander MARLANT. It applies to, but is not limited to, all electrical, fluid, or gas systems, equipment, devices and any other systems or equipment, which may become energized. As appropriate, Lockout/tag out is to be used in conjunction with other work safety standards, such as confined space entry or hot work requirements.

### Definitions

3. **Assurance Test:** A test procedure in order to confirm the adequacy and effectiveness of the Lockout/Tag out. For example, pressing the start button to ensure the equipment will not start.
4. **Due Diligence:** The legal requirement that individuals shall exercise in the course of their actions and duties to maintain a reasonable standard of care for the health and safety of others and the environment.
5. **Lock:** A key-operated padlock in a Lockout/tag out context. Locks shall have only one key able to open the lock. Series locks may be used to lockout a system or equipment if only one key exists for the whole series. Series locks shall not be used to lock a Lockout/Tag out Station lockbox.
6. **Lockout Device:** A device that will safely disconnect or render inoperative systems or equipment from its source of energy.

7. **Lockout/tag out:** The systems and/or equipment has been rendered inoperative with a lockout device, locked, and tagged by a **Qualified Person**. When Lockout/tag out has been achieved, the system/equipment cannot be operated or energized without the consent of the maintainer or the supervisor of the maintainer that rendered it inoperative.

8. **Lockout/Tag out Station:** The series of compartmental lockboxes into which keys from locks used to complete a Lockout/tag out are secured. The location for the Lockout/Tag out Station is unit-specific and shall be specified in the documented unit Standard Operating Procedure (SOP) for Lockout/tag out.

9. **Qualified Person:** In respect of a specified duty, a person who because of their knowledge, training, and experience, is qualified to perform that duty safely and properly exercising **Due Diligence**. Only qualified personnel shall complete a Lockout/tag out.

10. **Ship:** For the purposes of this Directive, any ship, submarine, auxiliary vessel or barge owned and/or operated by MARLANT.

11. **Tag out Device:** The tags that are placed on the system or equipment that identifies them as inoperable.

## Direction

### Responsibilities

#### General

12. COs shall ensure that this Directive shall apply wherever it is necessary to disable powered equipment, machinery and electrical circuits prior to installation servicing, maintenance or repairs. Lockout/tag out procedures are necessary when:

- a. Performing service or maintenance on any equipment where unexpected start-up or release of stored energy (electrical, mechanical, thermal, potential, kinetic, steam, pneumatic, hydraulic or chemical, etc.) could cause injury and/or damage; and
- b. Removing a guard or other safety device, or when a person's body has to be situated where it could be caught or trapped should machinery move during an evolution.

13. Unit COs shall ensure Lockout/tag out Standard Operating Procedures (SOPs) are established, implemented and maintained where necessary as indicated in responsibilities above. An SOP which may be adapted for use by shore units is attached at Annex S1A. As a minimum Lockout/tag out SOPs have to meet the requirements of reference A.

14. Ship COs shall implement the Standard Operating Procedure (SOP) for Lockout/tag out provided in the relevant Ships' Class SEMS Manual.

15. COs of auxiliary ships and barges, as relevant, shall adapt the KINGSTON Class SOP for Lockout/tag out to meet their specific requirements.

### **Lockout/tag out Coordinator**

16. All shore and ship unit COs shall designate, in writing, an appropriate supervisor or manager to be the unit Lockout/tag out Coordinator who shall be responsible for:

- a. Ensuring Lockout/tag out procedures are followed IAW this Directive;
- b. Care and custody of a Lockout/tag out log;
- c. Ensuring forms are correctly completed as prescribed;
- d. Maintaining control of documentation and managing records;
- e. Submitting the Lockout/tag out log for CO's signature; and
- f. Maintaining the Lockout Station, ensuring strict key control at all times.

### **Unit General Safety Officer (UGSO)**

17. The UGSO is responsible for conducting a monthly review of the Lockout/tag out Program to ensure correct documentation and conformance with this Directive and to sign the Lockout/tag out Log. An audit of the Lockout/tag out Program shall be included as part of the annual SPDET.

### **Managers, Heads of Departments, Supervisors**

18. Managers, Heads of Departments, Supervisors are responsible for ensuring:

- a. personnel in their respective departments are trained in Lockout/tag out policy and procedures; and
- b. any system/equipment to be Locked out/tagged out is authorized in writing, such authorization may be delegated in writing.

### **Ships**

#### **Extended Readiness - Care and Custody**

19. During periods of extended readiness, when care and custody of the ship is charged to agencies outside of MARLANT authority (i.e. refits, DWP, EDWP, etc.) this Directive shall apply whenever personnel, as defined under the "Scope" section of this Directive, are expected to be employed onboard the vessel. Every effort shall be made to incorporate this Directive into the contractual obligation during extended readiness care and custody.

### **Vessels in Port**

20. COs of ships and submarines shall comply with this Directive while in Canadian ports. In foreign ports, when only DND/CF personnel are working on affected systems/equipment this Directive shall apply. For non-DND/CF personnel and/or host country workers the CO shall comply with local laws and regulations and/or existing

Canadian standards ensuring the highest safety standards are employed while exercising due diligence.

**At Sea**

21. During normal operations the CO shall comply with this Directive. The CO may override this Directive if it places a serious limitation on the capability to fulfill an operational commitment. When the nature or urgency of a situation requires the departure from this Directive, the CO shall employ recognized risk management practices to determine an appropriate course of action and must be prepared to justify the decision.

**Records**

As required by Lockout/tag out SOPs  
SOP training records

**Attachments**

Annex S1A – Standard Operating Procedure for Shore Unit Lockout/Tag out

**Enquiries**

MARLANT, Formation Safety and Environment:  
Formation Safety Officer (FSafeO) – Tel. 902 -721-5472

**ANNEX S1A: STANDARD OPERATING PROCEDURE FOR SHORE UNIT LOCKOUT/TAG OUT****Background**

1. This standard Operating Procedure (SOP) provides information to protect workers from injury and equipment from damage by applying Lockout/Tag out properly and safely.
2. Lockout/Tag out eliminates the possibility of accidentally energizing a circuit or releasing a source of energy, such as liquid or gas under pressure, during maintenance or repair work.
3. Employees repairing equipment are not always visible to another employee who, noticing that a switch is turned off might accidentally turn it on, or who may open a valve that must remain closed. The results can be disastrous and could result in a serious injury or death.
4. Many serious incidents could have been avoided in the past if a quality Lockout/Tag out procedure had been in place.
5. Federal and Provincial regulations now govern Lockout/Tag out procedures. All workers required to Lockout/Tag out equipment must therefore be familiar with the regulations and acceptable standards.

**Purpose**

6. The purpose of this SOP is to provide a consistent safe procedure to be followed when de-energizing or making a system safe to work on.

**Definitions**

7. Add definitions as required, such as those given in MARLANT SEMS Directive #S1.

**Responsibilities - Complete as relevant****Execution**

8. Only employees who are trained and familiar with the safe and proper Lockout/Tag out procedures for specific equipment will initiate Lockout/Tag out procedures.
9. The safety standards in this SOP are applicable to Maritime Forces Atlantic (MARLANT) Formation Construction Engineering (FCE) civilian and military personnel and includes contractors working throughout MARLANT for DND on behalf of FCE.
10. Locking devices, locks and tags are available through FCE individual coordinators for each area.

11. Workers must maintain control of their own Locks and Tags and multiple locking devices.
12. Workers must never trade locks or keys with another employee.
13. All Lockout/tag outs must be tagged with the following information:
  - a. printed name and signature of worker;
  - b. date and time the tag was installed;
  - c. description of the work to be done;
  - d. expected completion time and date; and
  - e. areas or location involved;

phone numbers of the worker who installed the Lockout/Tag out; and

the name and phone number of the worker's supervisor.

### **General Procedures**

14. The general procedures to be followed are:
  - a. notify all affected parties of the repairs to be done or the equipment to be worked on or shut down;
  - b. insolate the equipment properly, de-energize the system according to safe trade practices;
  - c. all inlets and outlets must be disconnected and plugged or blanked at the connection closest to the system being worked on;
  - d. all valves closed for isolation must be Lockout/tag out;
  - e. all double blocked valves must be Locked out/Tagged out in the closed position, and the bleed valve between them Locked out/Tagged out in the open position;
  - f. initiate all Lockout procedures by Tagging and applying a multiple Lockout device with your lock. The Lockout device must ensure that the master switch cannot be turned on or the valves be opened;
  - g. ensure the equipment is locked out by activating the start button to ensure the power is disconnected. Some equipment is on time delay or activated from other sources or locations and in some instances started by computer. Be alert to these situations and take the appropriate actions to make sure the equipment is indeed isolated;
  - h. if there is more than one tradesperson working on a system, before working on the equipment, apply your locks and tags to the multiple Lockout device;

- i. remove locks as work is completed;
- j. check to ensure that the work is completed;
- k. remove last lock and multiple Lockout devices;
- l. complete a thorough inspection of the equipment and work site before starting the equipment up;
- m. notify all affected parties that work is complete and the system is ready to go into service or has already been put back in services;
- n. supervisors are to ensure all personnel within their areas are aware of this SOP and understand exactly what it means. All personnel are to verify the above by signing a copy of the SOP every twelve (12) months. New personnel at MARLANT FCE are to read and sign as part of their initial indoctrination and every 12 months thereafter; and
- o. this SOP does not replace related policies and regulations.

### **Removing Lockout/tag outs**

#### **Routine Conditions**

15. The employee who originally put the Lockout/Tag out in place is the only person allowed to remove the Lockout/Tag out.

16. If for some reason, other than an emergency, the original person is not available to remove the lockout/tag out, then a section head in consultation with a certified tradesman (same trade qualifications as the person who originally placed the Lockout/Tag out) may use the bolt cutters to remove the Lockout/Tag out after making sure there is no possibility of injury to themselves or other employees or damage to equipment. Refer to “Emergency Conditions” section if an emergency exists.

#### **Emergency Conditions**

17. There are only two acceptable reasons to forcibly remove a Lockout/tag out:

- a. to save human life; and
- b. prevent severe property damage.

18. Once a decision is made to forcibly remove a Lockout/Tag out there are steps that must be taken before, during and after removal to prevent further injury or property damage:

- a. before Lockout/Tag out is removed, make sure there is no possibility of injury or equipment damage once system is placed in service;

- b. place a tag on the removed Lockout/Tag out fully explaining why the Lockout was removed and what was done or worked on;
- c. print and sign name with the phone number on the tag;
- d. return the forced lock to the affected Section Head;
- e. as soon as possible and before the start of the next working day, the person who originally placed the Lockout/Tag out and the supervisors for the affected area must be notified by the person who forcibly removed the Lockout/Tag out; and
- f. the person who forcibly removed the Lockout/tag out must give a fully verbal explanation followed up with a written report, to the supervisors of the affected area, of the reason for having removed the Lockout/tag out.

**OPI**

19. The OPI for this SOP is the UGSO.

## DIRECTIVE #S2 – TOOLS AND MACHINERY

### References

- A. Canada Occupational Safety and Health Regulations, Part XIII, Tools and Machinery Regulation
- B. C-02-040-009/AG-001 General Safety Program, General Safety Standards
- C. National Safety Council – Accident Prevention Manual for Business and Industry – Engineering and Technology – Edition 11 (Chapter 6)
- D. A-GG-040-007/AG-001 Handbook on the Safety Program Development and Evaluation Technique
- E. CSA Standards
- F. SEMS Directive #S1, Lock Out Tag Out

### Purpose

1. To provide direction and assign responsibility for implementing the Tools and Machinery procedures.

### Scope

2. This Directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **Explosive actuated fastening tool:** A tool that, by means of an explosive force, propels or discharges a fastener for the purpose of impinging it on, affixing it to or causing it to penetrate another object or material.

4. **Fire hazard area:** An area that contains explosive or flammable concentrations of dangerous substances.

5. **Locked out:** In respect of any equipment, machine or device, that the equipment, machine or device has been rendered inoperative and cannot be operated or energized without the consent of the person who rendered it inoperative.

6. **Machine guard:** A device that is installed on a machine to prevent a person, or any part of his body or clothing, from becoming engaged in any rotating, moving, electrically charged, hot or other dangerous part of a machine, or the material that the machine is processing, transporting or handling. It also means a device that makes the machine inoperative if a person or any part of his clothing is in or near a part of the machine that can cause injury.

7. **Person in charge:** A qualified person who supervises employees performing work in order to ensure the safe and proper conduct of an operation or of the work of employees.

8. **Qualified person:** In respect of a specified duty, a person who, because of knowledge, training and experience, is qualified to perform that duty safely and properly.

9. **Safety officer:** A person so designated by the Minister of Labour pursuant to Part II of the Canada Labour Code.

## **Direction**

### **General**

10. MARLANT chain of command shall ensure that requirements specified in the Canada Occupational Safety and Health Regulations, Part XIII, Tools and Machinery Regulation, issued pursuant to the Canada Labour Code, Part II, are applied at every work place occupied by employees.

### **Responsibilities**

11. MARLANT authorities responsible for the design, engineering, procurement, installation, operation, inspection, and maintenance of tools and machine equipment shall ensure compliance with the provisions of reference B, the DND General Safety Program, Volume 2, General Safety Standards (C-02-040-009/AG-001, Chapter 4).

12. Accordingly, such authorities are to ensure that safety measures to meet or exceed this minimum requirement are incorporated in all applicable orders, directives, and publications.

### **Tool design, construction, operation and use**

13. To the extent that it is practicable, departments shall ensure that all tools have been designed and constructed so as to be safe under all conditions of intended use.

14. Where there is a hazard that an explosive or flammable atmosphere in a work place is likely to be ignited by sparks, the exterior surface of any tool used by an employee shall be made of non-sparking material.

15. All portable electric tools used by employees shall meet the standards set out in CSA Standard C22.2 No. 71.1-M1985, Portable Electric Tools, as per current version.

16. Where a portable electric tool is used in a hazardous location, it shall be of a type that complies with the appropriate recommendation of CSA Standard C22.1-1986, Canadian Electrical Code, Part I, Safety Standards for Electrical Installations, as per current version.

17. All portable electric tools used by employees shall be grounded in accordance with CSA Standard C22.2 No. 71.1-M1985, unless:

- a. are powered by a self-contained battery;
- b. have a protective system of double insulation; or

c. are used in a location where reliable grounding cannot be obtained if the tools are supplied from a double insulated portable ground fault circuit interrupter of the class A type that meets the standards set out in CSA Standard C22.2 No. 144-1977, Ground Fault Circuit Interrupters, dated March 1977.

18. No person shall ground an electrical portable power tool that has a protective system of double insulation. All portable electric tools used by employees in a fire hazard area shall be marked as appropriate for use or designed for use in the area of that hazard.

19. Where an air hose is connected to a portable air-powered tool used by an employee, a restraining device shall be attached:

- a. to the tool, where an employee may be injured by the tool falling; and
- b. to all hose connections, in order to prevent injury to an employee in the event of an accidental disconnection of a hose.

20. Employees shall ensure that the tool end of any flexible shaft portable power tool is secured in a manner that will prevent the flexible shaft from whipping when the motor is started.

### **Operation and use**

21. Employees shall not operate tools or machinery unless they are wearing the appropriate personal protective equipment pursuant to Personal Protective Equipment Safety Directive (reference B, Chapter 14, Personal Protective Equipment and Clothing). Determination of the protective clothing and equipment to be used shall be in accordance with this reference.

22. All explosive actuated fastening tools used by employees shall meet the standards set out in CSA Standard Z166-1975, Explosive Actuated Fastening Tools, current version. No employee is to use an explosive actuated portable power tool without the approval of the person in charge and unless the employee possesses an operator's certificate issued by the manufacturer, or he or she has been trained in the safe use of the tool.

23. Every employee who operates an explosive actuated fastening tool shall operate it in accordance with CSA Standard Z166-1975, Explosive Actuated Fastening Tools, current version. An employee shall not be permitted to use a tool or machine unless he or she is qualified by knowledge, training and experience, and is authorized to do so.

24. Where it is necessary to remove or change an attachment, or make any adjustment or repair to a power tool, such work shall not proceed unless the tool is disconnected from its power source in a manner that ensures that it cannot be inadvertently reconnected.

25. Employees who use a pneumatic portable power tool shall shut off the air supply to that tool and bleed the air line before disconnecting it from the tool, unless the air line is equipped with a quick disconnect coupling that makes such precautions unnecessary.

26. No person is to use a pneumatic portable power tool or air hose in such a manner that an air stream might be directed forcibly against his or her body, or the body of any other person.

27. All chain saws used by employees shall meet the standards set out in CSA Standard CAN3-Z62.1-M85, Chain Saws, current version.

28. Units shall ensure, to the extent that is practicable, that exposure to continuous vibration from tools and machinery is minimized.

### **Inspection and maintenance**

29. Units shall ensure that all hand tools and portable power tools used are inspected at regular intervals and maintained in a safe working condition.

30. An inspection and maintenance plan for tools and machinery shall be instituted by units and a record kept of all inspections and maintenance work performed in accordance with such plan.

31. Each tool and machinery shall be checked by employees before use to ensure that there is no visible defect.

32. All hand tools and portable power tools shall be transported and stored in a safe manner.

### **Defective tools and machinery**

33. Where an employee finds any defect in a tool or machine that may render it unsafe for use, he or she shall report the defect to the person in charge as soon as possible.

34. Every department shall mark or tag as unsafe and remove from service any tool or machinery used by employees that has a defect that may render it unsafe to use.

### **Instructions and training**

35. Every employee shall be instructed and trained by a qualified person appointed by the department in the safe and proper inspection, maintenance and use of all tools and machinery that he or she is required to use.

36. Every unit shall maintain manuals of operating instructions for each type of portable electric tool, portable air-powered tool, explosive actuated fastening tool and machine used by employees.

37. Operating manuals shall also be kept by the unit for all other tools and machines readily available for examination by an employee who is required to use the tool or machine to which the manual refers.

## Requirements for machine guards

38. Every machine that has exposed, moving, rotating, electrically charged or hot parts or that processes, transports or handles material that constitutes a hazard to an employee shall be equipped with a machine guard that:

- a. prevents the employee or any part of his or her body from coming into contact with the parts or material;
- b. prevents access by the employee to the area of exposure to the hazard during the operation of the machine; or
- c. makes the machine inoperative if the employee or any part of his or her clothing is in/or near a part of the machine that is likely to cause injury.

39. Machine guards shall be installed on any machine or part of a machine that constitutes a source of danger to employees. The guard shall be designed and placed in such a manner that it does not in itself create a hazard. Such machine guards shall be maintained by a qualified person.

## Use, operation, repair and maintenance of machine guards

40. Machine guards shall be operated, maintained and repaired by a qualified person. Where a machine guard is installed on a machine, no person shall use or operate the machine unless the machine guard is in its proper position.

41. A machine may be operated when the machine guard is not in its proper position in order to permit the removal of an injured person from the machine.

42. Where it is necessary to remove a machine guard from a machine in order to perform repair or perform maintenance work on the machine, no person shall perform the repair or maintenance work unless the machine has been locked out. Where it is not practicable to lock out a machine in order to perform repair or maintenance work on the machine, the work may be performed if:

- a. the person performing the work follows written instructions provided by the person in charge that will ensure that any hazard to that person is not significantly greater than it would be if the machine had been locked out;
- b. the person performing the work:
  - i. obtains a written authorization from the person in charge each time the work is performed; and
  - ii. performs the work under the direct supervision of a qualified person;
- c. such work is performed in the presence of and under the direct supervision of the person in charge, or a qualified person authorized by the person in charge.

43. Units shall ensure that a copy of SEMS Directive #S1, Lockout/tagout, and the unit Lockout/tagout SOP is readily available to persons who repair and maintain machines.

### **Abrasive wheels**

44. Abrasive wheels shall be used only on machines equipped with machine guards, mounted between flanges; and operated in accordance with relevant sections of the current version of CSA Standard B173.5-1979 Safety Requirements for the Use, Care and Protection of Abrasive Wheels.

45. A bench grinder shall be equipped with a work rest or other device that prevents the work piece from jamming between the abrasive wheel and the wheel guard; and does not make contact with the abrasive wheel at any time.

### **Mechanical power transmission apparatus**

46. Equipment used in the mechanical transmission of power shall be guarded in accordance with relevant sections of the current version of ANSI standards ANSI B15.1-1972, Safety Standard for Mechanical Power Transmission Apparatus.

### **Woodworking machinery**

47. Woodworking machinery shall be guarded in accordance with clause 3.3 of the current version of CSA Standard Z114-M1977, Safety Code for the Woodworking Industry.

### **Punch presses**

48. Punch presses shall meet the standards set out in the current version of CSA Standard Z142-1976, Code for the Guarding of Punch Presses at Point of Operation.

### **Robot systems**

49. Departments shall ensure, to the extent that is practicable, that guarding of a robot machine or a robot machine system conforms, as a minimum, to the American National Standard for Industrial Robots and Robot Systems - Safety Requirements, ANSI/RIA RIS.06-1986 as amended from time to time.

### **Resolving qualified person disputes**

50. Where there is a dispute regarding the term "qualified person" for purposes of an occupational safety and health standard, the following procedure shall be implemented:

- a      The employee shall raise the matter directly with the person in charge.
- b      The person in charge shall review the employee's qualifications and decide upon the employee's status as a qualified person.

- c If the employee is dissatisfied with the decision, the matter shall be referred to the safety and health committee established for the employee's workplace.
- d The safety and health committee shall review the matter and make appropriate recommendations to the person in charge.
- e If the safety and health committee does not consider itself competent to deal with the case, it shall recommend an acceptable third party to the person in charge.
- f The person in charge shall, pursuant to (d) or (e), take the recommendations into consideration, render a final management decision and undertake the appropriate action.

51. If the employee does not agree with the final decision which has been rendered, a grievance may be initiated pursuant to the National Joint Committee (NJC) redress procedure.

## **Records**

SPDET Reports  
Inspections Logs

## **Enquiries**

MARLANT - Formation Safety and Environment:  
Contact Formation Safety Office (FSafeO): Tel. (902) 721- 5471

## DIRECTIVE #S3 – REPORTING OFF-DUTY ACCIDENTS AND PHYSICAL FITNESS/SPORTS INJURIES

### References

- A. DAOD 5023-2 Physical Fitness Program;
- B. A-GG040-001/AG-001 General Safety Program, Policy and Program, Chap 4;
- C. C-02-040-009/AG-001 General Safety Program, General Safety Standards, Chap. 23;
- D. DAOD 7002-3, Investigative Matters and References;
- E. DAOD 5018-2, Report of Injuries and Exposure to Toxic Substances.

### Purpose

1. To provide direction and assign responsibility for reporting off-duty accidents and injuries caused by participating in the physical fitness program and sports.

### Scope

2. This Directive applies to all civilian and military DND/CF members in MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander MARLANT.

### Definitions

3. **Hazardous Occurrence:** An undesirable event which results in (or has the **potential** to result in) injury or illness to personnel, material losses and/or property damage and includes the following terms:

- a. **Accident:** An undesired event that results in physical harm or occupational illness to a person or damage to materiel, works or buildings; and
- b. **Incident:** An undesired event that **could but does not** result in physical harm or occupational illness to a person, or damage to materiel, works or buildings.

4. **Work Injury:** Any injury or occupational illness including work related sports injuries suffered by an employee in the course of employment.

5. **Disabling Injury:** A work related illness or injury which prevents the employee from returning to work or effectively performing **all the duties** connected with his or her regular work on any working day subsequent to the day on which the injury occurred, or results in the loss of a body member or part thereof or in the permanent impairment of a body function.

6. **Non-disabling Injury:** A work related illness or injury which results in medical attention beyond first aid, but involves no lost time beyond the day, shift or watch on which the injury occurred.

7. **First Aid:** Treatment of a minor scratch, cut, burn, etc., which does not result in subsequent medical attention by a physician. It does not include suturing or use of specialized equipment or use of prescription medicines.
8. **Days Lost:** The number of days a person should have worked at his/her normal duties but could not because of work related illness or injury including work related sports injuries. (The day of the work injury and the day the injured person resumes normal duties are not included.) Days lost are further categorized as **days off duty or off work** when the individual remains absent from the workplace or **days on light duties or modified duties** when the individual is present at the workplace but not able to carry out all of their normal duties. Civilian personnel back to the workplace under the Return To Work Program are categorized as on modified duties.
9. **CF 663:** DND/CF form used for recording hazardous occurrences involving civilian and military members. Its official title is DND/CF 663, General Safety Hazardous Occurrence Investigation Report.
10. **CF 98:** CF form used for recording incidents of injuries as well as exposure or suspected exposure to toxic substances involving military members. Its official title is CF 98, Report on Injuries or Exposure to Toxic Material.

**NOTE:** Disabling injury is defined differently by HRSDC. HRSDC's definition does not include the words "working day". The DND/CF definition is necessitated by the Human Resource Management System (HRMS) Health and Safety Module (H&S Module).

## **Responsibilities**

11. The Commander MARLANT shall ensure that Commanding Officers investigate and report all off-duty accidents and injuries caused by participating in sports and the physical program from workplace related hazardous occurrences are.
12. Commanding Officers shall ensure that procedures are put in place to ensure the investigator's report is entered into the H&S Module of the HRMS. This system is the database for reporting hazardous occurrences. Where relevant the CO is also responsible for ensuring that form CF 98 is originated and completed within established time lines.
13. The Formation Safety Officer is responsible for coordinating accident/incident reporting and maintaining the safety database.
14. Any individual involved in, witnessing or knowledgeable of a hazardous occurrence shall report the circumstances that he/she is aware of or witnessed to his/her supervisor. It is the responsibility of the supervisor to report all injuries, including sports injuries, occurring to his/her personnel or damage to materiel under his/her control.

**Direction**

15. Incidents of injuries to military personnel shall be recorded on both DND 663 and CF 98. The completed forms (DND 663 See directive #S4 ) CF 98 shall be forwarded to higher authority within fourteen days of the incident and shall not be delayed because the injured CF member is unable to make a statement. The statement shall be forwarded as soon as possible. Form CF 98 shall be submitted even if the fourteen-day time limit is exceeded.

**Off-duty Accidents****Civilian Members**

16. These accidents are outside the jurisdiction of the Workers' Compensation Board (WCB) and normally are not recorded.

**Military Members**

17. In the case of an injury to a military member for which a military investigation has not been ordered, the CO shall ensure that paragraph S of form CF 98 is completed fully. This abbreviated form of investigation is suitable in certain circumstances, such as where the officer or man is not on duty or the injury is clearly not attributable to military service. In making the determinations required by form CF 98, the following must be taken into consideration:

- a. In carrying out a military investigation of an injury or death, it should be remembered that the evidence gathered may become important in determining a member's entitlement to a pension pursuant to the Pension Act;
  - b. In some cases difficulty it may be difficult to determine whether the injured person was on duty. The best policy is to place a wide interpretation on the meaning of the word "duty". Any attempt to define this word is likely to be unduly restrictive or be so vague as to be of little value.
18. Without restricting the foregoing, as a general rule a member is considered to be on duty:
- a. when actively engaged in operations, training or administrative duties, either in accordance with specific orders or in accordance with established military routine or practice;
  - b. when attending a course or administrative function, either in accordance with specific orders or established routine or practice;
  - c. when participating in or attending any sport, recreational social or other activity where military authorities require him to be there;
  - d. when he is at a specific place, or doing a specific act, because of a military order; or

- e. when a sport is practised for the purpose of maintaining fitness in accordance with DAOD 5023-2, Physical Fitness Program.

19. The investigation shall not make a finding that the deceased or injured person was not on duty simply from the fact that the accident occurred during hours outside those laid down as working hours. In such cases there should be a finding as to whether or not he was going about a matter related in any way to his service in the Canadian Forces. Such a finding must be supported by evidence.

### **Claim of Disability from Physical Fitness Program Injury**

20. Form DND 279 or the approved environmental or military occupation physical fitness evaluation form, as applicable, may be used to assist a CF member with a claim for a disability or other benefit resulting from a physical fitness program injury.

21. The CF member should be aware that if an application for a disability pension or other benefit is made to Veterans Affairs Canada:

- a. the physical fitness evaluation form is one document which may accompany an application;
- b. Veterans Affairs Canada adjudicators review all available information in respect of an injury to determine if a disability arose out of or was directly attributable to military service; and
- c. the determination of a pension or other benefit under the Pension Act is solely the responsibility of Veterans Affairs Canada or the Veterans Review and Appeal Board, not the DND or the CF.

### **Reporting of Injury or Death**

22. Reporting of injuries or death arising from a physical fitness program shall be made in accordance with DAOD 7002-3, Investigative Matters and References.

### **Records**

Completed forms

### **Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5472.

## DIRECTIVE #S4 - HAZARDOUS OCCURRENCE INVESTIGATION AND REPORTING

### References

- A. Volume 1, A-GG-040-001/AG-001, DND General Safety Program: Policy and Program, Chapter 4;
- B. Volume 2, C-02-040-009/AG-001 DND General Safety Program: Standards, Chapter 23, Annex A;
- C. DND/CF, Hazardous Occurrence Investigators' Guide;
- D. Canada Occupational Health and Safety Regulations, Part XV, Hazardous Occurrence Investigations, Recording and Reporting;
- E. DAOD 2007-1 - General Safety Program
- F. DAOD 2008-3 – Issue and Crisis Management
- G. CFAO 24-1 – Casualties – Reporting and Administration
- H. DAOD 5023-2 Physical Fitness Program
- I. QR&O Chapter 21 Section 6 Personal Injuries and Death
- J. DAOD 7002-3 Investigative Matters and References
- K. DAOD 5018-2 Report of Injuries and Exposure to Toxic Substances

### Purpose

1. This purpose of this Directive is to outline the requirements for hazardous occurrence investigation and reporting, and provides instructions on when it is necessary to complete and process the reporting forms, i.e., DND 663 and CF 98.

### Scope

2. This Directive applies to all MARLANT ships/units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. Hazardous Occurrence - An undesirable event, which results in, or has the potential to result in, injury or illness to personnel, material losses and/or property damage and includes the following terms:

- a. Accident - An undesired event that results in physical harm or occupational illness to a person, or damage to materiel, works or buildings;
- b. Incident - An undesired event that could, but does not result in physical harm or occupational illness to a person, or damage to materiel, works or buildings includes near miss; and

- c. Serious Hazardous Occurrence - An event that has resulted in, or could have resulted in, a very serious injury to any person covered by the General Safety Program.
4. Disabling Injury - a work injury that prevents the person from returning to work for his/her next regular shift.
5. Non-disabling Injury - A work related illness or injury which results in medical attention beyond first aid, but involves no lost time beyond the day, shift or watch on which the injury occurred.
6. First Aid - Treatments of minor injuries, which do not result in subsequent medical attention by a physician. It does not include suturing, use of specialized equipment or use of prescription medicines.
7. Days Lost - The number of days a person should have worked at his/her normal duties but could not because of a work-related illness or injury. The day of the work injury and the day the injured person resumes duty are not included. Days lost are categorized as days off duty when the individual remains absent from the workplace and days on light duties when the individual is present at the work place but not able to carry out his/her normal duties.

### **Responsibilities**

8. Unit Commanding Officers (COs) are responsible for ensuring any required hazardous occurrence investigation is conducted and reported.
9. Unit General Safety Officers (UGSOs) are responsible for ensuring that hazardous occurrence investigations are properly conducted and that all recommendations are carried out. The UGSO must also ensure that there are sufficient personnel within the Unit that have been trained to conduct safety and hazardous occurrence investigations.
10. Supervisors are responsible for safety for the area(s) under their jurisdiction, and initiate any required hazardous occurrence investigations.

### **Direction**

### **Investigations**

11. Hazardous Occurrence Investigations shall be conducted in accordance with reference A, Section 2. Further information on conducting the investigations is found in references B and C.
12. The purpose of a hazardous occurrence investigation is to determine the cause(s) of the hazardous occurrence, and to use that information to implement corrective actions to prevent similar hazardous occurrences from recurring. Hazardous occurrence investigation must not be used to assess blame.

13. An investigation shall be conducted whenever there is an on-duty occurrence, which results in:

- a. a death;
- b. a disabling injury;
- c. a non-disabling injury;
- d. a loss of consciousness due to exposure to any oxygen deficient or toxic atmosphere or electric shock;
- e. the implementation of rescue, revival or similar emergency procedure;
- f. an occurrence which results in an unplanned fire or explosion that puts at risk or injures a person; or
- g. a hazardous occurrence that results in material or property damage in excess of \$1,000.00 and had the potential to kill or seriously injure someone.

14. In addition to the mandatory investigation, these serious accidents must be reported to the CO, Formation Commander and the Formation Safety Environment Officer (FSEO) immediately after the occurrence of the accident.

### **Hazardous Occurrence Investigation Procedure**

15. A hazardous occurrence investigation should begin immediately, or as soon as possible, after the hazardous occurrence. Investigations should not be limited to serious accidents. Near misses, incidents, and property damage are all signals that there has been a system breakdown, and these require a thorough investigation before something more serious happens. They should always take place at the scene of the hazardous occurrence whenever possible. However, also look at any other locations where additional information might be available. Investigators shall be trained in hazardous occurrence investigation. A hazardous occurrences investigation pocket guide, reference C, has been developed for DND and should be consulted.

16. Personnel involved in the accident investigation are as follows:

- a. Immediate Supervisor - The immediate supervisor shall initiate the hazardous occurrence investigation by contacting the Unit General Safety Officer (UGSO);
- b. Injured Person - The injured person will often have first hand details about the hazardous occurrence and may be able to contribute valuable information to investigators;

- c. Witnesses – A witness can often contribute valuable information to an investigation; and
- d. Unit General Safety Officer – In addition to assisting in the investigation, the UGSO can contribute to the investigation by coordinating the activities of the investigation, analyzing reports, and planning programs to prevent recurrences.

## **Recommendations**

17. Once the cause(s) have been identified, the investigator(s) recommend(s) preventive measures based on the findings of the investigation. The basic aims when developing preventive measures are:

- a. treat the cause and not the effect;
- b. ensure preventive measures eliminate or control all causes; and
- c. communicate lessons learned.

## **Preventive Action**

18. Preventive action should be implemented at the lowest appropriate level in the organization. Action must be prompt and thorough. Managers/supervisors must:

- a. consider all recommendations and promptly incorporate those adopted;
- b. fully explain why recommendations are rejected;
- c. fully explain why action is delayed; and
- d. inspect other areas under their jurisdiction for similar unsatisfactory conditions or performance.

## **Other Investigations**

19. In addition to investigations conducted in accordance with this Directive, collateral investigations may be carried out for pension, compensation or even disciplinary purposes. There could be a Board of Inquiry or a Summary Investigation ordered by the Commander in accordance with reference J.

20. The hazardous occurrence investigation and associated General Safety Hazardous Occurrence Investigation Reports are not to be used for these purposes. However, the hazardous occurrence reports required, as noted below, must be completed even when a Board of Inquiry or Summary Investigation has been ordered.

21. Employment and Social Development Canada (ESDC)-Labour, civilian and/or military police may also conduct separate investigations into civilian employee work-related hazardous occurrences.

## Hazardous Occurrence Reporting

22. A DND 663, or in certain cases an authorized substitute, shall be completed for all workplace hazardous occurrences' investigations. To allow FSEO to transmit the report to ESDC with 14 days, as required by CLC, clause 15.8 (2), the completed DND663 must be sent to FSEO immediately if the hazardous occurrence resulted from any of the following circumstances:

- a. A disabling injury to an employee;
- b. An electric shock, toxic atmosphere or oxygen deficient atmosphere that caused an employee to lose consciousness;
- c. The implementation of rescue, revival or other similar emergency procedures; or
- d. A fire or explosion.

23. For all other circumstances the completed DND 663 form shall be forwarded to FSEO within 14 calendar days of the occurrence. The unit shall retain original DND 663s for 10 years. If the hazardous occurrence is an exposure to a toxic substance, the unit shall retain the DND 663 for 30 years.

24. Note that all communications with ESDC and other outside agencies shall be through FSEO.

25. All personnel who could potentially be involved in a hazardous occurrence investigation shall attend a Hazardous Occurrence Investigation Course, or similar training. Additional information regarding training and assistance with hazardous occurrence investigation and/or the preparation and submission of the required forms may be obtained from the FSEO.

## Completion of Forms

26. The following forms are used to report hazardous occurrences, and to report on hazardous occurrence investigations:

- a. DND 663 - DND/CF General Safety Hazardous Occurrence Investigation Report – used to report military and civilian hazardous occurrence investigations; and
- b. CF 98 – “Report On Injuries Or Exposure To Toxic Material” – used for possible future medical pension information and other reasons for military personnel. Completion is self-explanatory.

27. For relatively minor work-related occurrences, including those that occur during section sponsored activities; the investigator can be the supervisor of the person or function involved.
28. For hazardous occurrences occurring during authorized sports, a fitness instructor should assist with the investigation, though the supervisor must initiate the report.
29. For all other hazardous occurrences, the investigation should be assigned to a unit member(s), other than the supervisor, who is trained in hazardous occurrence investigation.
30. After completion of parts 1 to 8 and 10, the form is then passed to the Unit Safety Committee, or Departmental Representative for review and signature in part 9. It is then passed to the branch or section head for completion of part 11. When the investigator is a Fitness Instructor, the Fitness and Sports Director or the Facilities Coordinator will complete this part. The form is subsequently forwarded to the section head for comments, then to the UGSO for comment, who will also check for completeness and accuracy before submitting to the CO for review and comment.
31. In addition to the mandatory requirements for completion of from DND 663 listed above, units are urged to investigate and submit DND 663s for the following:
  - a. accidents that caused property damage but did not have the potential to kill or seriously injure someone;
  - b. incidents that did not kill or injure someone, but had the potential to do so;
  - c. incidents that did not cause property damage, but had the potential to do so; and
  - d. off-duty accidents that resulted in disabling and non-disabling injuries.
32. If in doubt about the requirement, then complete the DND 663.
33. Generally, hazardous occurrence investigations are used for the General Safety Program and are not intended for use by the other safety specialties. However, in occurrences where there is an injury or occupational illness, the investigation is conducted and reported by the relevant specialist safety program, but the injuries and/or occupational illness are reported through the General Safety Program. This ensures that records of the injuries or occupational illness are included in the national database for DND and CF personnel.
34. Form DND 663 shall be typed. All signature blocks shall have the names either printed or typed as well as the required signatures, Serial Numbers (S/Ns) and Personnel Record Identifiers (PRIs).

35. A separate DND 663 is required for each person injured in an accident. The same report serial number shall be used for a single occurrence, which causes injury to more than one individual.

### **Significant Incident Reports**

36. Significant Incident Reports (SIRs) are required when a hazardous occurrence leads to:

- a. the death of a person;
- b. disabling injuries to two or more people;
- c. the loss by a person of a body member or part thereof or the complete loss of the usefulness of the body member or part thereof;
- d. the permanent impairment of a body function of a person; or
- e. an unplanned explosion that puts personnel at risk or causes injury.

37. The CO, Formation Commander, and the FSEO shall be informed immediately of all such serious accidents. These accidents are to be reported by priority message in accordance with reference G and using the SIR message template at Annex S4A. FSEO is required to report all serious accidents to the RCN and NDHQ within 24 hours of the accident. Note: FSEO will report to RCN/NDHQ/D Safe G on the unit's behalf.

38. Military casualties and unusual occurrence casualties (multiple deaths or multiple injuries involving DND civilians and dependants) are reported in accordance with references G and H.

39. If the person(s) involved are civilians, there is a legal requirement to report to ESDC within 24 hours through the FSEO.

40. In addition to the above-mentioned serious accidents, the following must be reported to the Unit CO and FSafeO:

- a. all injuries involving either military personnel or civilians that result in a 911 call being placed;
- b. all injuries requiring medical attention beyond first aid; and
- c. injuries attended to by the First Aid attendant that requires either military personnel or a civilian to be transported to a medical facility other than a personal doctor.

## **Physical Fitness Safety**

41. Unit members shall request authorization to participate in physical activities from home to work and return and after working hours as part of the physical fitness program. A sample of a sports chit is attached as Annex S4B. Completed sports chits are retained on file by the unit.

42. Injuries that occur during on-duty/approved sports are to be treated as any other accident/incident. Supervisors must conduct an investigation as per reference J and complete form DND663, as per reference A. Consideration shall be given for a PSP Sports and Fitness Staff to be a participant during the investigation.

## **Records**

Completed forms:

DND 663

CF 98

Significant Incident Report Message

Sports chits shall be retained as records by the Unit on the member's file until they have been posted.

## **Attachments**

Annex S4A: Significant Incident Report Message for Serious Accidents

Annex S4B: Sports Chit

## **Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5472.

**ANNEX S4A – SIGNIFICANT INCIDENT REPORT MESSAGE FOR SERIOUS ACCIDENTS**

The following example of a significant incident report (SIR) message format is used by ships. Shore units shall adjust this format for their circumstances in accordance with reference F, DAOD 2008-3, Issue and Crisis Management.

FROM: HMCS (SHIP)

**For East Coast Units**

TO: MARLANTHQ HALIFAX//N48//  
INFO: MARLANTHQ HALIFAX//N00  
COMD/N4 MAT/ N02PA//

COMCANFLTLANT  
NDCC OTTAWA

**For West Coast Units**

TO: MARPACHQ ESQUIMALT//FSE//  
INFO: MARPACHQ ESQUIMALT//J00/J02/J3  
MAR/J02 SSO ADMIN/J02PA//  
MOC ESQUIMALT  
COMCANFLTPAC  
NDCC OTTAWA  
(See note 2)

SIC: LAL

SUBJ: SIGNIFICANT INCIDENT REPORT (CONCISE DESCRIPTION OF THE INCIDENT)

- A. DTG OF SIGNIFICANT INCIDENT
- B. LOCATION OF SIGNIFICANT INCIDENT
- C. NAME, LOCATION AND TELEPHONE NUMBER OF PERSON OR AGENCY INITIALLY REPORTING INCIDENT
- D. WHO OR WHAT WAS INVOLVED, WHAT HAPPENED AND HOW IT HAPPENED
- E. NAME OF THE PARENT UNIT AND SPECIFIC INFORMATION CONCERNING THE PERSONS AND EQUIPMENT INVOLVED
- F. ANY POSSIBLE BROADER IMPLICATIONS OF THE INCIDENT, INCLUDING THE EFFECT ON FUTURE OPERATIONS
- G. LOCAL PUBLIC AFFAIRS ACTIONS, RECOMMENDATIONS AND PROPOSED FURTHER ACTION
- H. DETAILS OF ACTUAL AND PROBABLE MEDIA INTEREST AND INVOLVEMENT, INCLUDING NUMBER OF MEDIA CALLS, INTERVIEWS AND INFORMATION REQUESTS, AND WHETHER THE MEDIA WERE NATIONAL, LOCAL OR INTERNATIONAL

NOTES:

1. Refer to DAOD 2008-3 for further clarification on completing the SIR.
2. Issues and significant incidents with implications on domestic operations will include LFWA DET ESQUIMALT as an information addressee.

## **ANNEX S4B – SPORTS CHIT**

Unit/Ships name:

5190-1 (*Service number*)

(Date):

## Commanding Officer:

## **AUTHOURIZED PHYSICAL TRAINING/SPORTS ACTIVITY**

Refs: A. DAOD 5023-2 Physical Fitness Program  
a. CFAO 50-3 Sports  
b. CF EXPRESS Program

37. As per refs A and B, I \_\_\_\_\_ request  
(SN, rank, name, initials, MOC)  
permission to participate in physical activities from home to work and return and after  
working hours.

38. The activities requested are \_\_\_\_\_.

39. These activities are part of the personal physical program as indicated in ref C.

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**Member's signature**

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### **Chief of Department**

### Recommended/not Recommended

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## Head of Department

## Recommended/not Recommended

---

### **Executive Officer**

Approved/not approved

1 copy to PERS file, 1 copy to member

**DIRECTIVE #S5 – CIVILIAN EMPLOYEE RETURN TO WORK PROGRAM****References**

- A. A-GG-040-001/AG-001, DND General Safety Program, Volume 1 Policy and Program, Chapter 8
- B. A-GG-040-009/AG-001, Return To Work Program Manual
- C. A-GG-040-010/AG-015, A Guide to the DND Civilian Employee Return to Work Program, Version 1, March 2008
- D. MARCORD 66-1, August 2007, Annex D
- E. MARL: 1006-1 (N00 Comd), 29 June 2004

**Purpose**

1. To provide direction and assign responsibility for implementing the MARLANT Return to Work Program (RTWP) which provides a comprehensive process to assist civilian employees, who have experienced an on-duty or off-duty injury or illness disability, with a safe and timely return to the workplace.

**Scope**

2. This Directive applies to all civilian personnel within MARLANT, including Integral units under the jurisdiction of the Commander Maritime Forces Atlantic, but excludes Lodger units who follow direction from their respective Commands with respect to Return to Work.

**Definitions**

3. **Case Management:** The management of illness/injury involving the coordination and integration of a range of social, health and rehabilitative services, people and materials, through a collaborative process, in an effort to minimize the impact and cost of the illness/injury. In most instances, case management is performed by the supervisor however, in complicated situations, the Return to Work Program Advisor or a professional case manager may have to be engaged.

4. **Claims Management:** The process by which WCB claims are initiated, received, validated and paid, leave credits are administrated, and files are maintained. As of April 1998, Directorate General Employee Relations (DGER) now receives invoices and pays on behalf of the Department.

5. **Disabling Injury:** A work related illness or injury which prevents the employee from reporting to work or effectively performing all the duties connected with his or her regular work on any day subsequent to the day on which the injury occurred or results in the loss of a body member or part thereof, or in the permanent impairment of a body function.

6. **Disability Management:** An effort to provide the necessary support and services to ensure the barriers preventing a worker's return-to-work are removed.

7. **Duty to Accommodate:** This is the legal requirement for employers to proactively eliminate employment standards, requirements, practices or rules that discriminate against individuals or groups on the basis of a prohibited ground such as disability, sex, race, religion, etc.

8. **Job Accommodation:** People with injuries, illness, or disabilities may benefit from technical aids, equipment, and/or other slight modifications to their jobs. These modifications that render a workplace better suited to an individual's needs and abilities are collectively known as job accommodation. Most provincial worker's compensation acts have job accommodation requirements as does the Employment Equity Act and the Canadian Human Rights Act.

9. **Modified Duties:** Any change in the tasks or work schedules that make up a job. This may require physical changes to the work area, changes in the equipment used, a reorganization or elimination of some tasks, or adjustments to the scheduling of the tasks, or to the production quotas. In most cases, an injured or ill employee returning to work will be assigned modified duties within his/her own section. Sometimes it may be necessary to employ injured or ill workers outside of his/her own workunit including another organization if necessary. In those extreme cases when an employee is so badly injured that he/she will not be able to return to their original job, "Duty to Accommodate" is required which does not fall within the Return to Work Program.

10. **Occupational illness:** Any disease, abnormal health condition or disorder caused by exposure to environmental factors or substances directly associated with employment, and which includes acute and chronic illness or disease caused by inhalation, absorption, ingestion, or direct contact.

11. **Return to Work (RTW):** The reintegration of injured/ill workers to their pre-accident/illness duties as soon as medically and safely possible. Injured or ill workers are allowed to return to the workplace earlier than might otherwise be possible to undertake modified work schedules and/or duties that are consistent with this reduced capability. The basic premise of "Return to Work", is that reintegration into the workforce is easier and more successful if it is started as soon as possible after the event in some modified or part time form.

12. **Workers Compensation Board (WCB):** A generic name and acronym to represent the Workers Compensation Board of the province. Some provinces use different acronyms. In Nova Scotia the acronym is WCB, whereas in New Brunswick and Newfoundland and Labrador the "WCB" is known as the Workplace Health Safety and Compensation Commission (WHSCC).

## **Responsibilities**

13. **The Formation Safety Officer (FSafeO), or delegate, is appointed as the MARLANT RTWP Advisor who is responsible for:**

- a. Administering the RTWP for MARLANT;
- b. Providing advice, guidance and information on the MARLANT RTWP;
- c. Coordinating Return to Work Program training for MARLANT;

- d. Arranging for the contracting of professional case management services from PWGSC or Health Canada OHSP services based on requests received by Unit RTWP Advisors;
- e. Receiving briefings from the professional case manager contracted to manage difficult cases;
- f. Providing assistance and guidance to Unit RTWP Advisors to determine the feasibility of modifying the injured employee's workplace;
- g. Liaising with the DND WCB Manager to assist Units with obtaining required information regarding suitable work for returning employees with permanent restrictions;
- h. Participating, as needed, as Ex Officio member of Unit RTWP Committees; and
- i. Acting as the Chairperson of the Case Committee, and the Co-chair (Management) of the MARLANT RTWP Committee.

14. **Commanding Officers** are responsible for ensuring that a Return to Work Program has been implemented in accordance with reference E, and local policies and procedures for implementing the Program are in place within their respective Unit. The Unit GSOs are the RTW advisors to the Commanding Officers. At the unit level the RTW Advisor should have a comprehensive knowledge of the diversity of all the jobs in the unit, their physical demands and the required body of knowledge to do the work. The Unit RTW Advisor should also know how benefit programs work and are designed, the roles and responsibilities of health-care practitioners within a RTWP, and case management methods. Specific responsibilities include:

- a. Conducting the day-to-day activities of the RTWP, including administration and maintaining files;
- b. Chairing the formal Unit RTWC where there are more than 20 civilians in the unit, or chairing the ad-hoc RTWC meetings where there are less than 20 civilians in the unit;
- c. Conducting the RTWP Employee Awareness Briefing with union and CHRSC assistance;
- d. Liaising with the Formation RTWP Advisor to determine the necessity of contracting professional case management services from PWGSC, Health Canada's OHSP and requesting these services through the Formation Return to Work Advisor;
- e. Providing case management recommendations concerning injured employees who, because of their injury or illness will be absent more than four weeks;

- f. Assisting managers with identifying areas where injured workers can do modified work;
- g. Determining the need for, and impact of, modified duty assignments which go longer than six months;
- h. Receiving briefings from the professional case manager contracted to manage difficult cases;
- i. Assisting managers and supervisors to determine the feasibility of modifying the injured employee's workplace; and
- j. Identifying barriers to RTW and resolving the issues/concerns.

## **Direction**

### **General**

15. The primary goal of the MARLANT Return to Work Program (RTWP) is to assist an injured or ill employee to resume all possible activities of daily living, including returning to the workplace, in a timely, safe, effective and efficient manner. The Program is a joint effort between labour and management. The degree of success achieved by the program is dependent upon the ability of these parties to work together to implement the program. This document provides the direction for commanders and managers at every level within MARLANT to enable them to formulate, implement and maintain their part of the Return to Work Program. Further details of the DND program are contained in the references.

### **The Return to Work Program**

16. Units with more than 20 civilian employees are to establish a RTW Committee (RTWC) using the terms of reference attached at Annex S5A. An RTWC is a joint labour/ management with membership from General Safety and Human Resources. The role of the Committee is to provide advice and guidance to those responsible for administering the Return to Work Program. The RTWC attempts to identify and solve those cases or situations where existing information and procedures are not adequate. The Committee ensures that injured or ill employees do not get lost or forgotten in the system. When the resolution of contentious issues is beyond the capability of a Unit RTWP Committee or representative, the matter shall be referred to the MARLANT RTWP Committee.

17. Units with fewer than 20 civilians shall appoint the same representatives as noted at Annex S5A, but the Committee will only meet on an ad hoc basis when required.

18. To ensure that all personnel are fully cognizant of their roles and responsibilities with respect to the RTWP, such responsibilities as set out in this Directive and those assigned at local level shall form part of Unit RTW documentation.

19. Units shall provide appropriate RTWP training for all levels of personnel and maintain training records. Training plays an important role in the General Safety Program and it is

equally important in the Return to Work Program. Courses that deal with Return to Work are as follows:

a. **Return To Work Program Advisor's Course (RTWPAC)**

The RTWPAC is a four-day course designed to teach the Base/Wing/Unit Return to Work Program Advisors how to administer their local RTW Program.

b. **Return to Work Program Committee Course (RTWPC)**

The RTWPC is a three-day course designed to train committee members who will facilitate the Unit RTW program. The course will include legislative requirements, roles and responsibilities, claims and sick leave management, return to work process and difficult cases.

c. **Return To Work Awareness Course (RTWAC)**

The RTWAC is a one-day course that teaches supervisors and managers of civilian employees how to facilitate the early and safe return to work of injured or ill employees within the framework of the National Return to Work Program.

d. **Return To Work Employee Awareness Briefing (RTWEAB)**

The RTWEAB is a two-hour briefing provided through the local RTWPA assisted by a union representative and CHRSC. The course is designed to ensure employees are aware of their responsibilities with respect to the Return to Work Program.

Training requests are to be directed to the Formation RTWP Advisor who will coordinate through DSafeG.

20. Commanding Officers shall ensure that managers, supervisors, employees and union representatives understand their RTWP roles and responsibilities outlined in Annex S5B.

21. All units shall maintain a filing system for RTWP documents and records. The forms used to administer the RTWP include:

a. Occupational Fitness Assessment (OFA), or provincial WCB Functional Abilities form;

b. Temporary Modified Work Agreement;

c. CF/DND General Safety Hazardous Occurrence Investigation Report (Form DND 663) if injury or illness disability was sustained while on-duty;

d. Workers Compensation Notice of Accident and Claim Form (if injury or illness disability was sustained while on-duty); and

e. Other information relevant to the return to work process such as conversation notes; RTW Plan; Functional Job Analysis; Cost Figures; and Objective, factual information.

22. All forms are available on-line through the N48 website or by contacting the MARLANT RTWP Advisor.

**NOTE: The RTWP Advisor and the supervisor shall ensure that the rights to confidentiality for an injured/ill employee, with respect to the claims/case management process, are strictly observed, and that any information sought is relevant, necessary and shall only be utilized in relation to this process. Information shared with others shall only be provided on a “need to know” basis and with the employee’s written consent. The RTWP Advisor and supervisor do NOT have access to diagnostic information.**

23. All units shall monitor the RTWP periodically to verify its effectiveness, take corrective action when necessary and communicate any changes to all personnel through the RTWP Committee.

24. All units shall put in place a loss-time monitoring process to ensure the unit RTWP Coordinator is notified of on-duty disabling injuries in a timely manner. The basic premise of “Return to Work”, is that reintegration into the workforce is easier and more successful if it is started as soon as possible after the event. Employees who experience an injury or illness as a result of their work shall inform their immediate supervisor without delay. Employees shall also seek medical treatment, as required, and inform their supervisor of this action.

25. All units shall submit the required quarterly and annual reports. At the end of every quarter, RTWP Unit Advisors shall prepare a report for their RTW committee and Commander outlining the Return to Work Activity for the quarter. These reports will contain the following information:

- a. **Case No. :** A sequential number created by the RTW Coordinator that will enable the Advisor to cross reference to an employee file, the use of a case number in lieu of names will also ensure anonymity for the employee;
- b. **Compensable:** Is the applicable Worker’s Compensation Board compensating the employee for the injury/illness; Yes or No
- d. **No. Days Off Duty:** The number of days that an employee is unable to perform any form of duty; and
- e. **No. Days On Modified Duties:** The number of days that an employee is performing duties other than their usual full compliment of functions.

26. At the end of every calendar year the Unit RTWP Advisors will consolidate these reports into an annual report and forward to D Safe G / NDHQ, through the Formation RTW Advisor. In addition, performance respecting the RTWP shall be included in the unit’s annual SPDET Report and the Performance Review Reports (PRRs) of the individual(s) involved.

**Expenses**

27. The employee will be reimbursed any expenses incurred as a result of the completion of the required RTW forms through a fund controlled by DSafeG. The Unit RTWP Advisor will be provided the appropriate Fin Code by the Formation RTW Advisor. The employee will be required to submit an invoice (receipt) representing the cost charged by the medical practitioner.

**Records**

All completed forms.

**Attachments**

Annex S5A – Unit Return to Work (RTW) Committee Terms of Reference

Annex S5B – Suggested TORs

**Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5472.

**Supporting Related Agencies/Organizations**

Employee Assistance Program

Defence Advisory Group for Persons with Disabilities

National Institute of Disability Management and Research (NIDMAR)

Canadian Council on Rehabilitation and Work (CCRW)

Job Accommodation Network in Canada, Accommodating Persons with Disabilities (JANCANA)

DND Job Accommodation Fund

**ANNEX S5A - UNIT RETURN TO WORK (RTW) COMMITTEE  
TERMS OF REFERENCE**

1. The Unit RTW Committee shall be comprised of the following members:
  - a. Management Representative: CO or designate;
  - b. CHRSC (A) representative/Pay & Benefits Advisor (may vary depending on circumstances);
  - c. Unit RTW Coordinator; and
  - d. Employee Representatives: Union.
2. The Unit RTW Committee, or RTW Coordinator for Units with fewer than 20 civilian employees, shall be responsible for:
  - a. Assisting with the implementation of the Unit RTW policy and program;
  - b. Reviewing, discussing and implementing changes to the DSafeG RTW program as required, when direction is received through the Formation RTWP Advisor;
  - c. Conducting quarterly meetings (Units with more than 20 civilian employees), or as required (Units with fewer than 20 civilian employees); and
  - d. Determining the need for contracting professional case management;
  - e. Providing case management recommendations concerning employees who by the nature of their injury or illness will be absent beyond four weeks of normal employment;
  - f. Assisting the managers/supervisors in identifying modified duty opportunity where injured/ill workers can do modified work;
  - g. Assisting managers in determining the feasibility of temporarily modifying an injured/ill employee's workplace;
  - h. Working with professional case managers to address difficult cases;
  - i. Determining the requirement for accommodation of the employee under the Canadian Human Rights Act (CHRA), when modified work extends beyond six months;
  - j. Cooperating with appropriate agencies/persons regarding suitable work for returning employees who require accommodation under the CHRA;
  - k. Providing the required RTW reports to the FSafeO annually;
  - l. Referring unresolved cases to the MARLANT RTWC through the RTW Advisor

**ANNEX S5B - SUGGESTED TORS**

1. **Managers in Charge of Workplaces** are responsible for ensuring that:
  - a. emergency/medical assistance has been provided to the injured employee;
  - b. where treatment has been confined to first-aid for a work-related accident, the treatment has been recorded in the first-aid register for the workplace;
  - c. all requirements related to Hazardous Occurrence Investigation, Reporting and Recording are addressed in accordance with reference A, chapter 4.
  - d. Ensuring that all disabling injuries are reported through a Workers Compensation Notice of Accident Form to the DCHRSC(A) within three (3) working days;
  - e. Within 24 hours of an accident that resulted in a fatality, or within fourteen days (14) days of one resulting in a disabling injury, or where other emergency measures were required, the supervisor completes and forwards a General Safety Hazardous Occurrence Investigation Form (DND663) to the Formation Safety and Environment Office.
  - f. The employee has been provided with all required information and with an Occupational Fitness Assessment (OFA) form and that these are accurately completed and distributed;
  - g. The supervisor maintains or ensure contact with the absent employee during normal working hours;
  - h. The Unit General Safety Officer has been contacted regarding the occurrence;
  - i. DCHRSC(A) receives the necessary leave forms in a timely manner, and are advised when the injury-on-duty leave is terminated; and
  - j. There is a liaison with the Unit General Safety Officer, Claims/Case Manager, Human Resources Representative; employee, employee representative and the supervisor, as required, to ensure that the terms of vocational rehabilitation are agreeable to, and are understood by all parties.
2. **Supervisors** are responsible for:
  - a. Ensuring that the injured employee has received necessary medical attention;
  - b. Immediately reporting the hazardous occurrence to their Manager;

- c. Providing the injured employee (other than instances where only first-aid is required) with an Occupational Fitness Assessment Form (OFA) as well as the completion instructions as per Chapter 4 of reference B;
  - d. Initiating the CF/DND General Safety Hazardous Occurrence Investigation Report (Form DND 663);
  - e. Informing the Unit General Safety (UGSO) when an employee is not able to return to work due to the injury or illness, or when a medical professional has indicated that the employee is able to return to work with modified duties;
  - f. following the steps (shown below or in reference B, Chapter 4) for completing the Temporary Modified Work Agreement;
  - g. Meeting with the employee upon receipt of an OFA from the employee, where the attending medical professional has indicated that the employee is able to return to work with modified duties;
  - h. Ensuring completion and submission of the Workers Compensation Notice of Accident and Claim Form within three (3) days of an accident causing a disabling injury, and forwarding the report to the civilian Human Resource Officer;
  - i. maintaining regular contact with the injured/ill employee whether or not a Temporary Modified Work Agreement is in place;
  - j. Undertaking approved modifications to the workplace and work requirements in order to accommodate an injured worker on return-to-work;
  - k. Briefing co-workers of workplace modifications that may be required;
  - l. Reviewing available positions, jobs, and tasks within his/her own organization when there is a requirement for job change due to injury/illness;
  - m. Providing input to the Unit RTWP Advisor and/or Case Manager when necessary with respect to the success and/or problems with regard to the program;
  - n. completing all necessary leave forms; and
  - o. Immediately advising the Unit RTWP Advisor and Civilian Human Resources Services Centre (CHRSC) when injury-on-duty leave is terminated, and the employee returns to work.
3. These duties must be carried out by the disabled employee's direct supervisor, or the program will not function. If there is a poor interrelationship between the supervisor and the employee an intermediary is advisable.

4. **Employees** are responsible for:

- a. Reporting a work-related injury/illness to the supervisor without delay;
- b. Ensuring all required paperwork is provided by the medical practitioner to assist with the completion of the OFA;
- c. Returning completed OFA forms to the supervisor after one working day, (or as required dependent upon the extent of injury or illness);
- d. Requesting that the supervisor complete or have completed the WCB Notice of Accident and Claim form after sustaining a disabling injury, or a non-disabling injury due to a work-related accident, if this has not already been done;
- e. Reporting a work-related injury/illness to the attending Medical Professional so that the medical practitioner's report is sent to the Workers Compensation Board;
- f. Signing any consent forms that may be required by WCB;
- g. Completing applications for Disability Insurance and Canada Pension Plan Benefits, where applicable;
- h. Cooperating with the supervisor, RTWP Advisor, claims/case manager and the human resources representative during the Return to Work process;
- i. Reporting immediately to the supervisor when they cannot meet the terms of an agreement for modified duties;
- j. Cooperating with the requirements of the Return to Work Program and making every effort towards rehabilitation and return, where possible, to full-time employment and maintaining their fitness to work; and
- k. Completing all leave and Occupational Fitness Assessment Forms as necessary.

5. **Unions and labour representatives** are responsible for:

- a. Participating in RTWP Committees and assisting in conducting RTWP Employee Awareness Training;
- b. Being available for consultation and providing input with various parties involved in the RTWP Process;
- c. Advising on union jurisdiction issues; and
- d. Representing their members upon request.

6. **Co-workers** are responsible for:

- a. Cooperating with workplace changes designed to assist a fellow worker in return-to-work; and
- b. Supporting their fellow workers in the return-to-work process and recognizing that injury and disability may impose certain limitations that require modified duties and hours of work.

7. The Civilian Human Resource Officers within the Human Resource Service Centres (HRSC) are advisors to the overall RTWP process and are responsible for providing a representative for the RTWP Committees. In addition the HRSCs are responsible for:

- a. Providing advice and guidance on the RTWP to managers, employees, claims and case management for claims administration, identification of modified or alternative work, helping to coordinate the employee re-integration plan and identify appropriate action to deal with long-term absences;
- b. Processing, administering and managing the various claim forms including leave and WCB forms;
- c. Advising WCB agencies when workers are injured and when they return to work; and
- d. Assist in conducting RTW Employee Awareness briefings with the MARLANT RTW Advisor/Coordinator and Union.

## DIRECTIVE #S6 – FALL PROTECTION

### References

- A. Canada Occupational Safety & Health Regulations Part XII
- B. C-02-040-009/AG-001 General Safety Program, General Safety Standards, Chapters 6 & 14
- C. National Safety Council – Accident Prevention Manual for Business and Industry, Edition 11, Chapter 6

### Purpose

1. To provide direction and assign responsibility for implementing the Fall Protection Directive to maximize the safety of all civilian and military personnel who may work at height.

### Scope

2. This Directive applies to all MALANT integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **At Height:** An unguarded position, at a height of 2.4m, or greater, above the nearest permanent safe level.
4. **Elevated Work Structure:** A structure or device that is used as an elevated work base for persons or as an elevated platform for material and includes any scaffold, stage or staging, walk-way, decking, bridge, boatswain's chair, tower, crawling board, temporary floor, any portable ladder or means of access or egress from any of the foregoing, and any safety net, landing or other device used in connection with such a structure.
5. **Fall Protection System:** An anchorage point, a full body harness, a connecting system, and a rescue plan.
6. **Mobile Elevated Work Structure:** A vehicle-mounted aerial device, elevating rolling work platform, boom-type elevating work platform or self-propelled elevating work platform.
7. **Person in Charge (Supervisor):** A qualified person appointed by management to ensure the safe and proper conduct of all operations and activities.
8. **Qualified Person:** In respect of a specified duty, a person who because of their knowledge, training, and experience, is qualified to perform that duty safely and properly while exercising due diligence.

9. **Safety Restraining Device:** Any safety belt, safety harness, seat, rope, belt, strap or life-line specifically designed to be used by a person to protect or prevent falling while working at height, and includes every fitting, fastening or accessory thereto.

10. **Suspended Casualty:** A person who due to illness, injury or entanglement is incapable of getting down from height on his or her own.

11. **Rescue Plan:** A plan which would utilize either a self-rescue technique or in-house personnel trained and practiced in performing a rescue on a suspended casualty or an outside agency qualified to perform a rescue, such as DND Fire Department. The plan must be as simple as possible and start from the bottom up. N.B. It is better to discover the anchor point will not hold while at ground level.

12. **Harness-hang Syndrome:** This occurs when a person is left hanging immobile from a rope or in a harness and can result in death. The rope or harness leg straps may act as tourniquets above each thigh in certain circumstances, such as dorsal suspension in a fall arrest harness, and this may bring about a lack of circulation within the legs. The victim's potential responses include fainting/unconsciousness, toxin release within the legs and cardiac arrhythmia.

## **Responsibilities**

13. Within MARLANT the Formation Safety Officer is the OPI for Fall Protection.

14. Within units - Prior to working at height, all personnel involved shall be qualified to perform the tasks expected of them and should include a Person In Charge/Supervisor and all other personnel required to carry out the work.

15. Unit GSOs are responsible for maintaining all holdings of Fall Protection Equipment. They are to ensure, through regular inspections, that equipment is suitable for use and are to maintain the Fall Protection Inventory List (Annex S6A) and ensure the Person-aloft Chits are properly completed. Form DND 2145 under NSN 7530-21-911-4739 is the Person Aloft/RF Radiate/Antenna Rotate Control Chit.

16. Supervisors are to ensure that personnel are instructed and properly trained on all aspects of Fall Protection/Fall Arrest including but not limited to; the inspection, proper fitting and wearing, preventive maintenance and life of the equipment that they will employ.

## **Direction**

17. Fall hazards must first be controlled through engineering controls if feasible. When engineering controls are not feasible, then personal fall arrest systems, administrative controls and training must be instituted. A thorough risk assessment must be carried out prior to commencement of work at height, and it is essential that all personnel involved in the work are involved in the planning.

## Fall Protection Equipment

18. Fall Protection Equipment, also referred to as a harness, is to be worn by all personnel working 2.4 meters above a permanent safe level. Harnesses shall be properly approved equipment suitable for the task at hand, inspected regularly and properly worn and used by workers.
19. Personnel requiring a harness are to draw one from the designated representative. Before receiving any equipment the person shall handover their Fall Protection Card, which is held by the UGSO until the harness is returned. The wearer is to inspect and properly adjust the harness with the UGSO confirming the fit. Upon return of the harness the UGSO shall inspect the harness and return the member's Fall Protection Card.

## Inspection

20. Fall Protection Equipment shall be inspected once a year by a qualified person from Formation Safety and Environment (FSE) and before each use by the user. THAT IS, SELF INSPECTION BEFORE EACH USE! The inspection shall include but not be limited to the harness and all webbing looking for rips, burns, discoloration, chemicals, paint, solvents and examining hardware such as D rings, carabiners, buckles, snaps, and eyes looking for possible scratches, cracks, tears, dents, etc. If required, replace the PPE before proceeding with the work and report the damaged PPE to the UGSO. FSE is to ensure that PPE that does not meet inspection, or is greater than ten years old, is destroyed and replaced.

21. At no time shall alterations of any kind including; marking on, cutting, sewing, adding to or removing pieces, be carried out on any piece of equipment. All fall protection PPE is to be used as is from the manufacturer and only the manufacturer or their chosen representative shall make alterations.

## Elevated Work Structures

22. No unit shall permit the use of a temporary structure where it is reasonably practicable to use a permanent structure.
23. Units shall ensure that each temporary work structure used by personnel is safe for use, and is used in a safe and proper manner.
24. Units shall ensure that a qualified person visually inspects each temporary structure prior to each work shift to ensure, insofar as possible by such inspection, that it is safe to use and ensure that a record of each inspection is made by the person who carried out the inspection. Where an inspection reveals a defect or condition that adversely affects the structural integrity of a temporary structure, no personnel shall use the temporary structure until the defect or condition is remedied

25. No person shall use a temporary structure unless:

- a. authority has been received from the person in charge to use it;
- b. the person has been trained and instructed in its safe and proper use; and
- c. the person, or the person in charge, visually inspects the structure prior to each work shift to ensure, insofar as possible by such inspection, that it is safe to use.

26. Every person shall report to the person in charge, as soon as practicable any defect or condition in a temporary structure that may, in the opinion of that person, create a hazard. No personnel shall use any temporary structure that has a defect or condition that, in the opinion of that person, may endanger the person or any other personnel, until the structure has been examined by a qualified person and declared to be safe.

27. No personnel shall work on a temporary structure in rain, snow, hail or an electrical or wind storm that is likely to be hazardous to the safety or health of the person, except where the work is required to remove a hazard or to rescue another person. Every platform, hand-rail, guardrail and work area on a temporary structure shall be kept free of accumulations of ice and snow while the temporary structure is in use.

28. Guardrails and toe boards shall be installed at every open edge of the platform of a temporary structure. Every guardrail shall consist of:

- a. a horizontal top rail not less than 900 mm and not more than 1100 mm above the base of the guardrail;
- b. a horizontal intermediate rail spaced midway between the top rail and the base; and
- c. supporting posts spaced not more than 3 m apart at their centres.

29. Every guardrail shall be designed to withstand a static load of 890 N applied in any direction at any point on the top rail.

30. When guardrails or ladders are removed for any reason, temporary guardrails shall be rigged and a barrier erected at the top of the ladder. In addition, when escape hatches are left open an appropriate barrier shall be erected in front of the hatch

31. When there is a hazard that tools, equipment or materials may fall onto or from a temporary structure, a safety net shall be provided to protect from injury any personnel on or below the temporary structure.

32. Where a vehicle or a pedestrian may come into contact with a temporary structure, a person shall be positioned at the base of the temporary structure or a barricade shall be installed around it to prevent any such contact.

### **Paint Cats**

33. When a ship is using a paint cat, the Deck Department is responsible to ensure it is inspected daily, prior to use. The OOD is responsible for ensuring the safety of personnel on the paint cat and should place someone in charge while on the paint cat. The OOD must also consider weather conditions, ship's movements and other yard and port activities that could affect personnel on the paint cat. Personnel on the paint cat shall wear PPE such as life jackets, harnesses as required.

### **Mobile Elevated Work Structures**

34. Units shall ensure that the design, construction, maintenance and use of every mobile elevated work structure shall comply as appropriate, with:

- a. CAN 3 B354.1-M82 Elevating Rolling Work Platforms;
- b. CAN 3 B354.2-M82 Self-Propelled Elevating Work Platforms for Use on Paved/Slab;
- c. CAN 3 B354.3-M82 Self-Propelled Elevating Work Platforms for Use as Off-Slab;
- d. CAN 3 B354.4-M82 Boom Type Elevating Work Platforms; and
- e. CSA C225-1976 Vehicle Mounted Aerial Devices.

35. Units shall ensure, to the extent that is practicable, that where it is necessary to use or move a mobile elevated work structure with personnel on such a device, the person in charge ensures that the device is observed until it is no longer in motion.

### **Temporary Stairs, Ramps and Platforms**

36. Temporary stairs, ramps and platforms shall be capable of supporting at least four times the load that is likely to be imposed on it. Temporary stairs, ramps and platforms shall be designed, constructed and maintained to support any load that is likely to be imposed on them and to allow safe passage of persons and equipment on them.

37. Temporary stairs shall have uniform steps in the same flight:

- a. a slope not exceeding 1.2 to 1; and
- b. a hand-rail that is not less than 900 mm and not more than 1100 mm above the stair level on open sides, including landings.

38. Temporary ramps and platforms shall be:

- a. securely fastened in place;
- b. braced, if necessary, to ensure their stability; and
- c. provided with cleats or surfaced in a manner that provides a safe footing for personnel.

39. A temporary ramp shall be so constructed that its slope does not exceed:

- a. where the temporary ramp is installed in the stairwell of a building not exceeding two storeys in height, 1 to 1, if cross cleats are provided at regular intervals not exceeding 300 mm; and
- b. in any other case, 1 in 3.

## Scaffolds

40. Units shall ensure, to the extent that is practicable, that the design, construction and use of scaffolds meet the requirements of CSA Standard S269.2/M87, Access Scaffolds for Construction Purposes. Every scaffold shall be capable of supporting at least four times the load that is likely to be imposed on it. The platform of every scaffold shall be at least 480 mm wide and securely fastened in place. The footings and supports of every scaffold shall be capable of carrying, without dangerous settling, all loads that are likely to be imposed on them.

41. The erection, use, dismantling or removal of a scaffold shall be carried out by or under the supervision of a qualified person.

## Portable Ladders

42. Only portable ladders that have manufactured commercially that meet the CSA standards shall be used.

43. Where, because of the nature of the location, or of the work being done, a portable ladder cannot be securely fastened in place, it shall, while being used, be sloped so that the base of the ladder is not less than one-quarter and not more than one-third of the length of the ladder from a point directly below the top of the ladder and at the same level as the base. Every portable ladder shall, while being used:

- a. be placed on a firm footing; and
- b. be secured in such a manner that it cannot be dislodged accidentally from its position

44. Every portable ladder that provides access from one level to another shall extend at least three rungs above the higher level.

45. Metal or wire-bound portable ladders shall not be used where there is a hazard that they may come into contact with any live electrical circuit or equipment.

46. No person shall work from any of the three top rungs of any single or extension portable ladder or from either of the two top steps of any portable step ladder.

### **Rescue Plan**

47. If a rescue is required while a ship is alongside in homeport, the Dockyard Fire Hall is to be called immediately to initiate the rescue of a suspended casualty to prevent Harness-hang Syndrome.

48. If a suspended casualty should happen on board a ship away from homeport then an in-house rescue team that has received competent training, proper equipment and practice on a regular monthly schedule is competent to initiate and conduct a rescue. The condition and location of the suspended casualty will determine the method required to implement a rescue. Once developed and approved by all stakeholders, the necessary equipment will be added to the ship's inventory.

### **Communication**

49. If any work at height poses a danger to other personnel, then the UGSO in shore units and the OOD/OOW on board ships are to be notified immediately. The UGSO and/or OOD/OOW shall warn appropriate personnel in the unit/ship.

### **Warning Signs**

50. If any job poses a danger to other personnel, warning signs shall be placed in a conspicuous place, and at a sufficient distance from the job to ensure the safety of other personnel. Upon completion of the job, all warning signs are to be removed.

### **Records**

51. Records of all fall protection equipment are to be maintained by the holding unit. Any new equipment shall be reported to the FSE representative during their annual inspection. Training records shall be maintained for both supervisors and any other personnel who by job or position may be required to work at heights and use fall protection equipment. The duration of the qualification will be at the discretion of the applicable training organization. Both the Unit/ship and FSE shall maintain copies of all equipment inspections and training records.

**Attachments**

Annex S6A - Fall Protection Inventory

**Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5471.

**ANNEX S6A – FALL PROTECTION INVENTORY LIST**

<b>Serial #</b>	<b>Manufacturer</b>	<b>Equipment Type</b>	<b>Model #</b>	<b>Date Of Mfr.</b>	<b>Inspection Expiry</b>

**DIRECTIVE #S7 – SAFETY PERMIT PROGRAM****References**

- A. MARCORD 66-01 General Safety Program, Annex G.

**Purpose**

1. To provide direction and assign responsibility for implementing the Safety Permit Program to maximize the safety of all civilian and military personnel.

**Scope**

2. This Directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic. The Safety Permit Program regulates “safe to enter” and “safe for hot work” permits. This Directive stipulates the qualification requirements for personnel who issue these permits.

**Definitions**

3. **Confined space:** An enclosed or partially enclosed space that:

- a. Is not designed or intended for human occupancy except for the purpose of performing work;
- b. Has restricted means of access and egress; and
- c. May become hazardous to any persons entering it due to:
  - i. its design, construction, location or atmosphere;
  - ii. the materials or substances in it, or
  - iii. any other condition relating to it.

4. **Safe to enter:** A confined space is safe to enter when it meets the following conditions, during the time a person is in the confined space:

- a. the concentration of any chemical agent or combination of chemical agents in the confined space to which the person is likely to be exposed will not result in the exposure of the person to:
  - i. to a concentration of the chemical agent or combination of chemical agents in excess of Threshold Limit Values for the agent(s) as currently adopted by the American Conference of Government Hygienists;
  - ii. airborne chrysotile in excess of one fibre per cubic centimetre;

- iii. a concentration of the chemical agent(s) of more than 50% of the Lower Explosives Limit (L.E.L.), or, if a source of ignition is present, to a maximum of 10% of the L.E.L. of the agent(s);
  - b. the concentration of airborne hazardous substances , other than chemical agents, in the confined space, is not hazardous to the health and safety of persons;
  - c. the percentage of oxygen in the atmosphere of the confined space is not less than 18% and not more than 23% by volume at normal atmospheric pressure;
  - d. any liquid in which the person could drown has been removed from the confined space;
  - e. any free flowing solid in which the person may become entrapped has been removed from the confined space;
  - f. all electrical and mechanical equipment that may present a hazard to the person has been disconnected from its power source, real, or residual, and has been locked out: and
  - g. the opening for entry into and exit from the confined space is sufficient to allow the safe passage of a person using protection equipment.
5. **Safe for hot work:** Hot work shall not be performed in any space that contains an explosive or flammable hazardous material in a concentration in excess of 10% of its lower explosive limit, or oxygen at a concentration in excess of 23%.
6. **Hot Work:** Any activity which has the potential of generating a source of ignition. Examples include but may not be limited to burning, welding and grinding or spark producing equipment.
7. **Qualified person:** A person who, because of knowledge, training and experience, is qualified to perform safely and properly the duties specified under this Directive for hazard assessment, entry procedures, emergency procedures and the issue of “Safe to enter” and “Safe for hot work” permits.
8. **Workshop:** The designated spaces where personnel can conduct hot work without a permit.

## Responsibilities

9. The Formation Safety Officer is the MARLANT OPI for Gas Free Certification.
10. The UGSO for shore units, or the MSEO for ships, shall be consulted prior to personnel entering any confined space or conducting any hot work operations outside designated workshops. The UGSO/MSEO shall ensure that qualified persons using appropriate test equipment conduct the assessment and testing necessary before persons enter a confined space or

conduct “hot work” outside of a workshop, and issue relevant permits certifying that, as appropriate, the space is “safe to enter”, or “safe to conduct hot work”.

## **Direction – General**

11. Permits for “safe to enter” and “safe to conduct hot work” in a confined space shall use the example given at Annex S7A or equivalent. Permits to conduct hot work in shore units outside of workshops shall use the example given at Annex S7B or equivalent.

## **Ships**

12. For the purposes of this Directive “ships” means HMC Ships, Submarines, Minor War Vessels and Canadian Forces Auxiliary Vessels (CFAVs).

13. All ships shall designate personnel who are qualified to issue safety permits for entry to confined spaces and to conduct hot work, and be able to demonstrate that these personnel have maintained their qualifications.

14. Personnel who issue "safe to enter" and "safe for hot work" permits shall receive a qualification level commensurate with their training, knowledge, position and experience. There are three qualification levels, with increasing levels of responsibility and permissible functions. Each level specifies the types of spaces that can be certified and the associated duties and restrictions, see reference A. Candidates for these qualifications are listed in Table 1 below.

**Table 1: Ships Qualified Personnel**

I.D.	Personnel	Comments
a	FMF - General Safety Inspectors	All ships
b	Chief, First or Second Class Engineers with Fourth Class Engineering Ticket	CFAVs
c	QL6 qualified Mar Eng Tech (0022)*	HMC Submarines
d	QL6 qualified Mar Eng Art (00123) and Marine Systems Engineering Operator (MESO) (00225)	Minor war vessels when Hull Techs (00124) not borne
e	QL5 or above Hull Techs (00124)	All ships

\* Numbers in parenthesis are the Military Occupation Speciality I.D.s (MOSIDs)

15. Personnel in Table 1 may obtain Level I when qualified as shown. Level II may be achieved after gaining on the job training and experience working with FMF. Only FMF General Safety Inspectors can be qualified to Level III.

16. Once qualified, the person shall be required to maintain competency. If a qualified person (Level II and III) does not conduct a “safe to enter” or “safe for hot work” certification in 90 days, the person must undergo a re-qualification process. Qualification and re-qualification shall be determined by a Qualifications Review Board (QRB), chaired by FSafeO with representatives from FMF and the CFNES Senior Hull Instructor. The Terms of Reference for the QRB are detailed in reference C. Requests for QRB re-qualification shall be submitted to the FSafeO through the UGSO.

**Shore Units – Confined Space Entry and Hot Work**

17. Shore units who may need to have persons enter a confined space, and who may conduct hot work in a confined space, shall develop, implement and maintain Standard Operating Procedures (SOPs) to ensure that these tasks are conducted safely.

18. The SOPs shall demonstrate that all unit personnel are given awareness training and the personnel who actually enter confined spaces be given additional training. The training shall include a two-day awareness course covering the following subjects:

- a. hazard assessment;
- b. entry procedures;
- c. emergency procedures;
- d. emergency requirement;
- e. equipment usage and inspection and other equipment associated with confined spaces entry;
- f. entry permits; and
- g. hot work (any work where a flame is used or a source of ignition may be produced).

19. To be qualified to enter a confined space and conduct hot work in the space, personnel shall receive two-days of additional training on the same topics, and instructions on the hazard classification of the confined spaces they may have to enter, the use of all PPE that may be required, use and completion of the Confined Space Entry Permit and emergency procedures for the class of confined spaces they may have to enter.

**Shore Units – Hot Work**

20. Only Senior Fire Fighters from the CFB Halifax Fire Department are qualified to issue “Safe for Hot Work” permits for shore units. Permits use the form shown at Annex S7B.

**Records**

21. Completed permits for “Safe to Enter” and “Safe for Hot Work” in confined spaces shall be kept for 30 years;

22. Completed “Safe to Conduct Hot Work” shall be kept for ten years.

**Attachments**

Annex S7A: Safe to Enter/Conduct Hot Work in a Confined Space Permit  
Annex S7B: Safe to Conduct Hot Work Permit.

**Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5472

**ANNEX S7A - SAFE TO ENTER/CONDUCT HOT WORK IN A CONFINED SPACE  
PERMIT**

<b>NOTICE: THIS PERMIT IS VALID ONLY FOR THE WORK/TIME DESCRIBED</b>				<b>PERMIT VALID (DATE and TIME)</b>			<b>PERMIT NUMBER</b>
<u>ON-SITE CO-ORDINATOR:</u>				From			
Supervisor:				To			
<u>CONFINED SPACE ID # :</u>				EMPLOYEE(S) ENTERING		TIME IN	TIME OUT
Confined Space Class	A	B	C				
Confined Spaces location:							
Description of Work:							

**TESTING EQUIPMENT**

Name: Multi Gas Detector Model: Phd Ultra Ser. No. \_\_\_\_\_

**CALIBRATION**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Calibrator: \_\_\_\_\_

**PRE ENTRY TEST RESULTS**

TEST	ACCEPTABLE LEVELS	TLV	RESULTS	SIGNATURE
1. LEL	50%			
2. Oxygen (O <sub>2</sub> )	19.5% (Min) 20.9% (ideal) 23% (Max)			
3. Hydrogen Sulfide H <sub>2</sub> S	2 PPM (Max)	10 PPM		
4. Carbon Monoxide (CO)	5 PPM (Max)	25 PPM		
5. Toxic Gases	None 0%			
6. Others				

**NOTE: Maximum LEL for Hot Work is 10% LEL**

15 Min Intervals	LEL	O2	H2S	CO	TG	Other

<b>RESCUE EQUIPMENT</b>	<b>YES</b>	<b>NO</b>	<b>TYPE USED</b>	<b>SAFETY REQUIREMENTS</b>	<b>YES</b>	<b>NO</b>
Rescue Procedures				1. Hot Work Permit		
SCBA Breathing system				2. Safety Watcher		
Air Line System				3. Isolate/Post Signs/Barricade Work Site		
Ventilation Alarm Monitor				4. Vehicle Shut off		
Communication				5. look up confined spaces inventory		
Mechanical Lifting Device				6. Drained/Purged		
First Aid Equipment				7. Ventilated		
Safety line(s)				8. Binding/Blanking		
Personal Alarms				9. Mechanical Lockout/Tagged/Grounding		
Fire Extinguishers				10. Electrical Lockout Tagout		
Life Jackets				11. Fall Arrest Devices		
Explosion Proof Lighting				12. Monitor		
Others:				13. Personnel Protective Equip (PPE)		
				14. Clean shaven (A & B Class)		
				15. Non Sparking Tools		
				16. Ignition Sources Eliminated		
				17. Hazard Assessment		

<b>QUALIFIED PERSON/PERMIT AUTHORIZER</b>	<b>EMPLOYEE SIGNATURE</b>
I certify the completion of all test detailed on this permit, adherence to all confined spaces regulations and that all PPE has been provided and is being utilized.	I certify that I have read, been briefed on and fully understand the Entry Permit, Hazard Assessment Report, PPE Requirements and Emergency Procedures for entry into this confined space.
<b><u>ON-SITE CO-ORDINATOR'S :</u></b>	
(Print Please)	<b>Employee (A)</b> _____ (Print Please)
Date _____	Signature _____
Signature _____	<b>Employee (B)</b> _____ (Print Please)
	Signature _____
	<b>Employee (C)</b> _____ (Print Please)
	Signature _____
	<b>Employee (D)</b> _____ (Print Please)
	Signature _____
<b>NOTE</b> Permit valid for 8 hours only. All copies of permit will remain at job site until job is completed. Return original to the UGSO office following job completion.	

ALL PERSONNEL HAVE EXITED THIS CONFINED SPACE AND THAT THE AREA IS SECURED

Shop Supervisor SIGNATURE/DATE

**ORIGINAL TO UGSO UPON COMPLETION**

**ANNEX S7B: SAFE TO CONDUCT HOT WORK PERMIT**

<b>CFB HALIFAX “HOT WORK PERMIT”</b>	
DATE:	
BUILDING:	
CONTRACTOR PHONE #:	CONTRACTOR LOCATION:
WORK TO DONE:	
SPECIAL PRECAUTIONS:	
IS FIRE WATCH REQUIRED?	
THE LOCATION WHERE THE WORK IS TO DONE HAS BEEN EXAMINED, NECESSARY PRECAUTIONS HAVE BEEN TAKEN AND PERMISSION IS GRANTED FOR THIS WORK (SEE PRECAUTIONS IN DIRECTIVE #S11)	
PERMIT EXPIRES:	
SIGNED:	
START TIME:	COMPLETED:
FINAL CHECK	
THE FOLLOWING SHALL BE CHECKED: THE WORK AREA AND ALL ADJACENT AREAS WHERE SPARKS AND HEAT MAY HAVE SPREAD (INCLUDING FLOORS ABOVE AND BELOW AND ON OPPOSITE SIDES OF THE WALLS.)	

## DIRECTIVE #S8 – PERSONAL PROTECTIVE EQUIPMENT (PPE)

### References

- A. COHS Regulations Part XII
- B. C-02-040-009/AG-001 General Safety Program, General Safety Standards, Chapter 14
- C. MARGEN 65/07, MARLANT Direction, New Civilian Footwear Policy, N4Mat, 032/07, 111328Z, July 07

### Purpose

1. To provide direction and assign responsibility for implementing the Personal Protective Equipment program to maximize the safety of all civilian and military personnel.

### Scope

2. This directive applies to all MARLANT units including integral and assigned lodger units in the jurisdiction of the Commander Maritime Forces Atlantic and includes, but is not limited to, all systems, procedures, clothing and safety material designed to ensure the safety and health of all employees.

### Definitions

3. **Personal Protective Equipment:** Safety materials, equipment, systems, devices and clothing whose purpose is to protect from injury or illness.

4. **Respiratory Protection Device (RPD):** Any device that is worn to protect the quality of air entering the person's respiratory system.

5. **Qualified Person:** In respect of a specified duty, a person who because of their knowledge, training, and experience, is qualified to perform that duty safely and properly exercising Due Diligence.

6. **Safety Restraining Device:** Any safety belt, safety harness, seat, rope, belt, strap or life-line designed to be used by personnel to protect that person from falling, and includes every fitting, fastening or accessory thereto.

7. **Supervisor:** A qualified person appointed by management to ensure the safe and proper conduct of an operation or of the work of personnel.

### Direction

8. All potential hazards identified in the workplace shall be reviewed by supervisors and the unit safety committee to establish the optimum safety controls based on the

hierarchy of control given in Annex 3A. PPE should be considered as the “last resort” and used only when all other avenues of approach do not adequately control the hazard.

9. Since changes in activities and operations may change the type and nature of the hazards, and the appropriate control method(s), the hazards in the workplace shall be periodically re-evaluated by the line organization, using the method given in MARLANT SEMS Manual, Annex 3A.

### **Responsibilities**

10. The FSafeO is the MARLANT OPI for PPE;
11. The UGSO is responsible for ensuring that:
  - a. Units/departments maintain a list of PPE holdings;
  - b. PPE is inspected regularly;
  - c. departments are issuing PPE;
  - d. personnel are properly trained;
  - e. co-ordinating the training as required; and
  - f. assisting departments in maintaining the PPE documentation.
12. Each unit/department shall:
  - a. appoint a qualified person to ensure personnel safely, properly and appropriately use PPE;
  - b. ensure personnel are instructed and properly trained on the fitting, use, inspection, preventive maintenance of the PPE that they will employ and train personnel to effectively deal with emergency situations;
  - c. ensure that all PPE worn or used by any personnel shall not in itself create an employment hazard. PPE shall as much as possible not add to the total heat burden. Where personal protective equipment adds to the total heat burden, rest periods shall be routinely provided and the employer shall ensure that personnel take those rest periods;
  - d. ensure that all PPE:
    - i. is stored, maintained, inspected and tested by a qualified person for the purpose of ensuring that it is in a safe and fully useable condition at all times;
    - ii. in cases of defective equipment that may render it unsafe for use, is marked or tagged as unsafe and removed from service; and

- iii. in cases of defective equipment, is repaired by a qualified person to ensure that the equipment is in safe and fully effective condition, or permanently removed from service;
- e. keep and make available a record of all PPE provided to personnel for as long as the equipment is in use in a PPE Control Log of a similar format to that provided at Annex S8A.
13. Supervisors must ensure inspections and consultations with personnel are conducted to confirm the appropriate PPE is being used. If required, replace the PPE before proceeding with any work. Personnel are to report any damaged PPE to the supervisor.
14. Personnel shall not commence a work assignment or enter a work area where any kind of PPE is required to be worn unless the member:
- a. is wearing or using that kind of PPE in the proper manner;
  - b. has been instructed and trained in the proper use of that PPE; and
  - c. has visually inspected that PPE to ensure that, as far as reasonably practicable, it will protect him against the hazards of his employment.
15. The use of PPE must be enforced by all personnel. Where necessary, additional training and supervision shall occur to ensure PPE is being properly used.

### **Determining Correct PPE**

16. The correct type of PPE for each work type and area is prescribed by government agencies and meets applicable standards such as CSA. Documents indicating the required safety precautions for that particular work unit include the correct type of PPE to be used. Some PPE items have a NDHQ Life Cycle Material Manager (LCMM) who is responsible for the overall life cycle of that particular item. In addition, the Formation Safety Officer can provide advice. PPE is procured through normal supply channels, ensuring that the appropriate standards are quoted and complied with. The proper PPE required for the hazard is identified with the assistance of specialists such as FSE and PMed Techs. The following are the most common types of PPE:

- a. Head Protection. This should be properly fitted and inspected periodically for checks, scratches, and cracks;
- b. Eye Protection. Correct eye protection should be matched to the hazard, i.e., chipping, chemical splash, general protection. This includes safety glasses, mono-goggles and face shields. The policy and procedures to obtain safety and prescription safety glasses and prescription safety glasses are found in D Safe G Safety Instruction found in reference B;

- c. **Foot Protection.** Protective footwear is issued to military personnel. Civilian personnel can apply for compensation for protective footware in accordance direction at reference C, MARGEN 65/07;
- d. **Hand Protection Devices.** There are a variety of gloves available to protect against specific hazards, such as chemicals, toxins, meat cutting, handling lumber or metal, electrical, etc. They must be matched to the hazard and inspected prior to use to ensure there is adequate protection. Electrical gloves shall be listed, inspected, and tested every 6 months as per reference B, Ch 14 Annex D;
- e. **Respiratory Protection.** There are a variety of respiratory hazards from common dust to lethal gases. The appropriate mask, respirator, or pressure breathing apparatus must be matched to the hazard;
- f. **Hearing Protection.** Depending on the level and duration of the noise, personnel are required to use earplugs, ear defenders, or a combination of both and be time-limited to exposure (Ref B, Chapter 10, Annex A); and
- g. **Fall Protection.** Refer to MARLANT SEMS, Directive #S6: Fall Protection, for guidance.

## Attachments

AnnexS8A - PPE Control Log.

## Enquiries

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721- 5472

**ANNEX S8A - PPE CONTROL LOG**

Name	Rank	Serial No.	PPE Issued	Date PPE out	Received by signature	Date PPE returned	Returned to signature

## DIRECTIVE #S9 - RESPIRATORY PROTECTION PROGRAM

### References

- A. COHS Regulations, Part XII
- B. CFTO C87-040-000/MS-001 DND Respiratory Protection Program
- C. CFAO 34-53, Respiratory Protection Program
- D. CSA Standard Z94.4-93, Selection, Use and Care of Respirators
- E. CSA Standard Z-180.1-M85, Compressed Breathing Air and Systems
- F. MARCORD 66-01 Annex E

### Purpose

1. To provide direction and assign responsibility for implementing the Respiratory Protection Program (RPP) to maximize the safety of all civilian and military personnel.

### Scope

2. The RPP Program, detailed at reference B, applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic. The process and procedures required to implement an effective Respiratory Protective Program are contained in the references.

### Definitions

3. **Respirator:** A device to protect the user from inhaling a hazardous atmosphere.
4. **Compressed Breathing Air System:** An assembly of various components such as air intake, ambient air system, compressor, purification system, receiver, cylinder, proportioning system, piping, fittings, compressed breathing air pipeline, control equipment, etc., required to produce and/or deliver compressed breathing air to the point of use.

### Direction

5. This Directive is applicable to both closed and open circuited Self-Contained Breathing Apparatus (SCBA), Airline Systems and Air Purifying Respirators, such as disposable, quarter-mask face piece, half-mask face piece, and full-mask face piece.
6. Where there is an oxygen deficient atmosphere in the work place, or a hazard of an airborne hazardous substance that cannot be controlled through engineering controls, a respiratory protection device shall be used, in accordance with references B and D and the applicable MSDS.
7. Units that use respiratory protection equipment must hold copies of all of the references.

## **Responsibilities**

8. Within MARLANT, the OPI for the Respiratory Protection Program (RPP) is the Deputy Fire Chief who is the RPP Administrator (RPPA) and provides program oversight.

9. The day-to-day operation of the program is the responsibility of the RPP Coordinator, who is assigned by the Deputy Fire Chief.

10. Supervisors are responsible for ensuring that personnel are using the appropriate mask and have been properly fit tested for assigned tasks.

11. Supervisors, the RPPA and the UGSO are responsible for conducting regular workplace inspections to ensure that respiratory protection devices are being used IAW the requirements of references C, D and F.

## **Use of Respirator**

12. Respirators shall be used in accordance with the following:

- a. respirators shall be selected on the basis of the applicable hazard. These hazards are to be determined by the Supervisor in consultation with the Unit JOSH or Safety Committee, as relevant, and in consultation with the Formation Preventive Medicine (P Med) section; and
- b. there shall be an assortment of sizes of respirators available to meet the unit's needs.

## **Respirator Fit Test**

13. All personnel shall be fit tested and issued respirators IAW the instructions in reference B. Specifically:

- a. personnel are to be clean shaven where the sealing surface of the respirator comes in contact with the face for fit testing and use;
- b. personnel are fit tested every second year;
- c. a wallet-sized fit-test record shall be issued to each tested and trained member. This card is used to obtain the correct size, type and manufacturer of RPD which he/she has been fit tested and trained on; and
- d. units that conduct in house fit testing shall forward a copy of the fit test to the Formation RPP Administrator (RPPA). Military personnel shall have the date of fit testing and training entered on their UER.

## Training

14. Personnel shall be instructed in the following:

- a. hazard recognition, the dangers associated with respiratory hazards;
- b. the proper use of respirators and their limitations;
- c. cleaning and sanitizing procedures of respirators; and
- d. the proper care and use of respiratory equipment.

## Care and Use of Respirators

15. All respirators shall be cleaned, sanitized and stored as follows:

- a. respirators shall be regularly cleaned and sanitized in accordance with the manufacturer's instructions;
- b. respirators used by more than one user shall be cleaned and sanitized after every use;
- c. facilities are to be available to clean and sanitize respirators;
- d. respirators are to be stored in a manner that prevents deterioration and deformation of the face pieces, straps and other parts; and
- e. used respirator cartridges are NOT to be stored in the same bag as the sanitized respirator, but may be stored in their own bag with the sanitized respirator.

## Inspection of Respirators

16. All respirators shall be inspected as follows:

- a. inspection, testing and repair of respirators shall be done in accordance with the manufacturer's instructions;
- b. respirators that are routinely used shall be inspected before and after every use and defective components replaced by the user or other qualified person;
- c. respirators for emergency use, such as Self-Contained Breathing Apparatus (SCBA), shall be thoroughly inspected after each use and at least once a month as per maintenance schedules and records shall be retained;
- d. all SCBAs shall be sent to the Fire Department for calibration testing;

- e. defective equipment shall be tagged "OUT OF SERVICE" and removed from service until repaired or replaced;
- f. workers are not to use any equipment that is defective or has been quarantined;
- g. air cylinders that have not been used during the previous 12 months shall be drained and refilled with clean dry breathing air;
- h. new SCBA equipment shall be inspected by the Fire Department before being put in use; and
- i. a copy of all maintenance and repair records shall be returned to the holding unit.

### **Compressed Breathing Air Systems**

17. Air quality checks shall be conducted in accordance with reference E and the following:

- a. air quality checks shall be conducted every six (6) months on all breathing air compressors, normally under contract through NDHQ; and
- b. a copy of the air purity results is to be posted next to the air system.

### **Medical Health Surveillance**

18. The user shall fill out a Medical and Health questionnaire IAW reference B. If there are any medical problems identified in the questionnaire that could affect the member from wearing respiratory protection, the member shall be directed to a doctor for further evaluation.

### **Program Evaluation**

19. Unit RPPs will be evaluated by FSE during the Formation Safety and Environment audits or as required.

### **Records**

20. Units are responsible for maintaining a record of the following, for 10 years:

- a. fit test results;
- b. training records; and
- c. a copy of all air quality checks carried out on breathing air compressors.

21. Units must ensure that air quality checks that fail are dealt with expeditiously in accordance with reference E. In addition, training and fit testing information shall be forwarded to the Formation RPP Coordinators for inclusion into the master database.

### **Enquiries**

#### **MARLANT**

RPP Administrator (Deputy Fire Chief): Tel. (902) 427-3506  
RPP Coordinator: Tel. (902) 427-2019

## DIRECTIVE #S10 – CONFINED SPACE ENTRY SAFETY PROGRAM

### References

- A. Canada Labour Code, Part II COHS Regs Part XI, Confined Spaces;
- B. C-02-040-009/AG-001 General Safety Program, General Safety Standards, Ch. 7, Hazardous Confined Space Entry Standard;
- C. MARCORD 66-01, Annex F; and
- D. MARLANT SEMS Directive S#7, Safety Permit Program.

### Purpose

1. To provide direction and assign responsibility for implementing the MARLANT Confined Space Entry Safety Program to maximize the safety of all civilian and military personnel.

### Scope

2. This Directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic. The Confined Space Entry Program regulates the entry of personnel and the conduct of hot work regarding confined spaces through the permit system described at reference D.

### Definitions

- 3. **Confined Space:** An enclosed or partially enclosed space that:
  - a. is not designed or intended for human occupancy except for the purpose of performing work;
  - b. has restricted means of access and egress; and
  - c. may become hazardous to any person entering it owing to:
    - i. its design, construction, location or atmosphere,
    - ii. the materials or substances in it, or
    - iii. any other conditions relating to it.
- 4. **Safe to enter:** A confined space is safe to enter when it meets the following conditions, during the time a person is in the confined space:
  - a. the concentration of any chemical agent or combination of chemical agents in the confined space to which the person is likely to be exposed will not result in the exposure of the person to:

- i. a concentration of the chemical agent or combination of chemical agents in excess of Threshold Limit Values for the agent(s) as currently adopted by the American Conference of Government Hygienists;
  - ii. airborne chrysotile in excess of one fibre per cubic centimetre;
  - iii. a concentration of the chemical agent(s) of more than 50% of the Lower Explosives Limit (L.E.L.), or, if a source of ignition is present, to a maximum of 10% of the L.E.L. of the agent(s);
- b. the concentration of airborne hazardous substances , other than chemical agents, in the confined space, is not hazardous to the health and safety of persons;
  - c. the percentage of oxygen in the atmosphere of the confined space is not less than 18% and not more than 23% by volume at normal atmospheric pressure;
  - d. any liquid in which the person could drown has been removed from the confined space;
  - e. any free flowing solid in which the person may become entrapped has been removed from the confined space;
  - f. all electrical and mechanical equipment that may present a hazard to the person has been disconnected from its power source, real, or residual, and has been locked out: and
  - g. the opening for entry into and exit from the confined space is sufficient to allow the safe passage of a person using protection equipment.
5. **Safe for hot work:** Hot work shall not be performed in any space that contains an explosive or flammable hazardous material in a concentration in excess of 10% of its lower explosive limit, or oxygen at a concentration in excess of 23%.
6. **Hot Work:** Any activity which has the potential of generating a source of ignition. Examples include but may not be limited to burning, welding and grinding or spark producing equipment.
7. **Qualified person:** A person who, because of knowledge, training and experience, is qualified to perform safely and properly the duties specified under this Directive for hazard assessment, entry procedures, emergency procedures and the issue of “Safe to enter” and “Safe for hot work” permits, see references C and D.
8. **Workshop:** The designated spaces where personnel can conduct hot work.

## Responsibilities

9. The Formation Safety Officer is the OPI for MARLANT's Confined Space Entry Program.

## Direction

10. Ships/Shore Units that may require personnel to enter confined spaces, and conduct hot work in such spaces, shall have documented Standard Operating procedures (SOPs) to ensure these activities are conducted safely and IAW references A and B. The SOP(s) shall detail:

- a. Roles and responsibilities of all personnel involved in the confined space safety program;
- b. The extent of confined space awareness training given to all personnel;
- c. the criteria used and training provided to qualify, and requalify the personnel who assess the risk of entry and issue confined space entry permits;
- d. the number of current qualified personnel in the ship/unit;
- e. the process used to ensure that a confined space is safe to enter and conduct hot work;
- f. the precautions used prior to opening a confined space;
- g. the PPE used and the circumstance of its use during confined space entry;
- h. the use of sentries;
- i. the use of forced air venting;
- j. the frequency of atmospheric testing, and response to out-of-specification readings;
- k. the availability of emergency response procedures and equipment;
- l. records management for training records and permits; and
- m. the confined spaces under the ship/unit's jurisdiction showing the hazard level.

**Records**

11. All of the following completed forms shall be retained as records by units, or FSE as applicable, for 30 years after the last date of entry:

- a.      Confined space entry training; and
- b.      Confined Space Entry/Hot Work Permits.

**Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721- 5472

## DIRECTIVE #S11 – HOT WORK

### References

- A. C-03-005-033/AA-000 Naval Engineering Manual, Welding and Cutting
- B. C-03-040-000/TS-001 Maritime Command Precautions and Safety Practices for Welding and Burning
- C. C-020-040-009/AG-001 DND General Safety Standards, Chapter 25, Welding and Cutting Operations Safety Standard.
- D. MARCORD 66-01 General Safety Program, Annex H, Welding and Burning.

### Purpose

- 1. To provide direction and assign responsibility for implementing the MARLANT Hot Work Safety Program to maximize the safety of all civilian and military personnel.

### Scope

- 2. This directive applies to all MARLANT units including integral and assigned lodger units in the jurisdiction of the Commander Maritime Forces Atlantic. The Hot Work Safety Program regulates the conduct of hot work outside of workshops. Hot work in a confined space is covered by Directive #S10, Confined Space Entry.

### Definitions

3. **Burning:** The cutting of metal using welding equipment to melt the metal, leaving a void or cut. Cutting operations includes arc cutting, oxygen cutting, thermal cutting or other relevant cutting processes.

4. **Hot Work:** Any activity which has the potential of generating a source of ignition. Examples include but may not be limited to burning, welding and grinding or spark producing equipment.

5. **Grinding:** The removal of coatings on a metal surface, or of metal, normally through the use of portable tools or abrasive wheels.

6. **Qualified person:** A person who, because of knowledge, training and experience, is qualified to conduct hot work safely and/or issue “Safe for hot work” permits.

7. **Welding:** The joining of metal using welding equipment to fill the void. This includes arc welding, brazing, oxy-fuel gas welding, or other relevant joining processes.

8. **Workshop:** In the case of hot work, workshop is the designated spaces where personnel can safely conduct hot work.

## Responsibilities

9. The Formation Safety Officer is the OPI for the MARLANT Hot Work Safety Program.

10. The CFB Halifax Fire Chief for shore units, or the UGSO/MSEO for ships, shall be consulted prior to conducting any hot work operations outside designated workshops.

11. The UGSO for shore units and the OOD for ships, is responsible for the overall safety of the unit/ship and thus regulates all hot work being carried out.

## Direction

### General

12. Units/ships required to conduct hot work outside of workshops shall have a documented procedure to ensure that the work is carried out safely. A “safe for Hot Work” Permit shall be issued prior to conducting any hot work. The Permit shall contain the information shown in the Hot-Work Permit given in Directive #S7, Safety Permit Program at Annex S7B.

### Ships

13. Ships Classes shall have a Standard Operating Procedure (SOP) detailing how hot work is conducted safely outside of workshops. The SOP shall include, but not be limited to:

- a. Contacting UGSO/OOD before hot work is conducted outside of a workshop;
- b. Assigning authority for hot work
- c. List of persons qualified to issue “Safe for Hot Work Permits, the training/experience required to become qualified and the qualification/re-qualification process;
- d. The process for establishing a space is safe for hot work and issuing of “safe for Hot Work” permits;
- e. Appointment and briefing of the fire sentries;
- f. Precautions taken by fire sentries before, during and after the Hot Work is conducted, i.e.: inspection of adjacent spaces; ensuring adequate ventilation; aware of appropriate signals for if help is required; having the correct fire extinguisher; aware of all potential hazards; removal or protection of combustible materials in adjacent spaces/compartments

within 10 meter radius; posting welding checks; and reading and signing the Safe to Work Permit; conducting final check 30 minutes after hot work is completed;

- g. Awareness training of all personnel, and specific training/education of persons conducting the Hot Work;
- h. Advising UGSO/OOD when the work is completed; and
- i. Records management.

### **Shore Units**

14. All Hot Work permits for shore units shall be issued by the Fire Department, (see MARLANT SEMS, Directive #S7: Safety Permit Program for permit format). Before approving any hot work, a Senior Fire Fighter shall inspect the work area and confirm that precautions have been taken to prevent fires. Precautions to include, but limited to:

- a. Check detection systems and cutting and welding equipment;
- b. Ensure suppression systems are in order;
- c. Within 10.5 meters (35 feet): ensure floors are clear of combustibles and combustible floors are protected; remove combustibles from area if possible, otherwise protect them; cover all wall and floor openings; and suspend covers beneath the work to collect sparks;
- d. If working on walls or ceilings, ensure they are of non-combustible construction, or covering; and remove combustibles from opposite side of wall and above ceilings;
- e. If working on enclosed equipment, ensure it is clean of all combustibles and containers have been purged of vapours (see reference C; and
- f. Fire Watch to be provided during Hot Work, and to conduct final check-up 30 minutes after hot-work operation completed. Fire Watch to have all necessary emergency equipment and training.

### **Records**

Hot Work Permits to be retained for at least one year.

### **Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5472

## DIRECTIVE #S12 – NON-IONIZING RADIATION HAZARDS (RADHAZ) SAFETY

### References

- A. Health Canada Safety Code 6;
- B. CFAO 34-51;
- C. CFTO C-55-040-001/TS-001 Radio Frequency Safety Program;
- D. MARCORD 43-02;
- E. COHS Regulations, Part X, made under the Canada Labour Code, Part II.

### Purpose

1. To provide direction and assign responsibility for implementing the Non-ionizing Radiation Safety program in order to maximize the safety of civilian and military personnel.

### Scope

2. This directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic, but primarily applies to personnel while employed onboard HMC ships, submarines and auxiliary vessels.

### Definitions

3. **Hazard of Electromagnetic Radiation to Fuel (HERF):** The potential of electromagnetic radiation, at sufficient energy levels, to ignite fuel vapours through spark generation.
4. **Hazards of Electromagnetic Radiation to Ordnance (HERO):** The potential of electromagnetic radiation, at sufficient energy levels, to produce undesirable effects in ordnance and ammunition through spark generation.
5. **Hazards of Electromagnetic Radiation to Personnel (HERP):** The potential for electromagnetic radiation to produce harmful biological effects in humans, by direct contact or through proximity to a radiating source.
6. **Maximum Exposure Level (MEL):** The distance, in metres, at which compliance with exposure limits in reference A, General Public Limits/non-occupational limits, are achieved.
7. **Non-ionizing electromagnetic radiation or Radio Frequency (RF) radiation:** The electromagnetic spectrum between 3 kHz - 300 GHz that does not have enough energy to produce ionization in matter, i.e. nuclear radiation. “Non-ionizing” and “radio frequency” are considered to be synonymous.

## Responsibilities

8. Within MARLANT the Formation Safety Officer through the SO RADHAZ Safety is the OPI for this Non-ionizing Radiation Safety Program. SO RADHAZ Safety is responsible for:

- a. contact with MARCOM RadHaz Safety Officer, 1 Canadian Air Division and units within MARLANT;
- b. assist in the development of RadHaz/RF safety policies, standards and procedures;
- c. direct contact with the public, other government departments, and foreign governments, on matters pertaining to non-ionizing radiation safety;
- d. ensures units adhere to RF safety policies, standards and procedures through the conduct of inspections and audits;
- e. maintains a nominal role of Unit RadHazSOs;
- f. maintains information pertaining to fitted emitters, surveys, incidents, actions taken for each shore establishment (SHIPs ALSO?);
- g. co-ordinates Formation RADHAZ (RF) safety training;
- h. co-ordinates survey requirements in accordance with reference A; and
- i. ensures RADHAZ incidents are promptly investigated.

9. Commanding Officers are responsible to ensure that RF emissions are under strict control at all times. Ships and shore based units shall ensure that areas with higher than permitted maximum exposure levels (MELs) for RF radiation are free of personnel, and objects and that all appropriate warnings have been given. Commanding Officers of units shall appoint a Unit RADHAZ Officer. In major warships and submarines the Naval Combat Systems (NCS) Engineering Officer (CSEO) shall be designated as the URADHAZO. The Combat Systems Engineering Chief Petty Officer shall normally be designated as the alternate. In the KINGSTON Class the Senior Naval Communicator will normally be designated URADHAZO.

10. At the CO's discretion, a member should be selected with the maximum experience in RF safety. The Alternate URadHazO is appointed by the URadHazO and is responsible for the daily implementation of the Unit's RadHaz Safety Program. The Alternate URadHazAZO has delegated signing authority for DND 2145 control chits as deemed appropriate by the URadHazO.

11. The URADHAZO (and alternate) shall:

- a. have the URADHAZ AJCQ designation for major and minor warships and submarines or the AJAH designation for auxiliary vessels and shore units;
- b. advise the SO RADHAZ Safety of the appointee particulars;
- c. be fully conversant with the contents of this Directive and its related references;
- d. ensure that unit personnel are well informed of and adhere to RF safety policies, standards and procedures;
- e. develop and implement an RF training program that is appropriate for all unit's personnel according to their duties;
- f. maintain pertinent information dealing with RF policy documentation, fitted emitters, survey reports, incidents, and actions taken;
- g. provide assistance to resolve RF related work conflicts between units;
- h. ensure that all RF devices within their area of jurisdiction are properly installed, maintained, surveyed and operated in accordance with relevant instructions.
- i. conduct annual Radiation Hazard Safety Program (RASP) self audits;
- j. co-ordinate unit surveys with the SO RADHAZ Safety; and
- k. ensure that unit RadHaz safety infractions, EMI and overexposure incidents are promptly investigated and reported to the SO RADHAZ Safety.

## Direction

### Standard Operating Procedures (SOPs)

12. All units with RF devices shall have detailed standard operating procedures that ensure their safe operation covering, Training/Education, Man Aloft, Crane Operation, CIWS Upload/Download, CIWS Shoot, Positive Control, Flash Up, Coming Alongside, Immediate Threats and Antenna Rotation.

13. Once the DND 2145 has been initiated and work has commenced, any changes must be annotated on all copies, initialled and agreed to by all parties.

14. The URFSO shall retain the white copy of all control chits and they shall be forwarded to SO RADHAZ Safety, along with the annual report, for retention. These control chits are to be retained by the FRFSO for a period not less than 5 years.

### **Performance Evaluation and Reporting**

15. A program measurement and evaluation process will be used to assess the effectiveness of the RadHaz Safety Program. The process will include RadHaz Safety Program audits to ensure:

- a. all personnel and equipment are safe during RF operations;
- b. RF safety policies/procedures are implemented and enforced; and
- c. Command/Formation RF safety experience is imparted to the Fleet.

16. Formal RADHAZ Safety Program audits shall be carried out by the SO RADHAZ Safety on all MARLANT units fitted with, or using, RF and/or secondary X-Ray emitting devices at least every 36 months. Individual units shall perform self-audits annually.

17. Individual units shall send annual RADHAZ Safety Program reports via message or e-mail to the SO RADHAZ Safety no later than end January. Annual RADHAZ Safety Program reports shall include the following as a minimum:

- a. the number of audits, surveys and inspections completed;
- b. future surveys required;
- c. list of RF incidents;
- d. completed DND 2145 chits forwarded to SO RADHAZ Safety;
- e. description of any improvements or modifications to the unit's RADHAZ Safety Program;
- f. current Unit RADHAZO: Name, Local, and A/Unit RADHAZO: Name, Local;
- g. any anticipated changes to incumbents; and
- h. any other pertinent information regarding the unit's RadHaz Safety Program.

18. The Formation shall compile unit submissions and submit an annual MARLANT report to MARCOM RADHAZ SO by end February each year, which details the program activities for the Formation. The report shall include:

- a. all audits, surveys and inspections completed;

- b. schedule for future audits and inspections;
- c. details of all major and minor RF incidents; and
- d. any improvements or modifications to the overall program.

### **General HERP Instructions**

19. HERP MEL distances, and the associated restrictions to personnel and to adjacent ships are determined by QETE RF Safety survey results. These are found by ships class in the annexes of reference D, MARCORD 43-02. Ships shall ensure that all MEL distances are observed when radiating RF energy towards adjacent and/or vessels in proximity (VIP). If the MEL distance cannot be observed then the emitter shall be secured or have positive control exercised over it.

### **General HF Restrictions**

20. Long thin conductors, with a vertical component when exposed to an external HF field may re-radiate RF energy and pose a RF contact current risk to personnel. To minimise the risk of this RF hazard, all HF transmissions within 100 m shall be ceased when evolutions require personnel to be in direct contact with potential re-radiators.

21. Where specific class of ship restrictions require an area of the upper deck to be placed out of bounds, all doors and hatches leading directly to the out of bounds area shall be closed and marked with appropriate signage.

### **General HERO Instructions**

22. During ammunition evolutions, ships shall follow the restrictions detailed in the HERO table of each class of ship annex and reference D regulations. While alongside and at sea, all VIP(s) shall follow the applicable HERO restrictions. In addition, local regulations shall be followed when they are more restrictive.

23. During a Replenishment At Sea (RAS), in addition to ammunition regulations at reference B, all ammunition and explosive items shall be transferred in their sealed CF approved service containers. Restrictions for simultaneous transfer of fuel and ammunition are found at reference B.

24. Portable radios, including PRCs and cellular phones, shall not be carried and/or operated within five (5) meters of HERO Unsafe or HERO Susceptible ammunition and within one (1) meter of ammunition that is HERO Safe.

25. Where no specific precautions exist for ammunition not normally embarked, guidance shall be sought from the SO Explosives, or the MARCOM RADHAZ SO, through the SO RADHAZ Safety.

## General HERF Instructions

26. Fuels with a flash point above 60°C, such as F76 and F44, are considered non-hazardous when exposed to RF radiation.

27. All other flammable materials, such as gasoline, propane and varsol, with flash points below 60 °C are considered potentially hazardous when exposed to RF radiation and shall be stored or transported in a CF approved container. If fuels and liquids with flash points below 60°C require transferring, or handling, outside their approved container, or if the containers are open or leaking, a 10 meter HERF safety distance is required. This also applies to PRC and cell phones. If the flash point is unknown then it should be assumed to be less than 60 °C. Where local regulations are more restrictive, units shall adhere to local regulations.

## Replenishment At Sea (RAS)

28. In situations, which prevent the switching of radar to standby, sector blanking of radars with a MEL greater than the RAS distance shall be used to provide an RF safe corridor to RAS. The sector-blanked area shall consist of the entire engaged side (180°), and shall be applied before the ship assumes station. In addition, control measures for the STIR/CWI, LIROD, RAMSES, SHF and CIWS shall be taken to ensure that the RAS ship is not illuminated.

29. Vessels conducting a RAS with a Canadian AOR shall not exceed a total combined power of 600W on HF. If there are two vessels in RAS station they each may radiate up to 600W HF. Vessels are reminded however that there is still a requirement to adhere to the class restriction regarding HF contained in the annexes of reference D. Due to grounding and limited vertical components, the span wire does not present a contact current hazard.

## General EMI Instructions

30. In the case of a reported or suspected EMI incident, ships shall immediately cease transmissions and record the date, time, location and description of the incident along with the complainant's name and phone number. This information plus the emitter operating parameters are to be sent via message directly to the SO RADHAZ Safety with an information copy to NDHQ/MSRMS 8 and DGMEPM/DMSS for follow-up, investigation and action. The Regional Joint Operations Centre (RJOC) shall also be contacted in order to inform other ships of the situation, so that any suspect transmissions can quickly cease.

## Installation of new Shipboard Emitters

31. All new emitters (and associated systems upgrades) shall be surveyed prior to being put into service. When a HMC Ship is receiving new shipboard emitters (via configuration change, temp EC, or mission fit), the Configuration Management Officer

shall liaise with FMFCS and SO RADHAZ Safety/URADHAZO to coordinate survey requirements. In the event that a QETE survey cannot be completed prior to equipment usage, an FMFCS verification can be completed with the approval of MARCOM RADHAZO.

### **Test Equipment**

32. Approved RF survey equipment is to be used by FMFCS personnel and ship's staff prior to, and after maintenance procedures on RF emitters and wave-guides to ensure there are no RF leaks in the equipment. Units must maintain an accurate log of all RF leak checks using the recording sheet contained in Annex K of reference D. The RF Check Recording sheets are to be held onboard and forwarded to the SO RADHAZ Safety along with the DND 2145 Person Aloft/RF Radiate/Antenna Rotate Control Chits at the end of each year.

### **Shore Units with RF Emitters**

33. Shore units with RF emitters shall establish and maintain control over the access to RadHaz danger zones, such as rooftops where RF antennas are mounted. In addition, any unit operating an RF emitter (building, site or vehicle) is responsible for its safe operation and therefore, shall appoint a URADHAZO that shall liaise with the SO RADHAZ Safety to ensure compliance.

### **Training and Education**

34. An understanding of RADHAZ and the associated safety policies requires continuous training. In particular every member who uses RF devices shall receive two annual RADHAZ lectures each year to be given by the URADHAZO or alternate:

- a. CRR 2A17 - Non-Ionizing Radiation Safety; and
- b. CRR 2A18 - Shipboard RADHAZ Management Lecture.

35. The URADHAZO shall also be a member of OOD qualification boards and the board will include a RADHAZ scenario. The URADHAZO shall be added to the in-routine card and will provide a brief overview of the unit RASP to all members joining the ship.

36. Routine orders shall include a periodic RADHAZ related entry. This entry is not required in every edition, but the frequency of entries is at the discretion of the URADHAZO and the ship's office.

37. The URADHAZO or a designated member of the CSED can deliver other lectures as deemed appropriate to ensure members of the ship's company know and follow the RF Safety Program.

38. Training records shall be maintained and presented to SO RADHAZ Safety during audits and inspections as required.

### **RadHaz Incident Reporting Procedures**

39. Units shall report all RADHAZ incidents via message within 48 hours to the SO RADHAZ Safety (Info NDHQ CMS OTTAWA/MSRMS 8).

40. RADHAZ incidents may be classified as follows:

- a. Major: includes those incidents that have resulted in known or suspected over-exposure of personnel to RF energy or contact currents; and
- b. Minor: incidents include all other situations where there was a violation of RADHAZ policies and procedures

41. All RADHAZ incidents shall be reported immediately to the URADHAZO. For Major incidents the URADHAZO shall investigate and ensure:

- a. the person involved is examined immediately by a medical authority in accordance with Medical Directive 1-02 (Medical Handling of Suspected or Actual Overexposure to Radio Frequency and Microwave Radiation);
- b. the equipment involved is not returned to normal service until an initial investigation is completed;
- c. the incident report message shall include the following details:
  - i. the system radiating, specifically frequency and power output;
  - ii. number and identity of people exposed;
  - iii. the length of exposure time;
  - iv. distance from the antenna;
  - v. immediate actions taken and any corrective actions taken, and
  - vi. any other relevant information; and
- d. As appropriate, form DND 663- DND/CF General Safety Hazardous Occurrence Investigation Report and form CF 98 - Report on Injuries or Exposure to Toxic Material, are completed and contain a record of the information specified above, an analysis of the causes of the incident and a statement of corrective actions taken.

42. For minor incidents the URADHAZO shall investigate and provide, in the message, pertinent details WRT the violation of policies and procedures.

43. Minor incidents will not normally result in a summary investigation, but will require units to take remedial action to prevent a re-occurrence of the violation. For

major incidents, the SO RADHAZ Safety in consultation with the MARCOM RADHAZO will provide recommendations for follow up action as warranted.

### **Records**

Completed Forms  
DND 2145  
DND 663  
CF 98

### **Enquiries**

MARLANT, Formation Safety and Environment:  
SO Radiation Hazards Safety (RADHAZ Safe): Tel. 902-721-5474

## DIRECTIVE #S13 – LASER SAFETY PROGRAM

### References

- A. COHS Regulations Part X, made under the Canada Labour Code, Part II;
- B. MARCORD 64-04, Laser Safety;
- C. DAOD 2050-0 and 2050-1;
- D. CFTO C-02-040-002/TS-001, Laser Safety Ch/Mod 1 – 2003-01-20;
- E. ANSI Standard Z 136.1 Guidance only;
- F. IEC 60825-1, International Electro-technical Commission “Safety of Laser Products”;
- G. CF H Svcs Gp Policy and Guidance 4440-13, Medical Surveillance of Personnel Occupationally Exposed to Hazardous Laser Devices;.
- H. MARLANT SEMS Directive #S4: Hazardous Occurrence Investigation, Reporting and Analysis.

### Purpose

1. To provide direction and assign responsibility for implementing the Laser Safety program in order to maximize the safety of civilian and military personnel.

### Scope

2. This directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic, but primarily applies to personnel while employed onboard HMC ships, submarines and auxiliary vessels.

### Definitions

3. **Class 1 Laser:** Considered to be incapable of producing damaging radiation levels during operation, and exempt from any control measures or other forms of surveillance.

*Note: for the purposes of this directive, products which have been classified previously as Class IIa under the U.S. Federal Laser Product Performance Standard (FLPPS) should be treated the same as Class 1.*

4. **Class 1M Laser system:** Considered to be incapable of producing hazardous exposure conditions during normal operations unless the beam is viewed with an optical instrument such as an eye-loupe (diverging beam) or a telescope (collimated beam). Exempt from any control measures other than to prevent potentially hazardous aided viewing, and is exempt from other forms of surveillance.

5. **Class 2 Laser system:** Emits in the visible portion of the spectrum (0.4 to 0.7 microns), and eye protection is normally afforded by the aversion response.

6. **Class 2M Laser system:** Emits in the visible portion of the spectrum (0.4 to 0.7 microns), and eye protection is normally afforded by the aversion response for unaided viewing. However, Class 2M is potentially hazardous if viewed with certain optical aids.

7. **Class 3 Laser system (medium-power):** May be hazardous under direct and specular reflection viewing conditions, but is normally not a diffuse reflection or fire hazard. There are two subclasses, 3R and 3B.
8. **Class 3R Laser system:** Is potentially hazardous under some direct and specular reflection viewing conditions if the eye is appropriately focused and stable, but the probability of an actual injury is small. This laser will not pose either a fire hazard or diffuse-reflection hazard.
9. **Class 3B Laser system:** May be hazardous under direct and specular reflection viewing conditions, but is normally not a diffuse reflection or fire hazard.  
*Note: For lasers classified as Class IIIa, see Reference E, Appendix H for guidance.*
10. All Class 3 lasers need to have protective measures in place for safe operation. The upper power limit for a CW Class III laser is 0.5 Watts. Class 3 lasers cannot be operated until the need to use them is established. This is done by contacting the Laser Systems Safety officer.
11. **Class 4 Laser system (high-power):** A hazard to the eye or skin from the direct beam, which may pose a diffuse reflection or fire hazard. May also produce laser generated air contaminants (LGAC) and hazardous plasma radiation.
12. **Classification:** It is DND policy that all Laser systems under its control are classified IAW international standards such as ANSI Z 136.1, reference E, and IEC 60825-1, International Electro-technical Commission “Safety of Laser Products”, reference F.
13. **Extended Nominal Ocular Hazard Distance (ENOHD):** This Distance takes into account the use of binoculars/big eyes.
14. **Laser:** An acronym for Light Amplification by Stimulated Emission of Radiation. These devices generate an intense beam of coherent monochromatic light, or other electromagnetic radiation, by stimulated emission from excited atoms or molecules.
15. **Maximum Permissible Exposure (MPE):** The maximum level of laser radiation to which a person may be exposed without adverse affect.
16. **Nominal Hazard Zone (NHZ):** The space within which the level of direct, reflected or scattered laser radiation exceeds the level of the applicable MPE.
17. **Nominal Ocular Hazard Distance (NOHD):** The distance along the axis of the beam within which the exposure level is greater than the appropriate MPE.
18. **Optical Density (OD):** The attenuation produced by a filter such as Laser Eye Protection.
19. **Shipboard Electro-Optic Surveillance System (SEOSS):** SEOSS laser illuminator is a Class IV laser than can cause eye injury if used improperly. Exposure of the eye to either the

direct beam, or a beam reflected from a flat mirror-like surface, could cause an injury within the NHZ.

## **Responsibilities**

### **Formation Laser Safety Officer**

20. The SO Laser Safety is the MARLANT Laser Systems Safety Officer. The incumbent shall be trained to the national level standard (currently AEWF, Laser Safety Officer), or recognized equivalent. The SO Laser Safety is responsible for:

- a. official contact with MARCOM, Cdn Air Div and units within the Formation regarding Laser safety;
- b. assisting in the development of laser safety policies, standards and procedures for MARCOM;
- c. developing, implementing and maintaining MARLANT Laser safety policies, standards and procedures;
- d. direct contact with the public, other government departments, and foreign governments, on matters pertaining to laser safety;
- e. ensuring MARLANT integral and assigned lodger units are informed of and adhere to laser safety policies, standards and procedures;
- f. ensuring the enforcement of the policy through the conduct of inspections and audits;
- g. maintaining a list of Unit Laser System Safety Officers (ULSSOs);
- h. maintaining information pertaining to unit laser systems (3b and 4), incidents, and actions taken;
- i. co-ordinating Formation Laser Safety training;
- j. ensuring that Laser Safety incidents are promptly investigated.

**Unit Laser Systems Safety Officer**

21. Commanding Officers of units shall appoint a Unit Laser Safety Officer (ULSSO) in accordance with reference C. The Unit Laser Systems Safety Officer shall:

- a. Be trained to the national level standard (currently AEWF) or recognized equivalent;
- b. advise the SO Laser Safety of the appointee's name, rank and contact information;
- c. be familiar with the contents of this Directive and its related references;
- d. ensure that unit personnel are well informed of and adhere to laser safety policies, standards and procedures;
- e. develop and implement a training program that is appropriate to all units' personnel, according to their employment;
- f. maintain pertinent information dealing with policy documentation, fitted emitters, survey reports, incidents, and actions taken;
- g. provide assistance to resolve Laser Safety related work conflicts between units;
- h. ensure that all Laser devices classified as 3B or 4 within their jurisdiction are properly installed, maintained, surveyed and operated in accordance with relevant instructions and details of these devices forwarded to SO Laser Safety;
- i. co-ordinate unit surveys with SO Laser Safety; and
- j. ensure that unit Laser safety infractions and overexposure incidents are promptly investigated and reported to SO Laser Safety.

**Direction****General**

22. This Directive is intended to ensure that the appropriate measures and controls are in place to protect personnel while working around or operating Laser systems, equipment and devices. It applies to all hazardous laser systems that are capable of exceeding the appropriate MPE.

## Laser Safety Program SOPs

23. As part of the Laser Safety Program units shall develop a Standard Operational Procedure (SOP) for the use of Laser equipment and devices. The Commanding Officer of a unit employing lasers shall require that a written SOP appropriate to the classification of the laser be developed and used for the orientation of personnel appropriate to their responsibilities in the laser-controlled area. Successful completion of the orientation program shall be documented. The SOPs shall specify at a minimum:

- a. the control measures that are to be used for each laser used in the work place;
- b. the type of PPE to be worn for each class of laser;
- c. the safety precautions that are to be used; and
- d. training requirements of those personnel who are required to work with lasers.

24. An example of a Laser Safety SOP, is given in reference B, Annex C.

## Inspections

25. Inspections shall be carried out by a Qualified Person. This Directive will use the Canada Occupational Health and Safety Regulations definition where, "a qualified person is someone who, because of his/her knowledge, training and experience, is qualified to perform the relevant duty safely and properly".

## Training

26. Personnel who oversee the operations, planning, or exercises involving the use of Class 3B or 4 laser systems shall be qualified to the approved national standard. Personnel who are laser operators or who work in a laser environment shall receive, as a minimum, a laser safety awareness briefing. This briefing consists of, but is not limited to the following topics:

- a. Regulations and SOPs;
- b. classification of lasers;
- c. the hazards of working with lasers;
- d. safety precautions;
- e. use of personnel protective equipment (PPE);
- f. inspections;
- g. use of signs;
- h. use of engineering controls; and
- i. LSSO responsibilities.

Note: This awareness briefing may only be provided by someone qualified as a Formation or Unit LSSO.

## Reporting Laser Accidents/Incidents

27. Following an accident involving a laser, investigation and reporting shall be carried out as required by A-GG-040-001/AG-001. The Laser Safety Officer shall gather sufficient information to determine whether or not there was any omission of reasonable and proper precautions.

28. The procedures to be followed for investigating and reporting an incident involving suspected overexposure of personnel to laser radiation shall be reported immediately to the LSSO. A delay (of even hours) in receiving any available treatment for a laser overexposure could render the treatment ineffective. In all cases, Unit LSSO shall investigate and ensure that:

- a. the person involved is examined immediately by a physician in accordance with reference G;
- b. the equipment involved is not returned to normal service until an initial investigation is completed;
- c. the incident is reported within 48 hours to the Formation LSSO (Info NDHQ/CMS/MSRMS 8) via an incident message. The Formation LSSO will provide the recommendation as to the requirement for a Summary Investigation. The following details shall be included in the message:
  - i. the laser system involved, specifically wavelength NOHD and power output;
  - ii. number and identity of people exposed;
  - iii. the duration of exposure;
  - iv. distance from the output aperture;
  - v. environmental conditions (time of day, weather, etc);
  - vi. immediate actions taken; and
  - vii. any other relevant information.
- d. form DND 663- DND/CF General Safety Hazardous Occurrence Investigation Report is completed and contains a record of the information specified above, an analysis of the cause(s) of the incident and a statement of the corrective action taken. If a military member is involved also complete form CF 98 - Report on Injuries or Exposure to Toxic Material.

**Record Keeping**

29. An inventory of all Class 3b and 4 lasers shall be kept by the SO Laser Safety, with a copy forwarded to the MARCOM LSO. This inventory shall be reviewed annually and when there is a change in the SO Laser Safety, or a change in inventory.

30. Operating/Firing Log: a firing log for all 3b and 4 lasers shall be maintained IAW reference A. Information in the log shall, as a minimum, include: the name of system, location, date and duration of operation.

31. Training Records: Formations shall ensure that individual units maintain training records for all personnel.

32. Audits and Inspections: Formations shall maintain unit audit and inspection records for five years.

33. Hazardous Occurrence Reporting: Formations shall maintain hazardous occurrence reports IAW ref H.

**Enquiries**

MARLANT, Formation Safety and Environment:  
SO Laser Safety (SO Laser Safe): Tel. 902-721-5474

## DIRECTIVE #S14 LASER RANGES

There is no MARCOM Direction on this subject.

### References

- A. C-02-040-002/AA-000 Evaluation and Control of LASER Hazards
- B. ANSI Standard Z136.1, Safe Use of LASERS
- C. CFMO 4440-13 Medical Surveillance of Personnel Occupationally Exposed to Hazardous Laser devices (supercedes CFMO 27-13 for administrative purposes only).
- D. U.S. Department of Defense Handbook Laser Safety on Ranges and in Other Outdoors Areas, MIL-HDBK-828A.

### Purpose

1. To provide direction and assign responsibility for implementing the LASER Range Safety aspects of the LASER Safety program within MARLANT.

### Scope

2. This directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic, but primarily applies to personnel while employed onboard HMC ships, submarines and auxiliary vessels.

### Definitions

3. **Class 1 Laser:** Considered to be incapable of producing damaging radiation levels during operation, and exempt from any control measures or other forms of surveillance.

*Note: for the purposes of this directive, products which have been classified previously as Class IIa under the U.S. Federal Laser Product Performance Standard (FLPPS) should be treated the same as Class I.*

4. **Class 1M Laser system:** Considered to be incapable of producing hazardous exposure conditions during normal operations unless the beam is viewed with an optical instrument such as an eye-loupe (diverging beam) or a telescope (collimated beam). Exempt from any control measures other than to prevent potentially hazardous aided viewing, and is exempt from other forms of surveillance.

5. **Class 2 Laser system:** Emits in the visible portion of the spectrum (0.4 to 0.7 microns), and eye protection is normally afforded by the aversion response.

6. **Class 2M Laser system:** Emits in the visible portion of the spectrum (0.4 to 0.7 microns), and eye protection is normally afforded by the aversion response for unaided viewing. However, Class 2M is potentially hazardous if viewed with certain optical aids.

7. **Class 3 Laser system (medium-power):** May be hazardous under direct and specular reflection viewing conditions, but is normally not a diffuse reflection or fire hazard. There are two subclasses, 3R and 3B.

8. **Class 3R Laser system:** Is potentially hazardous under some direct and specular reflection viewing conditions if the eye is appropriately focused and stable, but the probability of an actual injury is small. This laser will not pose either a fire hazard or diffuse-reflection hazard.

9. **Class 3B Laser system:** May be hazardous under direct and specular reflection viewing conditions, but is normally not a diffuse reflection or fire hazard.

*Note: For lasers classified as Class IIIa, see Reference E, Appendix H for guidance.*

10. All Class 3 lasers need to have protective measures in place for safe operation. The upper power limit for a CW Class III laser is 0.5 Watts. Class 3 lasers cannot be operated until the need to use them is established. This is done by contacting the Laser Systems Safety officer.

11. **Class 4 Laser system (high-power):** Is a hazard to the eye or skin from the direct beam, and may pose a diffuse reflection or fire hazard. May also produce laser generated air contaminants (LGAC) and hazardous plasma radiation.

12. **Classification:** It is DND policy that all Laser systems under its control are classified IAW international standards such as ANSI Z 136.1 and IEC 60825-1, International Electro-technical Commission “Safety of Laser Products”.

13. **Extended Nominal Ocular Hazard Distance (ENOHD):** This Distance takes into account the use of binoculars/big eyes.

14. **Laser:** An acronym for Light Amplification by Stimulated Emission of Radiation. A device that generates an intense beam of coherent monochromatic light, or other electro-magnetic radiation, by stimulated emission from excited atoms or molecules.

15. **Laser Hazard Hemisphere (LHH):** A hemisphere centred on a laser the radius of which is equal to the OHD as appropriate.

16. **Maximum Permissible Exposure (MPE):** The maximum level of laser radiation to which a person may be exposed without adverse affect.

17. **Nominal Hazard Zone (NHZ):** The space within which the level of direct, reflected or scattered laser radiation exceeds the level of the applicable MPE.

18. **Nominal Ocular Hazard Distance (NOHD):** The distance along the axis of the beam within which the exposure level is greater than the appropriate MPE. The extended Nominal Ocular Hazard Distance (ENOHD) is the equivalent intra-beam safe distance when magnifying optics are used

19. **Ocular hazard distance (OHD):** The intra-beam safe viewing distance in an actual case, taking into account all the corrections that need to be applied to the NOHD or ENOHD.

20. **Optical Density (OD):** Logarithmic expression for the attenuation produced by a filter such as Laser Eye Protection.

21. **Shipboard Electro-Optic Surveillance System (SEOSS):** SEOSS laser illuminator is a Class IV laser than can cause eye injury if used improperly. Exposure of the eye to either the direct beam, or a beam reflected from a flat mirror-like surface, could cause an injury even at great distance.

## Responsibilities

### Formation Laser Safety Officer

22. Within MARLANT the Formation Safety Officer through the SO Laser Safety is the OPI for Laser Range Safety direction. The SO Laser Safety shall be trained to the national level standard (currently AEWF), or recognized equivalent. The SO Laser is responsible for:

- a. official contact with MARCOM, Canadian Air Div and units within the Formation regarding Laser safety;
- b. assisting in the development of laser safety policies, standards and procedures for MARCOM;
- c. developing, implementing and maintaining MARLANT Laser safety policies, standards and procedures;
- d. direct contact with the public, other government departments, and foreign governments, on matters pertaining to laser safety
- e. ensuring MARLANT integral and assigned lodger units are informed of and adhere to laser safety policies, standards and procedures;
- f. ensuring the enforcement of the policy through the conduct of inspections and audits;
- g. maintaining a list of Unit Laser System Safety Officers (ULSSOs);
- h. maintaining information pertaining to unit laser systems (3b and 4), incidents, and actions taken;
- i. co-ordinating Formation Laser Safety training; and
- j. ensuring Laser Safety incidents are promptly investigated.

## Range Authority

23. Laser Range safety is the responsibility of the Range Authority who is responsible for:

- a. Requesting the Laser Hazard Hemisphere (LHH) of every Laser system participating in the laser training;
- b. Informing all participating units using the Range the LHH dimensions;
- c. Providing all participating units the route details and the position of static targets and tracks of moving targets;
- d. Providing the LHH for targets;
- e. Coordinating the movements of the participating units and moving targets;
- f. Ensuring that the LHH is clear of all personnel who may be at risk;
- g. Authorizing the start of the laser training;
- h. Suspending laser training immediately if:
  - i. Unauthorized vessels or aircraft enter the Range;
  - ii. Sea conditions will not allow stabilization of the laser system; and
  - iii. Safety distances cannot be satisfied.

## Vessel or Aircraft Captain

24. Vessel and aircraft captains must ensure that only agreed targets are illuminated by the laser and must switch off the laser system and advise the Range Authorities if the laser platform cannot be stabilized.

## Direction

### General

25. Although this Directive applies to Class 3B and Class 4 lasers it should be remembered that there are also hazards associated with Class 1, Class 2 and Class 3A lasers. For example the light from a Class 2 laser may dazzle motorists or aircrew, which might lead to an accident. Hence Range Authorities must take into account the potential presence of members of the public when developing Range rules.

26. Calculated OHD often extend beyond the limit of the Range or training areas in which lasers are used, in particular where magnifying optical instruments are used, or atmospheric turbulence may cause areas within the laser beam of higher than average

intensity. If it is known these conditions may apply then the appropriate factors must be taken into account in determining the OHD for Range safety.

27. Where the OHD exceeds the distance to the Range boundary, or where persons might be at risk within the OHD, it is essential that either the laser beam is terminated by a natural/man-made back-stop within the Range or training area, or adequate surveillance maintained to ensure no one is at risk.

### **Range Clearance**

28. The following aspects should be considered to secure a Range laser clearance:

a. Equipment:

- i. Nomenclature;
- ii. Status (e.g., prototype, development, in-service, etc.);
- iii. Output parameters of laser;
- iv. NOHD;
- v. Diffuse reflection hazard zone;
- vi. Laser beam pointing accuracy;
- vii. System safety features,

b. Operational tactics, such as flight profile, and manoeuvre plan, etc;

c. Operator(s) proficiency level; and

d. Range topography, such as presence of natural back-stops, adjacent population density, etc.

### **Sea Ranges**

29. The laser system must be used exclusively in a controlled Range. It is preferable that this Range should be sited entirely at sea, but if coastlines or islands are included they should be ideally be DND property and controlled by the Military Authorities.

30. All personnel in the Range area, during laser operations, shall observe the appropriate laser safety rules. The dimensions of the Range area are dependent on the LHH of the ship borne or airborne laser systems and their method of use. The LHH should be calculated by reference to the OHD which in turn is based on the NOHD or ENOHD as appropriate.

### **Targets**

31. Normally radio-controlled or unmanned simulated targets are used. The targets should, if possible, produce only a diffuse reflection. However, there is the problem of specular reflection particularly when the target is wet, over calm water or ice. The target

should be sited at such a distance from the laser system so as to ensure that under the worst conditions, such as specular reflections, use of magnifying optical devices, etc., personnel are safe.

### **Airborne Laser Operations**

32. As with ground laser operations, the operator of an airborne laser (either of the piloted aircraft or of the remotely piloted vehicle) plays a most critical role in assuring safe laser operation, hence the need for proper operator training. The laser operator is responsible for:

- a. Ensuring the laser beam is aimed only at authorized target areas as planned;
- b. Ceasing laser operations if unprotected personnel are observed in the target area; and
- c. Assuring that the laser firing system is secured when the operator is not aiming into an approved target area.

33. The reliability of the laser system should be assessed to assure proper pointing of the beam only into the approved hazard area. To facilitate clearance for use of laser systems on existing air-to-surface Ranges consider the following system safety features:

- a. Positive action firing switches to ensure a constant “person-in-the-loop” control of laser operations;
- b. Protection to eliminate inadvertent laser actuation; and
- c. Automatic disable function switch to inhibit laser firing if poor target tracking occurs, or when the laser pointing angle reaches the gimbal pointing limits.

34. Logs of laser operations must be maintained to ensure compliance with laser safety restrictions.

### **Records**

#### **Operational Logs**

#### **Enquiries**

MARLANT, Formation Safety and Environment:  
SO Laser Safety (SO Laser Safe): Tel. 902-721-5474.

## DIRECTIVE #S15, IONIZING RADIATION

### References

- A. Canada Labour Code, Part II
- B. DAOD 4002-0, Nuclear Technology Regulation and Control
- C. DAOD 4002-1, Nuclear and Ionizing Radiation Safety
- D. NSOD – Nuclear Safety Orders and Directives
- E. NSIs - Nuclear Safety Instructions
- F. DGRPP Document, Environmental Policy for Realty Asset Acquisition and Disposal
- G. DND General Safety Program, Volume 2, C-02-040-009/AG-001, General Safety Standards, Chapter 12, Contractor Liaison Safety Standard
- H. DND General Safety Program, Volume 2, C-02-040-009/AG-001, General Safety Standards, Chapter 14, Personal Protective Equipment and Clothing Safety Standard
- I. MARCORD 66-11, Ionizing Radiation Safety
- J. CFB Halifax, Base Emergency Response Plan (BERP)

### Purpose

1. To provide direction and assign responsibility for implementing the Formation Ionizing Radiation Program to maximize the safety of all civilian and military personnel regarding Nuclear Activity and Ionizing Radiation Sources (NAIRS).

### Scope

2. This directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic. This Directive does not apply to radiation safety for medical or dental imagery equipment, which is controlled by their chain-of-command.

### Definitions

3. Detailed definitions can be found in NSI 0-400.

### Responsibilities

#### Director General Nuclear Safety

4. The DND/CF, ionizing radiation safety program comprises a system of permits issued by Director General Nuclear Safety (DGNS), to units/ships authorizing the conduct of radiological activities and the holding, storage, use and disposal of Ionizing Radioactive Sources (IRS). As the regulator, DGNS exercises control of the Department's nuclear activities and ensures compliance with directives and regulations.

5. The Nuclear Activity and Ionizing Radiation Safety Committee (NIRSC) is mandated to develop, assess, implement and maintain a DND/CF wide Nuclear and Ionizing Radiation Safety Management System (NIRSMS) commensurate with the regulatory requirements and risks associated with nuclear safety within DND/CF.

6. The Maritime Command Radiation Safety Officer, MARCOM CRadSO, is responsible for the overall coordination of the Ionizing Radiation safety program within Maritime Command.

## **MARLANT**

7. Within MARLANT the safe use of (NAIRS) is the responsibility of the Base Commander, CFB Halifax, who is the holder of the CFB Halifax ionizing radiation permit. The BComd is responsible for ensuring that the Ionizing Radiation safety program is managed in compliance with references, permits issued by DGNS and ionizing radiation SOPs. Responsibilities include:

- a. appointing in writing, a Formation Radiation Safety Officer (RadSO) and an alternate, who must be qualified to “A” level (advanced radiation specialist);
- b. obtaining and complying with the necessary permit(s) from DGNS prior to the acquisition, use, storage, shipment or disposal of any radioactive material, equipment containing radioactive material or equipment capable of producing ionizing radiation, for which a permit is required;
- c. ensuring that individuals handling radioactive material, equipment containing radioactive material, or equipment capable of producing Ionizing Radiation have the requisite qualifications and training, have effective SOPs and the appropriate tools and radiation monitoring equipment; and
- d. ensuring that all personnel under his command who, in the conduct of their duties, could receive cumulative doses of ionizing radiation above the maximum allowed for a member of the general public are designated as Radiation Workers or Emergency Workers.

8. Formation Safety and Environment Officer (FSEO): Is responsible for the management and administration of the Ionizing Radiation Program including:

- a. overseeing the RadSO’s activities;
- b. providing direction to the Formation shore units and ships; and
- c. the review, revision and issue of any required procedures.

9. FSE, Staff Officer Radiation Safety (SO Rad Safe): Is responsible for implementation of the MARLANT Ionizing Radiation Safety Program as directed by the chain of command. SO Rad Safe is the Halifax Base Radiation Safety Officer (RadSO)

and the Unit RadSO for FCE, Postal Detachment; BOps (Military Police); Fleet Diving Unit (X-ray) and provides assistance to Canadian Forces Health Services Centre (Atlantic) and the First Dental Detachment (Halifax). FLog RadSO, is the alternate Base RadSO. The SO Rad Safe is responsible for:

- a. radiation protection, which includes providing advice, training, dosimetry and inspections;
  - b. radiation annual reports, swipe and leak testing, radiation surveys and inventory control;
  - c. decommissioning and disposal; and
  - d. Radiological Hazardous Occurrences (RHO) mitigation and response.
10. SO Rad Safe also supports the fleet and lodger units and provides services, as required, to ensure unit programs meet the mandate of DND/CF radiation program. In situations where a unit is going to be without their RadSO, the SO Radiation Safety may act in that capacity for short periods of time. These situations will be recorded in a Memorandum of Understanding (MOU) outlining the period of agreement and any special arrangements regarding the unit or section.
11. Other points of contact (POC) have been identified to oversee section day-to-day operations within the Base Radiation Safety program and are trained to basic “B” level qualification. These individuals, listed at Annex S15A, CFB Halifax, Base Ionizing Radiation Safety SOPs, have a responsibility to ensure the Radiation Safety program is implemented and functioning within their area of work. This responsibility includes radiation awareness and safe work habits.
12. Unit Commanding Officers: Permits are issued to the Commanding Officers as the permit holder. COs appoint, in writing, RadSOs or Radiation Custodians, who manage the unit radiation safety program on behalf of the permit holder. This includes safety awareness training for all levels and strict adherence to regulations.
13. Unit Radiation Safety Officers: Are responsible to their Commanding Officers to implement within their ships, units or sections the MARLANT ionizing radiation safety program. They must ensure that all radiation safety responsibilities are fulfilled and that all aspects of radiation safety procedures related to the presence or use of Ionizing Radiation Sources (IRS) are followed. Since most units possess material above the exemption quantities as defined at reference E, the unit must be in possession of the appropriate permits. The unit RadSO or Custodian shall ensure that the unit adheres to conditions of the permit(s).
14. It is everyone’s responsibility to report unsafe radiological conditions or procedures. When reported, the SO Rad Safe will investigate and ensure corrective action is taken. Work will not continue until the SO Rad Safe authorizes its resumption.

## Direction

### Nuclear Safety Information Control System (NSICS)

15. All RadSOs and Custodians shall be trained in the use of, have access to, and be registered users of the Nuclear Safety Information Control System (NSICS). This is a tool that assists RadSOs and Custodians to manage NAIRS. NSICS is accessed through the DGNS DWAN web site, and provides the users with all relevant ionizing radiation safety information, including:

- a. Nuclear Safety Orders and Directives (NSODs);
- b. Nuclear Safety Instructions (NSIs);
- c. Results of Unit swipe tests;
- d. Unit ionizing radiation inventories;
- e. Reporting requirements; and
- f. Report templates, etc.

16. Since much of this information is revised often, making the system electronic allows the user direct access to the most current version of documents without the need to continually update paper copies.

## Permits

17. A radioisotope permit issued by DGNS is required before any person or unit engages in a nuclear activity that DGNS deems to be a Controlled Activity. Controlled Activities include the acquisition, possession, use, storage, shipment, and maintenance of radioactive material, equipment containing radioactive material, and equipment capable of producing ionizing radiation that is not specifically exempt from DGNS control.

18. Any unit wishing to apply for a permit or a change to an existing permit shall prepare an application letter IAW NSI 2-100, Ionizing Radiation Source Application Process, see Annex S15A, CFB Halifax, Base Ionizing Radiation Safety SOP. All applications shall be forwarded to the SO Rad Safe, who will verify the need for the permit, ensure compliance with nuclear safety regulations and sends the application to the MARCOM RadSO who forwards it to DGNS for review and approval. Units and Base Branches shall not acquire NAIRS through local purchase.

19. Permit originals are retained by DGNS and a copy is forwarded to the unit. Ionizing radiation permits issued to units identify authorized activities, and provide specific direction and requirements to the permit holder. Radioactive material permits issued to one unit are not transferable to another unit. Permits are only valid when signed by the unit CO who is the permit holder. The permit outlines the requirements that have to be met by the unit and identifies what items and quantities the unit can hold.

20. DGNS issues permits based on the level of risk, holdings and specific activities. Within the Formation there are two levels of permits, i.e., "R" level and Custodian.

## **Training and Education**

21. Units with “R” level permits shall have RadSOs trained to the Basic Radiation Safety Specialist course level. Units conducting special activities require RadSOs trained to the Advanced Radiation Safety level. The Basic course qualification is a prerequisite for the Advance course. Units shall contact the SO Rad Safe to determine which courses are necessary, and arrange for course loading with CFTSG.

22. CFB Halifax has been issued an “R” level permit which provides specific direction and guidance to the Base Single Points of Responsibility (SPRs), i.e. Base Operations, FLog, FCE and FSE, for Base radiation safety functions. The permit authorizes the Base to conduct the following activities:

- a. manage, transfer, package, possess, store, use, transport, and dispose of approved Ionizing Radiation Sources (IRS);
- b. conduct security screening X-ray operations; and
- c. maintenance activities.

23. The individual responsibilities for specific evolutions can be found in references B, Part 2 and reference C.

24. Most units/ships within MARLANT are classified as “Custodian”, and a Custodian training course is provided locally by SO Rad Safe. This is a one-day course, and Units requiring local training schedule this through SO Rad Safe. It is the responsibility of the unit/ship CO to ensure the RadSO and the alternate are qualified as specified in the unit permit.

25. All personnel who have the potential to come into contact with radioactive sources shall know the location of NAIRS in their unit, understanding the procedures for dealing with NAIRS emergency situations and receive appropriate education and training. If the permit specifies a dosimetry service requirement, the RadSO shall provide personal dosimeters to all personnel required to work with radioactive materials.

26. Unit RadSOs shall contact SO Rad Safe for direction prior to using IRS for training purposes. Training conducted by SO Rad Safe using IRS shall follow the precautions given in Annex S15A, CFB Halifax, Base Ionizing Radiation Safety SOPs.

## **Standard Operating procedures (SOPs)**

27. CFB Halifax, Base Ionizing Radiation Safety SOPs are attached as Annex S15A. An Ionizing Radiation Safety SOP for ships is provided in the Ship’s Class Manual. Ships shall have a copy of this SOP signed by the CO and modified to reflect the ship information.

28. All unit/ships possessing IRS or conducting radiological activities shall have standard operating procedures (SOPs) detailing safety precautions and emergency procedures to be followed in the event of an incident or accident involving NAIRS.
29. The first two pages of the Custodian poster can be used as the Unit SOPs. Units can also use any relevant sections of the Base SOP, or use the guidance and template for the production of unit SOP that is found at NSI 2-210 (DND/CF NAIRS Management System SOPs).
- Marking and Security**
30. The trefoil symbol for NAIRS must always be posted on any door leading into a space/room or on the cabinet/drawer, if lockable, where NAIRS is stored and exceeds the Exemption Quantity of 100 EQ. Individual equipment and components shall also be marked as radioactive if they contain a source.
31. Radioactive sources are sensitive items, which if lost or stolen can cause problems far beyond their actual material value. Units using or holding any radioactive sources shall adhere to all regulations pertaining to the security of NAIRS.
32. A loss or theft of any IRS, or ten times the Exemption Quantity (EQ) of tritium, shall be reported to the SO Rad Safe with an information copy to FSEO. SO Rad Safe shall report the incident to DGNS by priority message in accordance with Nuclear Safety Instructions (NSIs) series six. This shall be followed, within 14 days, by submission of a Security Infraction Report to DGNS.
- Audits and Inspections**
33. Units shall allow access to DGNS and SO Rad Safe to conduct prescribed audits and inspections.
- Inventory and Reporting**
34. RadSO/Custodians shall have an inventory control system in place to ensure that all IRS is accounted for, and they shall update the unit inventory in the Nuclear Safety Information Control System (NSICS) when there are permanent changes in location, or when new items are added or deleted from inventory. NSICS is an integrated application that is accessed through the DGNS DWAN web site. This site provides RadSOs/Custodians with the latest references, information, program developments and provides a necessary program tool to help manage unit accounts, reports, obtain swipe/leak test results and request shipping and disposal of radioactive material. Unit RadSO/Custodians shall be registered on the site and have ready access to log on. More information on NSICS and how to register is located in NSI 0-500 (NSICS).
35. Within the Ionizing Radiation Safety Program, there are several required reports that must be submitted by Base/Unit RadSOs. NSI 6-100 Reports provides detailed

information on these requirements. Table 1 reflects the reports the Base will or may have to submit providing circumstances dictate, whom the reports are to be submitted to and when they are required.

**Table 1 – Ionizing Radiation Reporting Requirements**

Serial	Radiation Reports	Submitted to	Due Date
1.	Unit Annual Radiation Report	Hard copy thru C of C.	15 March to Formation
2.	Exposure Device Occurrence Report	Through C of C to DGNS	Notify DGNS within 24 hrs, report due within 14 days
3.	Security Infraction Report	Through C of C to DGNS	Notify DGNS within 24 hrs, report due within 14 days
4.	Overexposure or contamination Release Occurrence Report	Through C of C to DGNS	Notify DGNS within 24 hrs, report due ??
5.	Fire and Police Notification Report (Storage Areas over 100 EQ)	Fire Dept and Military Police section, info copy to SO Rad Safe	Updated yearly or when holdings change in store areas
6.	Dosimetry Exposure Reports	Health Canada	Quarterly

36. Unit RadSOs shall report the unit holdings of IRS annually to SO Rad Safe through FSEO. The report is a two-part document, where part one verifies unit IRS holdings and part two is the Commanding Officer's validation. This report is due to FSEO by 15 March. The format for the report is found in NSICS under reports.

37. The RadSO shall inform, in writing, the Military Police and fire authorities of the holdings, location, and activity of all IRS held in the unit, which exceed 100EQ in a single storage area. A sample letter is included at Annex S15A, CFB Halifax, Base Ionizing Radiation Safety SOPs.

38. All incidents/accidents shall be initially reported to the SO Rad Safe, with an information copy to the FSEO. SO Rad Safe will then transmit the information to MARCOM/MSRMS 4-2 and DGNS/DNSC by priority unclassified message.

### **Shipping and Transportation**

39. Guidance on the safe transport of IRS within DND/CF is outlined in refs D and E. NSI series 5 - Transportation, Packaging and Shipping is very specific on procedures to be used. Guidance is also provided in the Formation SOP at Annex S15A. SO Rad Safe shall be contacted if there is any doubt as to the requirements or interpretation of the guidance. Custodian Units/Ships contact Base Rad SO if shipping assistance is required.

## **Leak and Swipe Testing**

40. Swipe tests shall be taken annually, or as specified in the unit permit, in all areas where radioactive material is stored. Swipe tests will be taken after breaking of equipment containing IRS or as ordered by the SO Radiation Safety. This does not prohibit the unit RadSO from taking swipes whenever a concern is expressed. Swipe testing will also be conducted, as required, when shipping IRS out of the unit to ensure no contamination is present on the outside of the package.

## **Decontamination and Disposal of Radioactive Material**

41. Upon discovery of a contamination problem, the RadSO will implement decontamination/clean up procedures. The RadSO will supervise the decontamination procedures ensuring the safety of those involved in the cleanup process.

42. During clean up operations of radioactive spills or contamination, as determined by high readings from swipe samples, the SO Rad Safe shall be routinely informed of the progress. In the case of “Custodian” units, SO Rad Safe will assist the unit with the cleanup operations. The unit RadSO shall submit an after action report to the SO Rad Safe within five working days after the clean up is completed. The report must include location, personnel involved in discovery, clean up procedures followed, cause of spill or contamination, and corrective action taken. Units refer to NSI 6-100D, Overexposure or Contamination Release Occurrence Report, for the report format.

43. All broken items and materials used in the clean up procedure shall be sealed in plastic bags and if readings indicate, sealed in shielded containers for disposal as radioactive waste. SO Rad Safe will make arrangements for turnover to HAZMAT for proper disposal.

## **Decommissioning**

44. When an area designated for the storage of IRS is no longer required for this purpose, the RadSO will decommission the storage area to ensure that it is free of contamination, and shall notify SO Rad Safe that the unit is conducting a decommissioning, see Annex S15A, Appendix 7.

45. Large-scale decommissioning shall only be conducted under the direction of SO Rad Safe. Upon completion of decommissioning, SO Radiation Safety will apply to DGNS for a Radiological Compliance Certificate.

## **Records Management**

46. RadSOs shall maintain an Ionizing Radiation Safety Binder to file all appropriate paperwork. All units conducting nuclear activities or holding/using IRS are to retain a copy of this Directive in the unit RadSO binder. All copies of documents, which reflect transfers, or changes to inventory, either temporary or permanent, shall be kept in the

RadSO binder. The information to be kept in the Binder is detailed in Annex S15A, CFB Halifax, Ionizing Radiation Safety SOPs.

47. All Formation/Base ionizing radiation documents shall be retained by the SO Rad Safe for a minimum of three years and then archived.

### **Attachments**

Annex S15A – CFB Halifax Base Ionizing Radiation Safety SOPs

### **Enquiries**

MARLANT, Formation Safety and Environment:  
SO Radiation Safety (SO Rad Safe) – Tel. 902-721-6398.

**ANNEX S15A - CFB HALIFAX IONIZING RADIATION SAFETY - STANDARD OPERATING PROCEDURES****CFB Halifax Base Commander:****Signature:****Date of Issue:****Copy #:****TABLE OF CONTENTS**

<b>Topic</b>	<b>Page Number</b>
Purpose	2/36
Scope	2/36
Responsibilities	2/36
Permits	3/36
Training and Education	3/36
Storage and Marking	5/36
Security	8/36
Procurement	8/36
Receipt and Shipping	8/36
Handling and Use of Radioactive Sources	10/36
Ionizing Radiation Protection	11/36
Dose Exposures	13/36
Radiation Detection Equipment	14/36
Contamination Monitoring and Control	14/36
Radiological Hazardous Occurrences	15/36
Maintenance, Servicing and Modification	18/36
Disposal of Radioactive Material (RAM)	19/36
Decommissioning	19/36
Museums and Historical Artifacts	20/36
Industrial Radiography	20/36
X-Ray Devices	21/36
Audits and Inspections	22/36
Inventory and Reporting	23/36
SOP Review	24/36
Records Management	24/36

<b>Topic</b>	<b>Page Number</b>
<b>Attachments</b>	
Appendix 1: Base Ionizing Radiation Appointments	25/36
Appendix 2: Precautions when using IRS for training	25/36
Appendix 2 - Attachment 1: Radiation Courses, Guidelines for Training Sources' Use	26/36
Appendix 2 - Attachment 2: NER Training, Guidelines for Training Sources' Use	27/36
Appendix 2 - Attachment 3: Training Sources' Register (NER Team)	29/36
Appendix 2 - Attachment 4: Local Authorization for Participation in Off-site Radiation Training or Exercise	30/36
Appendix 2 - Attachment 5: Training Source Briefing	31/36
Appendix 3: DND 261, Unit RadSO/SO Rad Safe Information	32/36
Appendix 4: Sample Letter for Fire and Police Notification	33/36
Appendix 5: Precautions When Taking Tritium From Stores	34/36
Appendix 6: NAIRS Fire Response	35/36
Appendix 7: Radiation Compliance Certificate (RCC)	36/36

## PURPOSE

1. These Standard Operating Procedures (SOPs) provide information and guidance to Formation personnel regarding safety when conducting nuclear activities and working with ionizing radiation sources. Compliance with these SOPs will ensure that Nuclear Activities and Ionizing Radiation Sources (NAIRS) are managed effectively and that personnel exposure to Ionizing Radiation is minimized.

## SCOPE

2. These SOPs apply to CFB Halifax, but can be used by MARLANT integral units holding, or using Ionizing Radioactive Sources (IRS) or conducting ionizing activities. Assigned lodger units follow direction from their own chain of command.

## RESPONSIBILITIES

FSE SO Rad Safe supported by the FLog RadSO is responsible for reviewing and updating this SOP. Clarification of issues contained within this SOP or suggested changes should be forwarded to SO Rad Safe with a copy to FSEO.

Additional personnel have been identified to oversee section day-to-day operations within the Ionizing Radiation Safety program and are trained to either basic “B” or Custodian Level qualification. These individuals are listed at Appendix 1. They are responsible for ensuring the Ionizing Radiation Safety program is implemented and functioning within their area of work, including radiation awareness and safe work habits.

## **PERMITS**

Within CFB Halifax, any unit wishing to apply for a permit or a change to an existing permit shall prepare an application letter IAW NSI 2-100 Ionizing Radiation Source Application Process. All such applications shall be forwarded to the SO Rad Safe, who will verify the need for the requested permit, ensure compliance with existing nuclear safety regulations and forward the application to DGNS for review and approval. Units and Base Branches shall not acquire NAIRS through local purchase.

Permit originals are retained by DGNS and a copy is forwarded to the unit. Radioactive material permits issued to one unit are not transferable to another unit.

Copies of the permit shall be prominently displayed:

- a. on the unit Safety Board where the radioactive material is normally kept;
- b. at the site where radioactive material may be present; and
- c. with the material/equipment during transportation.

## **TRAINING AND EDUCATION**

There is a requirement to ensure that all employees are aware of the risks in their work place. NAIRS are stored and used in many locations on Base and therefore personnel working in and around radioactive items must be knowledgeable of their presence and emergency procedures. The majority of the radioactive items in the base’s inventory are low risk and safe.

Nevertheless, appropriate awareness training must be provided to personnel. There are three levels of radiation safety awareness:

- a. general public awareness;
- b. enhanced awareness; and
- c. special awareness.

The “General public” are those personnel who will not likely encounter NAIRS in their work place. Awareness training for this group will take the form of information in Base Routine Orders, Formation General Safety website and radiation posters displayed in prominent locations.

“Enhanced” awareness is required by personnel who will have an occasion to work in the vicinity of or deal with NAIRS. Training includes the info provided to the general public with the addition of unit specific NAIRS awareness. Greater emphasis on hazard and emergency procedures is required. This training shall be provided to new personnel before employment in the vicinity of NAIRS commences. This training may consist of formal classroom

presentations, on site briefings, films, computer self-study programs, and formal course qualification. Target groups of personnel that fall into the enhanced category include:

- a. military police / security forces;
- b. fire fighters;
- c. supply personnel ( NAIRS storage areas, clothing issue, disposal, shipping and receiving);
- d. nuclear emergency response; and
- e. maintenance.

“Special” awareness training must be provided to personnel who are employed in the vicinity of such facilities as industrial radiography labs, X-ray rooms and calibration labs. Training is designed to provide awareness of particular hazards and emergency procedures for specific locations. Training of this nature is operator specific with a formal qualification awarded by an approved agency. Section awareness will take the form of a yearly refresher on the device for operators and hazard awareness for non-operator staff working in the local area of the equipment. NSI series 3 Training, outlines requirements for special awareness groups. On base, personnel that this category applies to are postal detachment screening device operators and military police baggage screeners.

Personnel who handle or use radioactive material, equipment containing radioactive material, and equipment capable of producing ionizing radiation will receive training. As a minimum, awareness training shall include the following:

- a. type, quantity and location of radioactive material and ionizing radiation emitting devices held by the unit;
- b. explanation of radiation warning signs used to label storage compartments and equipment, pointing out contact phones numbers;
- c. location of unit radiation safety standard operating procedures and other radiation safety documentation held by unit;
- d. hazards associated with each isotope and/or ionizing radiation emitting device; and
- e. emergency procedures to be followed in the event of an incident or accident.

No matter what form awareness training takes, names of personnel and the dates they received training must be documented and kept as a record.

All training using IRS must follow the precautions provided at Appendix 2.

## STORAGE AND MARKING

NAIRS storage and nuclear activities are conducted in several locations throughout CFB Halifax. Permanent locations include:

D40A – Bulk NAIRS storage site;  
WL6 – Radioactive material disposal storage site;  
D206 – Clothing stores;  
WL6 - Bulk Weapons lockup;  
WP63 – MP/FASF NAIRS lockup; and  
Bldg SH9 – NERT (training/check sources);

While, temporary holding sites include WL 1- Tech workshop maintenance, and Bldg SH30 – NAIRS disposal.

In locations where IRS is stored or activities are conducted, proper storage and warning signage must be posted. Safe storage of radioactive material is a critical facet of an effective Radiation Safety Program. Types of storage can vary from a purpose built vault to a drawer holding a number of watches with Tritium faces. The general requirements for the safe storage of radioactive material are as follows:

- a. post a radioactive trefoil warning symbol on all access points to storage areas where there is:
  - (1) a nuclear substance in a quantity in excess of 100 times the Exemption Quantity (EQ) for that nuclear substance. EQs are given at ref G, Schedule VI;
  - (2) a reasonable probability that a person in or in the vicinity of the storage area may be exposed to a annual effective dose greater than 1.0 milli-Seivert, or a radiation dose rate greater than 2.5 micro-Seiverts per hour; or
  - (3) as directed by DGNS.
- b. post the following warning signage on all access points to storage areas that meet the above criteria:
  - (1) a radioactive trefoil warning symbol (not required for storage areas below 100 EQ);
  - (2) the names and work and home phone numbers of the Unit RadSO and SO Rad Safe (form DND 2611, see Appendix 3);
  - (3) the emergency number for the NDCC (available on a 24/7 basis) and DGNS Duty Officer (during working hours);

- (4) an inventory list of all radioisotopes and their total activities held in the storage area; and
  - (5) a copy of the permit on the closest general safety board.
- c. designate storage areas in which the annual effective dose to a person could exceed 1 milli-Sievert or where the dose rate exceeds 2.5 micro-Sieverts per hour, but is less than 25 micro-Sieverts per hour, as Controlled Access Areas, and implement the applicable access and dose control precautions given at ref G, Part 1;
  - d. designate storage areas in which the annual effective dose to a person could exceed 50 milli-Sieverts or the dose rate exceeds 25 micro-Sieverts per hour at any point as a Radiation Hazard Area, and implement the applicable access and dose control procedures given at ref G, Part 1;
  - e. ensure that storage areas remain locked except when removing or replacing sources. Access to radioactive material storage spaces is to be controlled, and entry into and departure from purpose built radioactive material storage vaults shall be logged. All personnel who have access to radioactive material storage spaces shall have appropriate awareness training of the hazards posed by the radioactive material;
  - f. ensure that personnel working in radioactive material storage areas are placed on an approved dose monitoring program;
  - g. prohibit smoking, eating and drinking in any space where radioactive material is stored;
  - h. ensure that storage containers are kept dry to prevent corrosion;
  - i. do not stockpile radioactive material. All radioactive material in excess of unit requirements shall be returned to stores or disposed of in accordance with the procedures at ref G and NSI 8-200, Management of Surplus Ionizing Radiation Sources;
  - j. ensure that personnel do not work or live in close proximity to radioactive material unless adequate shielding is provided;
  - k. ensure that the maximum field strength on the outside of the storage space with the doors closed is kept As Low As Reasonably Achievable (ALARA). The ambient dose outside of storage areas in unrestricted access areas shall not be high enough to give a member of the general public an annual effective dose greater than 1.0 milli-Sievert. In addition, the dose rate shall not exceed 2.5 micro-Sieverts per hour in an unrestricted access area, and 25 micro-Sieverts per hour in Controlled Access Areas;

- l. position a serviceable radiation detection instrument at the entrance to storage areas specifically designed as radioactive material vaults. Locate the handling tools required for the safe handling of strong sources outside of all such storage areas. Note: Currently, CFB Halifax does not have any designated vaults. DRDC(A) located in D200 has a vault included with their permit;
- m. test storage spaces for contamination and measure field measurements on the outside of storage areas annually, or whenever there is a significant change to radioactive material holdings. Field measurements are to be recorded on the warning signs and documented in the Unit RadSOs files;
- n. avoid storing non-radioactive material in radioactive material storage areas. For units that do not have dedicated radioactive material storage facilities, non-radioactive material may be stored in compartments containing radioactive material providing:
  - (1) the radioactive material is kept separate from the non-radioactive items. Where it is not possible to assign separate drawers or shelves to radioactive material, dividers will be used to segregate it;
  - (2) radiation warning signs (i.e. trefoils) and inventories are posted on the outside of storage cabinets;
  - (3) additional trefoils are posted on the specific drawers or location in the cabinet where radioactive material is stored;
  - (4) swipe tests of the drawer or cabinet will be carried out annually to ensure that there is no contamination; and unit RadSOs will conduct periodic field surveys to ensure there is no hazard.
- o. ensure that instruments that have radioluminescent dials, such as watches and compasses, are kept in their individual protective packaging while in storage. In addition, all such instruments are to be enclosed within their instrument housings in order to prevent “chalk off” of the radioluminescent tritium or radium paint; and
- p. Gaseous Tritium Light Source (GTLS) storage vaults must meet air exchange regulation IAW NSI 4-130, Storage of Ionizing Radiation Sources.

## **SECURITY**

Several radioactive items held by MARLANT, such as scopes, Sig Sauer and MP5's (sub machine guns), pertain to weapon systems, and already have security procedures such as limited access to lockups, but similar restrictions also apply to other NAIRS of a non-weapon nature. Storage areas must be locked if not in use, and only authorized personnel can have access to storage areas.

In the event of a loss, non-authorized use, access or disposal, theft, activity disruption or sabotage, DGNS is to be notified within 24 hours and a Security Infraction Report sent within 14 days outlining circumstances and corrective actions being taken. The format for a Security Infraction Report is provided at [NSI 6-100, Reports](#).

## **PROCUREMENT**

NAIRS are considered controlled items and once they enter the supply system are "R" coded and have to be tracked and accounted for. This procedure is normally done through the LCMM's structure. Before there is an acquisition of new NAIRS, DGNS will review the necessity, safety, and practicability of the new item and provide a final approval. Acquisition of items already identified in the supply system but being added to CF/DND's inventory will be done in conjunction with the LCMM who controls the item. The SO Radiation safety will be contacted when acquisition of NAIRS by the Base is being considered. Local purchase of NAIRS is not authorized unless approved by DGNS. SO Radiation Safety will contact DGNS for authorization.

## **RECEIPT AND SHIPPING**

### **Receipt**

General requirements for the receipt of radioactive material by base or base sub-sections are set out in NSI 5-500 and ref E.

Locally, upon receipt of radioactive material, Central Material Traffic Terminal (CMTT) staff, Bldg 206, is to inform the Base Alternate RadSO in Flog of the shipment. The Alternate RadSO will notify the SO Rad Safe and the addressee. Prior to releasing the shipment to the addressee, the SO Rad Safe will ensure that the permit requirements are met.

Upon receipt of a shipment of radioactive material, qualified personnel shall inspect the package for damage prior to opening and once opened ensures items are in a serviceable state. A leak test maybe conducted, if required. FLog will update the radioactive material inventory and the Alternate Base RadSO will update the inventory in the Nuclear Safety Information Control System (NSICS).

The same procedures are to be followed for the dispatch of radioactive material from CFB Halifax. CMTT is not to release radioactive shipments without first obtaining approval from the SO Rad Safe or Alternate Base RadSO. Incoming or outgoing radioactive material shipments awaiting authorization for release shall be stored in proper storage areas.

## Shipping

The shipment of all radioactive material to/from a unit shall be conducted by qualified and authorized personnel. A stand-alone log will be maintained Flog RadSO to document and track the shipment of all radioactive material to/from the base. In addition, the SO Rad Safe and unit RadSOs shall adhere to the packaging, labelling and transport procedures for radioactive material detailed in NSI 5 series (5-100 thru to 5-400).

These procedures apply to all items containing radioactive material, including deregulated items. Prior to the shipment of radioactive material, the following shall be done:

- a. obtain approval to ship from DGNS, (DGNS approval is not required for shipment of excepted packages within DND);
- b. notify the gaining unit RadSO to ensure that his/her permit authorizes receipt of the package(s) to be shipped;
- c. notify the SO Rad Safe, Base RadSO, Fire Fighters and Military Police of all shipments of Type A and Type B packages within the Base and the Formation;
- d. conduct swipe and/or leak tests of the equipment to be shipped as required by ref E. Shipment must not take place until the swipe and/or leak test results are returned showing contamination levels below the acceptable limits promulgated at ref E, i.e., ion-fixed (removable) contamination, on the outside surface of the package shall not exceed 4 Bq/cm<sup>2</sup> for beta or gamma emitters, and 0.4 Bq for alpha emitters, averaged over an area of 300 cm<sup>2</sup>, or the total package if its total surface area is less than 30 cm<sup>2</sup>;
- e. package and label the item(s) to be shipped in accordance with NSI 5 series, and ensure that the appropriate TDG documentation is prepared; and
- f. measure the radiation levels on the exterior of the package to ensure that they do not exceed the limits for the type of package in question. These limits are given in NSI, 5 series.

Once the requirements are met, the package may be shipped. However, unit RadSOs must be aware that radioactive materials are not to be shipped by mail under any circumstances. This restriction applies to the DND mail service as well. All radioactive material, including swipe and leak tests, shall be shipped by courier.

Upon completion of the shipment, the Alternate Base RadSO and Unit RadSOs shall update their radioactive material inventories in NSICS and their RadSO binders. Information copies of these inventory change forms shall be forwarded to SO Rad Safe and updated in NSICS. In addition, if the storage areas exceed 100 EQ, base and Unit RadSOs must notify the Fire Department and Military Police of inventory changes using the sample letter found at Appendix 4.

Units supported by CFB Halifax will arrange with FLog for all transfers or shipping of IRS. If a situation should arise where a unit has to ship IRS not using the above procedures, the unit RadSO will contact the SO Rad Safe for guidance and approval. This could be the case for a deployed unit.

The responsibility for Radiation Safety in receipt and dispatch of IRS may be delegated to a suitably qualified person designated by the Formation Logistics Officer (FLogO). If delegated, the FLog RadSO is responsible for ensuring that the SO Rad Safe is fully advised of all IRS shipments.

## **HANDLING AND USE OF RADIOACTIVE SOURCES**

Only authorized/qualified personnel shall handle or use radioactive material. Maintenance or servicing of radioactive material containing devices, which could potentially compromise the integrity of the source, shall only be performed by authorized personnel at an authorized maintenance facility. Maintenance or servicing on all radioactive material containing devices, including deregulated items, requires a permit that explicitly allows for such activities.

All personnel working with radioactive material shall adhere to the following general safety precautions:

- a. do not eat, drink or smoke in areas where radioactive material is stored, maintained or used;
- b. wear gloves and/or use remote handling tools to ensure that no direct physical contact with radioactive material occurs;
- c. cover-up cuts on skin, especially below the wrist;
- d. wear eye protection;
- e. utilize suitable radiation-monitoring devices at all times;
- f. wear TLDs and direct reading dosimeters if applicable (see NSI 1-210);
- g. remain alert, plan all work and be aware of radiological hazards and local standard operating procedures in the event of an accident/spill to limit spread of contamination;
- h. wash hands thoroughly upon completion of work;
- i. minimize working time around sources, and maximize distance and available shielding to keep exposures ALARA;
- j. ensure proper signs are displayed in working areas and paths of travel prior to using radioactive sources;

- k. carry radioactive material in proper containers and protect against damage to sealed sources;
- l. secure radioactive material in its authorized container/storage area when not in use;
- m. do not carry radioactive material or electronic tubes in personal clothing because of the danger of contamination and exposure; and
- n. examine radioactive sources regularly for damage and leaks;

## **IONIZING RADIATION PROTECTION**

Ionizing radiation protection has three components, i.e.:

- a. Dose Control;
- b. Dose Limits; and
- c. Dosimetry Service.

### **Dose Control**

Radioactive material emits a continuous flow of penetrating radiation that can only be detected by specialized equipment. The harmful nature of ionizing radiation makes it necessary to apply strict controls on the doses received by personnel. Within CFB Halifax, effective dose control is achieved by diligent adherence to established storage, handling and operating procedures, appropriate use and monitoring of dosimetry services, and strict compliance with the dose limits promulgated at ref D and provided at Table 1, below. Commanding Officers shall take measures to ensure that the doses received by personnel under their command are kept As Low As Reasonable Achievable (ALARA).

**Table 1 – Dose Limits**

Application or Affected Person	Period of Time	Limit (mSv)	
		Public	Radiation Worker
Effective Dose	One Year	1	50
Five Year Effective Dose	Five Years	Not Applicable	100
Pregnant Worker Effective Dose	Balance of pregnancy	Not Applicable	4

**Notes:**

- (1) Does NOT apply with respect to a person who acts voluntarily to save or protect human life.  
 (2) Does not apply in respect of any medical procedures.

**Dose Limits**

Ionizing radiation dose limits are promulgated at Schedule IV to ref D, which is summarized at Table 1, above. The maximum permissible dose of ionizing radiation for a member of the general public is 1.0 milli-Sievert per calendar year. Unless specifically designated a Radiation Worker or Emergency Worker, all military and civilian employees of DND are considered members of the general public with regard to dose limits. This also applies to non-departmental persons who are contracted or otherwise authorized to work for DND.

**Dosimetry Service**

Commanding Officers must ensure that all personnel under their command who, in the normal conduct of their duties, may receive an annual dose of ionizing radiation in excess 1.0 milli-Sievert per year are placed on a dosimetry service approved by DGNS. All such personnel shall be designated as Radiation Workers or Emergency Workers, or both, in accordance with the procedures at ref G, Part 1.

Thermoluminescent Dosimeters (TLDs) are normally used to monitor and record the doses received from exposure to ionizing radiation. In accordance with [NSI 1-210, Dosimetry](#), dosimeters are regularly submitted to the Radiation Protection Bureau of Health Canada for analysis. Individual dose histories are recorded in the National Dose Registry, which documents accumulated doses against Social Insurance Numbers so that exposure histories can be monitored throughout an individual's life, regardless of employment status.

Before anyone is placed on dosimetry service, the member's section shall notify the SO Rad Safe who will verify the requirement and approve the individual for dosimetry service. In addition, sections must notify the SO Rad Safe prior to cancelling Radiation Worker and Emergency Worker designations. Radiation and/or Emergency Worker designations shall be cancelled, in writing, whenever a person who was so designated is no longer employed in a role that requires such a designation. In both cases, SO Rad Safe then transmits the information to DGNS, with information copy to FSEO.

## DOSE EXPOSURES

### Investigations

Unusual exposures, suspected over-exposures and exposures in an emergency situation shall be investigated in accordance with the directions specified at reference D. All dose/exposure investigations shall be reported in accordance with Part 6, Records, Inspections, Audits and Reports. Should an over-exposure to ionizing radiation, in excess of the limits in Table 1, above, be suspected, the individual shall be removed from additional exposure until the investigation is complete. Notwithstanding the requirements at Table 1, above, DGNS may require certain individuals to undergo dose assessment.

### Exposure Restrictions for Youth

No person under the age of 16 shall be subjected to exposure from occupational ionizing radiation. Within CFB Halifax, this restriction is met by ensuring that all persons under the age of 16 are denied access to radioactive material and radioactive material storage areas, to all equipment capable of producing ionizing radiation, and to all equipment containing radioactive material.

No person between 16 and 18 years of age shall be allowed to work in a controlled access area or a radiation hazard area without that person's written permission and without the supervision of a qualified radiation worker or Radiation Safety Officer. In addition, the SO Radiation Safety shall be informed before any such individual is permitted to work in such an area.

### Exposure Restrictions for Female Personnel

A female Radiation Worker and/or Emergency Worker shall notify her supervisor, in writing, as soon as she becomes aware that she is pregnant. During the balance of the pregnancy, the following precautions apply:

- a. pregnant Emergency Workers shall be excluded from participating in the mitigation of radiation emergencies;
- b. pregnant Radiation Workers shall wear a dosimeter on the abdomen when occupational exposure to ionizing radiation is likely; and
- c. the dose limit for pregnant Radiation Workers shall not exceed 4 milli-Sieverts for the balance of the pregnancy.

The notification of pregnancy shall not be considered a reason to exclude a female Radiation Worker from employment. Commanding Officers are required to find alternate duties for pregnant Radiation Workers for the duration of their pregnancies to ensure that the 4 milli-Sievert dose limit at ref D, Schedule IV is not exceeded.

## RADIATION DETECTION EQUIPMENT

SO Rad Safe and FLog RadSOs will hold the following survey equipment and material in an emergency response kit:

- a. General Purpose Survey Meter (GPSM) or Advanced Survey Meter (ASM). The NSNs for the GPSM and ASM are 6665-21-913-3793 and 6665-21-913-3794, respectively;
- b. Electronic Personal Dosimeter (EPD) (NSN 6665-21-913-3795);
- c. Ultraviolet light (NSN 6530-01-337-7926);
- d. Swipe cloths (NSN 6665-21-198-7573);
- e. Qtips, Cotton Tipped (NSN 6515-01-017-2177);
- f. Sealable plastic bags;
- g. Rubber gloves;
- h. Dust masks;
- i. Radiation warning signs (NSN 7690-21-920-3526 for 100mm x 100m sign. NSN 7690-21-920-3527 for 200mm x 200mm sign.); and
- j. Emergency contact number sign (NSN 7690-21-920-4046).

The GPSM and ASM are multi-range survey meters that are sensitive enough for the measurement of the majority of radioisotopes. The ASM has an additional probe that is capable of detecting Alpha and Beta radiations. An external contractor will conduct maintenance and annual calibration of the detectors. Unit RadSOs will be contacted by the contractor to arrange pickup of old and delivery of the new meters. The SO Radiation Safety holds a GR135 Exploranium "Identifier" detection meter and will ensure it is calibrated yearly by the manufacturer. Unit RadSOs are responsible for conducting monthly verification of the detectors using the check sources provided with the survey meter kits to ensure meters fall within the calibration limits. For units that do not have survey equipment, they can contact the SO Rad Safe to borrow equipment, or get assistance to carry out survey work.

The Nuclear Emergency Response Team has a large suite of meters and will conduct the calibration checks on the equipment as per their SOPs.

## CONTAMINATION MONITORING AND CONTROL

Units holding radioactive material shall comply with the swipe and leak testing requirements stipulated in their Radioisotope Permits and at reference D. Swipe and leak tests are essential components of a radiation safety program because they allow for the early detection of surface radioactive contamination and defective equipment.

The requirements for leak testing can be found in NSI 7-200. Generally, leak tests shall be performed annually, or as specified in the unit permit, on specific equipment containing more than 50 mega-becquerels of activity in sealed sources. Examples of equipment that require leak testing include the Chemical Agent Monitor, Otto Fuel Detectors and the RAID-S Detectors. Leak tests are not conducted on gaseous sources such as  $^3\text{H}$  or  $^{85}\text{Kr}$ .

Swipe tests are required prior to the transfer of a sealed source to another custodian, after receipt of a sealed source by another custodian, and immediately following any incident that may have impaired the integrity of the sealed source encapsulation.

Swipe and leak tests shall only be conducted by qualified RadSOs in accordance with the procedures in NSI 7-100, Swipe Testing and 7-200, Leak Testing. Swipe sample must only be taken with regulation swipe material. Laboratories will not process samples taken on other material. It is illegal for swipe and leak test materials to be forwarded for analysis by mail. The samples must be forwarded to RMC via a courier services to:

Royal Military College (RMC) of Canada  
11 General Crerar Crescent  
P.O. Box 17000, Stn Forces  
Kingston, ON K7K 7B4

Attn: Analytical Services Group, Department of Chemistry and Chemical Engineering

The results of these tests shall be monitored by the Unit RadSOs and SO Rad Safe. When a swipe or leak test analysis reveals radioactive contamination above acceptable limits, (i.e., 200 Bq leakage limit for a sealed source, and swipe test results for fixed alpha emitters of 0.5 Bq/cm<sup>2</sup> and 5 Bq/cm<sup>2</sup> for fixed beta or gamma emitters. Limits for non-fixed emitters are 0.05 Bq/cm<sup>2</sup> for alpha emitters and 0.5 Bq/cm<sup>2</sup> for beta or gamma emitters). For results higher than these limits the Unit RadSO shall immediately quarantine the affected equipment or area and implement emergency mitigation measures.

## **RADIOLOGICAL HAZARDOUS OCCURRENCES**

A radiological hazardous occurrence includes:

- a. Suspected or confirmed leakage of radioactive material to the environment due to damage sustained by a device containing radioactive material;
- b. Fire in or near a IRS storage compartment;
- c. Spill of radioactive material;
- d. Suspected or confirmed over-exposure of personnel; and
- e. Loss, theft, recovery or discovery of a radioactive source.

## **Items Containing Tritium In Gaseous Form**

The hazard from gaseous tritium is that it can be inhaled through the lungs or absorbed through the skin. In the event of an incident or accident such as the breakage of a Gaseous Tritium

Light Source (GTLs) which would involve the release of tritium and the actual or suspected exposure of personnel to it, the following action is to be taken:

- a. Hold breath;
- b. Vacate the area in which the breakage has occurred;
- c. Ventilate the area to remove any tritium vapour. Ships should isolate the affected areas to prevent the spread of the tritium via the ventilation system;
- d. Report the incident to the RadSO immediately. The RadSO or the exposed individual will seek advice from medical authorities that will coordinate the required medical procedures. The SO Rad Safe should be contacted immediately by telephone and informed of the incident; and
- e. Report the incident to SO Rad Safe with an information copy to FSEO. SO Rad Safe will then send a description of the incident via a priority unclassified message to MARCOM RadSO and DGNS. A Significant Incident Report (SIR) may be required IAW MARLANTORD 4-13. A follow-up report, IAW with NSI 6-100 maybe also be required depending on the seriousness of the incident or occurrence.

Clean up of the broken GTLS and decontamination of the affected area will be coordinated by the unit RadSO. Personnel drawing IRS containing Tritium (H3) are to review the precautionary information at Appendix 5.

### **Radio-luminescent Devices**

In the case of an incident/accident involving radioluminescent devices, i.e., devices using  $^{226}\text{Ra}$  or  $^3\text{H}$  radio-luminescent paint, or devices containing  $^{147}\text{Pm}$ ,  $^{63}\text{Ni}$ ,  $^{90}\text{Sr}$ , or  $^{14}\text{C}$ , the following action shall be taken:

- a. Evacuate the space, vehicle, room or area. Unless seriously injured, personnel involved in the accident shall remain in the vicinity of the site until cleared by the RadSO;
- b. If a casualty is involved, they are to be removed and confined. If necessary, casualties may be transported to hospital where staff is trained to care for contaminated casualties. In the Halifax area, contaminated casualties will be treated at QEII Health Sciences Centre. Inform the hospital of the nature of the accident so they may take protective measures. Ship's first aid personnel will be considered contaminated and must remain at the accident scene until decontamination is completed;
- c. Personnel providing first aid shall use approved breathing apparatus or C4 respirator and gloves while in or near the compartment and around contaminated personnel until decontamination is complete;

- d. Contact the RadSO, MSEO, CSEO, Monitoring Team and HAZMAT Team as applicable. The SO Radiation Safety will be notified of the situation and what action is being taken;
- e. Prevent access to the site until the arrival of the RadSO, cordon off the accident scene. Set up an Access Control Point in a well-ventilated area approximately 15 m from the suspected contaminated area. In ships initiate smoke control and close compartment exhaust flaps to control the spread of contamination;
- f. The RadSO shall isolate the area and post warning signs, survey the area, and decontaminate as required. All contaminated components, such as glass and paint, etc., shall be sealed in plastic bags and treated as contaminated waste IAW NSI 7-600. Gloves will be worn during decontamination;
- g. When cleared by the RadSO, individuals who have or are suspected to have inhaled, ingested or absorbed IRS shall report to medical authorities for examination; and
- h. Report the incident by the most expedient manner, including corrective action taken, to SO Rad Safe with information copy to FSEO. SO Rad Safe will then inform DGNS who may request a priority message with copies to FSEO, SO Rad Safe and MARCOM RadSO.

### **Miscellaneous Radioactive Material (RAM)**

In the event of a TR tube containing RAM being broken, the following action is to be taken:

- a. Evacuate the area;
- b. Ventilate the compartment, room, etc. In ships the ventilation should be isolated to prevent potential spread of vapour or contamination to other parts of the ship;
- c. Remain in the vicinity of the incident, preventing access by others;
- d. Inform the unit RadSO; and
- e. Seal broken tubes in plastic bags and dispose of as radioactive waste IAW NSI series 8 Decommissioning and Disposal.

## Fires Involving NAIRS

All units holding IRS will forward a Fire and Police Notification letter, using the format given at Appendix 4, to the Dockyard Fire Department. Storage sites with less than 100 EQ do not require a Fire and Police Notification Letter. Several Formation sites are serviced by Halifax Region Municipality (HRM) Fire Services. The Dockyard Fire Dept will send a copy of the letter to HRM Fire Services. Table 2 shows which fire service will respond to which CFB Halifax locations. Details of fire response procedures are provided at Appendix 6.

**Table 2: Fire Response Providers**

Location	Main Responder	Additional Assets
Dockyard	Dockyard Fire Dept	
Stadacona	Dockyard Fire Dept	
Willow Park	HRM Fire Services	DND Pl Chief
Windsor Park	HRM Fire Services	DND Pl Chief
NAD	HRM Fire Services	DND Pl Chief, Fire Boat
CFAD	During Work hours – DND After hours - HRM	Fire Boat; DND Pl Chief
Off base lodger units	HRM Fire Services	DND Pl Chief

## Nuclear Emergency Response (NER)

CFB Halifax only holds small quantities of IRS, which would not constitute a major nuclear emergency, even if some unexpected event were to compromise safe storage or use. The provision of emergency response for Nuclear-powered vessels is covered under references D and S. If there is a requirement to respond to a Formation radiation emergency, elements of the NER Team, Damage Control School and BOps Command Post (CP) organization would be activated to deal with the situation. Annex D of reference J, outlines details of activation and execution of response.

## MAINTENANCE, SERVICING AND MODIFICATION

Although the Base has qualified technicians, the Base radiation permit(s) do not authorize maintenance activities. Most IRS will be sent to 202 Workshop maintenance facility or back to the manufacturers for servicing. Personnel conducting serviceability checks, or component replacements will be qualified QL5 or higher and hold a “B” level radiation qualification as a minimum. OJT personnel will not conduct maintenance on IRS equipment. Items that can be worked on at base are cams, Otto fuel detectors, new compasses, and C2A1 Sight unit and aiming circles. With regards to maintenance on Sig Saure pistol and MP5, whole sight components can be replaced but actual sources will not be changed. The C79 scopes will be sent to the manufacturer for source replacement.

On occasion, some older equipment such as arty sights and communication equipment, may be turned into the tech workshop. When this happens, maintenance staff will contact the LCMM to verify if this equipment is still being used, or has been replaced and confirm whether

maintenance should be carried out. If the equipment is no longer in service, it will be sent to FLog RadSO and treated as radioactive waste.

All serviceability and modification work will employ clean workspace ethics as per NSI 7-500. Only designated work benches/areas will be used to work on NAIRS equipment.

## **DISPOSAL OF RADIOACTIVE MATERIAL (RAM)**

Any equipment containing RAM identified for disposal, whether it has been replaced, obsolete or non-serviceable, will be disposed of through proper channels. Units within the Formation or supported by MARLANT are to send all their disposal material through FLog and will contact the SO Rad Safe, or FLog RadSO when a unit needs to dispose of any radioactive waste.

All equipment will be examined by FLog before leaving DND's possession, or for unrestricted use. Any equipment found to contain IRS will be stripped of its sources and stored as radioactive waste in the radiation storage site located in WL7. Departure from this procedure will only be authorized by DGNS through the SO Rad Safe.

The primary means of disposing of radiation waste within DND is through DGNS (DNSC 6) and eventually sent to Canadian Nuclear Safety Commission (CNSC). Radioactive waste is shipped to 25 CFSD Montreal through CMTT. From there the waste is shipped to the CNSC radioactive waste management site in Chalk River, Ontario for final disposal. Note, liquid radioactive waste, typically Carbon-14, is no longer accepted by CNSC and direction on disposal will be provided by DGNS.

DGNS approval is required prior to the disposal of radioactive waste. Disposal requests are to be made by completing the disposal request form available on NSICS. Specific procedures regarding the packaging, labeling and transport of radioactive material scheduled for disposal are given in reference E, NSI, 5 series.

The FLog RadSO shall document disposals of radioactive material in a stand-alone log. The shipment log for radioactive material can be used for this purpose. As with any shipment of radioactive material from a unit, the Unit RadSO shall ensure that radioactive material inventories are updated after disposal, and that the Fire Department and Military Police are provided with an updated inventory letter as per Appendix 4.

## **DECOMMISSIONING**

Any location where radioactive material has or may have been stored or used must be radiologically decommissioned before it is turned over to unrestricted use. This applies to purpose built vaults, cabinets, workbenches, fume hoods, magazines and other containers. When a storage area is identified for change of use, the SO Radiation Safety will be notified and ensures proper procedures are carried out for conducting a radiological decommissioning. MARLANT units will use the form at Appendix 7 to document local decommissioning activities and shall notify SO Rad Safe that the unit is conducting a decommissioning. This form must be kept in the RadSO's binder and a copy sent to SO Rad Safe. BCE, Properties

Management and the SO Radiation Safety will work closely to ensure the procedures of NSI 8 series are followed.

Generally, facilities and properties will be decommissioned by a contracted company. This is done through FCE and SO Rad Safe oversees the project. Decommissioning of ships is similar, but N3 hires the contractor and SO Rad Safe oversees the decommissioning. In both cases, the SO Rad Safe requests the Radiological Compliance Certificate (RCC). The SO Rad Safe may carry out smaller decommissionings, if it is within his/her capability, resources and meets the requirements of NSI 8-300, paragraph 4.

Sites identified as Priority Four, (i.e., with no history of radioactive activity or storage), do not require a DGNS RCC. For these sites, SO Rad Safe will conduct an historical review and a site visits and keep records.

All requests for radiological decommissioning shall be submitted to DGNS for review, along with the necessary supporting documentation identified in NSI 8 series. If the request is approved, DGNS will issue a Radiation Compliance Certificate (RCC) to the base, NSI 8-100. Storage areas for which a request for radiological decommissioning was submitted remain subject to all aspects of the Radiation Safety Program until such time that DGNS issues the RCC to the unit.

SO Rad Safety retains copies of decommissioning requests and certificates on file for at least five years IAW Records Management. Property Management and FCE will retain information copies. MARLANT units/ships conducting small decommissioning will forward information copies of all documentation to the SO Rad Safe. Units considering decommissioning should contact the SO Radiation Safety for guidance and/or assistance.

Additional information on decommissioning can be obtained in NSI 8-300, Decommissioning NSI 8-100, Radiation Compliance Certificates.

## MUSEUMS AND HISTORICAL ARTIFACTS

The SO Rad Safe will provide assistance to the Maritime Command Museum, in support of its radiation safety program. The museum will keep a log of all artifacts containing IRS, have these items properly marked and meet the safe storage requirements. When there is a question about the radiological status of new artifacts, the SO Radiation Safety will be contacted and verify if the items contain IRS. Artifacts may also show up in locations, such as messes and non-licensed units, that do not have a RadSO. If an item is suspected to be radioactive, the SO Rad Safe is contacted and conducts an investigation to confirm whether or not the item is radioactive.

## INDUSTRIAL RADIOGRAPHY

Units conducting industrial radiography are to follow the direction provided in NSI 2-462 and in this SOP. Additionally, they are to have activity or device specific SOP's for the operation of their equipment. When units are going to receive new IRS, they will inform the SO Rad Safe what will be arriving and when these new sources will be coming on base.

If outside contractors are going to provide the industrial radiography services, the contractor will comply with the directives in NSI 2-462 and be made aware of these conditions prior to submitted bids for work. The RadSO for the unit contracting the outside company will oversee the work to ensure all safety procedures are in place. The unit arranging radiography services will advise the SO Rad Safe:

- a. When the work will be done;
- b. Types of sources being used;
- c. Proof that the company has a valid permit issued from the Canadian Nuclear Safety Commission, their SOPs, operator qualifications and emergency procedures;
- d. That contractor understands and can meet the requirements outlined in NSI 2-462; and
- e. Safety procedures are in place before work begins.

If FCE has initiated the work, they will contact the SO Rad Safe to ensure the above requirements are met.

## X-RAY DEVICES

DND x-ray safety is regulated by DGNS who issues authority for use. Applications for the procurement, use, maintenance and disposal of x-ray devices must be in accordance with reference D. Units holding permits for x-ray activities are responsible for ensuring they have a safety program in place IAW the conditions of their X-ray permit and an appointed RadSO. There are some sections in MARLANT that do not have a qualified RadSO, and in these cases the SO Rad Safe acts in this capacity, i.e.:

- a. Postal Det (mail screening) NSI: 4-464, Security Screening Devices;
- b. Military Police (Baggage Screening) NSI: 4-464; and
- c. Fleet Diving Unit (EOD) NSI: 4-466 Explosive Ordnance Disposal.

Although the CF H Svcs C Halifax manages their X-ray program and is regulated by Health Canada, the base accounts for the medical and dental x-ray equipment on its permit inventory. The SO Rad Safe provides assistance to the hospital as required. The SO Rad Safe will investigate any over exposures that are identified from Health Canada dosimetry reports. NSI: 4-460 Medical X-ray Devices and NSI: 4-461 Dental X-ray Devices.

A description of the safety program requirements for X-ray equipment is provided at [NSI: 4-250](#), Annex A, X-ray equipment. In summary these programs must include:

- a. designed responsible operator;
- b. authorized user and maintainer training;
- c. operational procedures;
- d. record keeping;
- e. engineering protection systems;
- f. surveillance program;
- g. warning signs; and
- h. disposal.

## AUDITS AND INSPECTIONS

DGNS as the regulator for Ionizing Radiation Safety within DND/CF conducts audits and inspections of units with NAIRS. Units/ships are normally inspected in April of each year. Generally, units with R permits are inspected on a one or two year rotation, while Custodian units are inspected every three years. Units will be notified several months in advance of a pending inspection.

The purpose of the DGNS inspections is to ensure that an effective radiation safety program has been implemented and that the terms and conditions of the permit(s) remain valid. The Base is provided with an inspection report and is required to report, in writing, the corrective actions taken within 60 days of receipt of the DGNS report.

The SO Rad Safe also conducts ionizing radiation safety audits and inspection of all MARLANT units holding a permit to ensure adherence to the criteria identified in the DGNS Radiation Safety Program Compliance Inspection Report. This is normally done in January/February to allow time for any action or deficiencies to be corrected prior to the DGNS inspection. SO Rad Safe will also conduct staff assistance visits upon request and whenever there is a changeover of RadSOs or Custodians.

## INVENTORY AND REPORTING

### Inventory

RadSO/Custodians shall have an inventory control system in place to ensure that all IRS is accounted for, and they shall update the unit inventory in the NSICS when there are permanent changes in quantities held, locations or when new items are added or deleted from inventory.

### Reporting

35. Unit RadSOs/Custodians shall submit all relevant reports from those listed in Table 3 below. NSI 6-100, Reports provides detailed information on these requirements.

**Table 3: Ionising Radiation Reports**

Serial	Radiation Reports	Submitted to	Due Date
1.	Unit Annual Radiation Report	Hard copy thru C of C.	15 March to Formation
2.	Exposure Device Occurrence Report	Through C of C to DGNS	Notify DGNS within 24 hrs, report due within 14 days
3.	Security Infraction Report	Through C of C to DGNS	Notify DGNS within 24 hrs, report due within 14 days
4.	Overexposure or contamination Release Occurrence Report	Through C of C to DGNS	Notify DGNS within 24 hrs, report due within 14 days
5.	Fire and Police Notification Report	Fire Dept and Military Police section, info copy to SO Rad Safe	Updated yearly or when holdings change in store areas
6.	Dosimetry Exposure Reports	Health Canada	Quarterly

Unit RadSO shall submit the report on unit holdings of IRS annually to SO Rad Safe through FSEO. The report is a two-part document, where part one verifies unit IRS holdings and part two is the Commanding Officer's validation. This report is due to FSEO by 15 March. The format for the report can be found in NSICS under reports.

The RadSO shall inform the Military Police and fire authorities, in writing, of the holdings, location, and activity of all IRS held in the unit, which exceed 100 EQ in a single storage area, using the sample letter provided at Appendix 4.

All incidents/accidents must be initially reported to the SO Rad Safe, with an information copy to FSEO. The SO Rad Safe will then send a description of the incident/accident to MARCOM RadSO/MSRMS 4-2 and DGNS by priority unclassified message, with an information copy to the FSEO.

## SOP REVIEW

This SOP will be reviewed annually by the SO Rad Safe to ensure the content is accurate, complete and the current procedures are effective. Suggestions for change or inclusion can be submitted in writing by anyone at any time.

## RECORDS MANAGEMENT

RadSOs shall maintain a Ionizing Radiation Safety Binder to file all appropriate paperwork. The Binder will be reviewed during DGNS-scheduled inspections. Information that must be kept in the Binder includes:

- A. RadSO qualification (course reports or certificates);
- B. Record of appointment;
- C. Awareness and training records;
- D. Current radiation references (DAODs, NSOD, SEMS directives);
- E. Inventory Control and shipping documents;
- F. Radiation Permits;
- G. Fire and Police Notifications;
- H. Swipe and leak testing results;
- I. Unit ionizing radiation SOPs;
- J. Personnel Dosimeter Records;
- K. Radiation worker designated letters, if required;
- L. Gamma surveys;
- M. Decommissioning Surveys and Certificates; and
- N. Radiation Disposal Certificates.

All radiation documents are to be retained by the Unit RadSO/RadSC for a minimum of three years and then archived. Archived documents shall be sent to SO Rad Safe for retention. These documents include but are not limited to the following:

- a. copy of Annual Reports from unit and Branch RadSOs;
- b. incident/accident reports;
- c. change/appointment of RadSOs;
- d. ionizing radiation sources prescribed substance permits;
- e. training records;
- f. all ionizing radiation sources transfer and disposal documentation;
- g. ionizing radiation sources accountability register (i.e. NAIRS storage logs);
- h. fire and security notifications (Appendix 4);
- i. swipe/leak test results;
- j. gamma survey reports;
- k. TLD reports;
- l. inspection and audit reports;
- m. decommissioning certificates; and
- n. general ionizing radiation sources correspondence (e.g. messages, newsletters, minutes from meetings).

## Attachments

Appendix 1 - Base Ionizing Radiation Appointments

Appendix 2 – Precautions when using IRS for training

Attachment 1: Radiation Courses, Guidelines for Training Sources' Use;

Attachment 2: NER Training, Guidelines for Training Sources' Use;

Attachment 3: Training Sources' Register (NER Team);

Attachment 4: Local Authorization for Participation in Off-site Radiation Training or Exercise;

Attachment 5: Training Source Briefing.

Appendix 3 – DND 261, Unit RadSO/SO Rad Safe Information

Appendix 4 – Sample letter for Fire and Police Notification

Appendix 5 – Precautions When Taking Tritium From Stores

Appendix 6 – NAIRS Fire Response

Appendix 7 - Radiation Compliance Certificate (RCC).

### **Appendix 1 - Base Ionizing Radiation Appointments and POC:**

<b>Position</b>	<b>Appointee</b>
SO Rad Safe (Base RadSO)	Mr. J.C.MacKenzie
Alt Base RadSO	Mr J. Dares
BOPs POC	PO2 M.W. Decker
MPs X-ray	PO2 A.M. MacGillivary
Postal Det	Sgt M. Skinner
Supply D206	Mr. E. Johnson
Hazmat D207	Mr A. Sawler

### **Appendix 2: Precautions When Using Ionizing Radiation Sources for Training**

#### **General**

1. NAIRS are regular functions of some Base personnel. NSODs direct units to have a Safety Organization in place to oversee their NAIRS Safety program with a training plan to support the program. Additionally, CFB Halifax has a mandate to provide an emergency response capability for nuclear-powered vessel (NPV) visits to Halifax. This includes a well-trained team capable of providing recommendations to government authorities in the event of a nuclear emergency involving NPVs. This is accomplished with realistic training, exercises and evaluations. The use of ionizing radiation check sources improves the training's realism, the users' understanding and use of radiation detection equipment, and provides feedback that the practices support the theory. The trend is for more realistic emergency response training involving outside agencies, driven by the terrorist threat.

2. With the need for ionizing radiation “training” sources comes the requirement for responsible use of these sources to ensure safety and the CF's policy of ALARA. Accordingly,

the following practises will be followed by Base personnel when training with proved training sources:

- a. Use of IRS for training will be authorized by an approved authority that will ensure safe practises are in place for each training activity. For radiation safety qualification courses, i.e., Basic RadSO or Custodian courses, SO Rad Safe is the authority responsible for overseeing safe use. Attachment 1 provides direction on training source use in support of radiation courses.
  - b. For NERT, the authority approving IRS for training is NERO, or the Formation Nuclear Safety Officer (NSO) with an information copy to SO Rad Safe. Attachment 2 provides guidance when using training sources for decontamination and survey training;
  - c. All training sources will be registered in the Base inventory, see Attachment 3. Unregistered sources shall not be used. Prior to any acquisition of training sources, the SO Rad Safe will be contacted. The requirement for the sources will be reviewed and if verified, SO Rad Safe will obtain authorization from DGNS. This may require a permit amendment;
  - d. Use of training sources is restricted to on-base training. Training sources will not be loaned to any outside agencies. Any requests for the loan of Base training sources, to be used either on or off base by any non-base organization shall be sent to SO Rad Safe. Requests will be submitted one month prior to the request date, using Attachment 4; and
  - e. SO Rad Safe shall be notified of any off-base training or exercises with outside agencies involving IRS which may expose our personnel. An assessment of radiological hazard and potential dose that might be received will be conducted. Additionally, DGNS shall be notified and a completed Attachment 4 form submitted outlining the training details.
3. The precautions given in this document are not intended to limit or restrict valuable training, but to ensure that the training is conducted in a safe manner and according to regulations. For questions regarding training sources, or their use, contact at SO Rad Safe, 721-6398.

**Appendix 2, Attachment 1: Radiation Courses - Guidelines for Training Source Use**

1. The proper use and survey techniques for the ADM 300 are taught on radiation safety courses. A practical test is conducted to confirm the student's understanding of the ADM 300 survey meter's operation, capabilities and survey techniques. This is accomplished by having the student survey for check sources that are positioned in a room. No more than five sources will be used in a practice scenario. Once the student has located a source, it will be removed from the close proximity of the survey site. Each scenario will be no longer than ten minutes.

2 The only training source to be used for this training is the following: NSN 6665013258122, Radioactive Test Sample, Cs137, 185 KBq, Mfd 1990. These training sources are kept by NERT in their safe, in Bldg #9 in Shearwater. On completion of the survey testing and demonstrations, the training Staff, who shall be Advance Qualified, will confirm that all training sources are accounted for and returned to the lockup, using Attachment 3.

**Appendix 2, Attachment 2: NER Training – Guidelines for Training Sources Use**

(Reference: 1546-13-0100 DNSA, 18 April 07, Dose Estimation for Guidelines for Training Source Use)

1. It is essential NERT be very familiar with the use and operation of the team's radiation detection equipment. One of the primary functions of a team member is to be able to detect contamination that maybe found on individuals, equipment or vehicles and decontaminate to an acceptable level. To achieve these goals, training sources may be used to add realism to the training and provide an evaluation tool to confirm understanding and proper surveying techniques.

2. During classroom training or field exercises, any use of authorized training sources will be conducted with an Advance Qualified RadSO present who is responsible for ensuring safety and ALARA principals are adhered to. Training sources authorized for use are NSN 6665013258122, Radioactive Test Sample, Cs137;185 KBq, Mfd 1990.

3. The use of the above mentioned training sources for contamination simulation has been reviewed by DGNS. DNSA conducted a dose estimate and confirmed in reference that sources used in accordance with the procedures outlined in this document would not lead to any significant dose.

4. For scenarios involving simulated contaminated personnel, no more than one training source is to be used on a person. Authorized locations for placing sources on an individual are: Shoulder; knee, foot and forearm.

5. Training sources shall never be placed next to skin, and shielding between source and body will be consist of two 1/16 inch lead plates with the training source taped (clear packing) to the outside plate. Source and lead shielding will be placed in plastic zip lock bags to prevent lead contamination and exposure. Exposure time will be kept to a minimum and not to exceed one hour from time it is placed on a person until its removal as part of decontamination.

6. Training sources will be removed from personnel prior to leaving decontamination area, if not detected during the survey process. Directing staff (DS) for decontamination survey verification will be a qualified RadSO who is responsible for ensuring the above precautions are followed. The DS for decontamination activities will be briefed on their responsibilities and in turn brief participants who will possibly be exposed to low level radiation using Attachment 5.

7. Training sources that are used to simulate vehicle or equipment contamination will be securely attached to avoid possible loss during any movement. If a source is not detected during the survey phase, it will be removed before the vehicle or equipment go across the clean/dirty line.

8. On completion of training, all sources will be accounted for, using Attachment 3, and returned to the NER safe in Bldg #9.

### **Disposal**

9. If it is determined that sources are no longer needed, SO Rad Safe, tel. No.721-6398, will be notified to ensure proper disposal. If the lead plating is to be disposed of, contact SO Hazmat, tel. No. 721-5492.

**Attachment 3: Training Sources Register (NER Team)**

Ser	Date	Training Requirement	#Sources	Out	In	Signature
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						

**Attachment 4: Local Authorization for Participation in Off-site Radiation Training or Exercise**

<b>Activity Description</b> <b>Name of Activity:</b> <b>Hosting/Lead Organization:</b> <b>DND/CF unit Participating:</b> <b>Location:</b>	<b>Date of Activity:</b>
<b>Approving Regulatory Authority</b>	
(Exercise or training must be authorized by an appropriate regulatory authority)	
<b>Objectives of Activity (optional - outline of activities)</b>	
<b>Potential Radiological Hazards</b>	
(Sealed sources, Unsealed sources, Airborne contaminants. Consider internal and external hazards.)	
<b>Dose Consequence</b>	
(Dose consequence values must be verified by a competent authority.)	
<b>List of Participants (any person having the potential to be exposed)</b>	
Attached list	
(Must ensure previous dose history will allow participation.)	
<b>Records Requirements</b>	
(Minimum records requirements: Approval sheet, Participants list. Optional: Post activity summary)	
<b>Approval Authority</b>	
Title:	
Signature:	
Phone:	Date:

**Attachment 5: Training Source Briefing**

1. To simulate contamination on evacuees or causalities, low level training sources will be used. Decon team members will survey your body to confirm the presence of contamination.
2. The training sources used are very low beta and gamma emitters. Director Nuclear Studies and Analysis has conducted a dose estimation and confirmed sources are safe to use and will result in negligible dose being received by participants. Additionally, the following restriction will be in place:
  - a. sources will not be placed next to skin;
  - b. only one source per participant to be used;
  - c. they will not be taken out of their plastic bags or shielding removed;
  - d. will not remain on participants longer than 60 minutes;
  - e. will only placed in authorized locations on participants, ie. Shirt sleeve cuff (wrist), knee pocket, pant cuff (ankle) or rolled shirt sleeve (elbow).
  - f. If not detected will be removed from participants prior to passing through decontamination area;
  - g. once detected during the contamination survey, and after the proper procedure has been conducted by decontamination staff to isolate contaminated clothing, the sources will be removed by Ex Decontamination Controller and isolated in a location where the source will not influence safety or instrument readings; and
  - h. upon completion of the exercise, sources will be accounted for and returned to NER Team lockup, Bldg 9.
3. I have been briefed on “Training Source” use and safety requirements. I consent to my participation in this exercise.

Signature\_\_\_\_\_

Date \_\_\_\_\_

**Appendix 3 – Example of DND 2611****Radiation Safety Personnel – Personnel de la radioprotection :**

	Name – Nom	Telephone – Téléphone	
		Work – Travail	Home – Maison
Unit – Unité			
Formation			
<b>Emergency DND/CF Number</b>	<b>Formation Safety Environment Office: 721-5471 or 721-5473 NDCC: 613-992-2708 or 613-945-5551</b>		<b>Numéro d'urgence Du MDN/FC</b>
<b>Inventory/Inventaire :</b>			
	Radioisotope – Radio-isotope	Total Activity per Radioisotope – Activité totale par radio-isotope	

**Appendix 4 – Sample Letter for Fire and Police Notification**

Maritime Forces Atlantic  
PO Box 99000 Station Forces  
Halifax NS B3K 5X5

Marl: 6740-1 (FLog)

Date

Fire Marshal  
Maritime Forces Atlantic  
PO Box 99000 Station Forces  
Halifax NS B3K 5X5

**HOLDINGS OF RADIOACTIVE MATERIAL**

- CFB Halifax currently holds several pieces of radioactive material at the following locations:

Building	Room No.	Isotope	Total Activity	Equipment	Sealed/Unsealed	Remarks
Add rows as needed						

- All rooms or cabinets containing radioactive material are clearly marked with warning signs. Caution should be exercised if responding to an incident involving any of these spaces. Unit RadSO can be contacted at 427- \_\_\_\_\_.

RadSO Name  
Unit Radiation Safety Officer  
Unit Name

NOTE: A copy of this letter shall be forwarded to the SO Radiation Safety.

**Appendix 5 – PRECAUTIONS WHEN TAKING TRITIUM FROM STORES****WARNING - THE MATERIAL YOU ARE TAKING FROM STORES CONTAINS  
THE RADIOACTIVE ISOTOPE H3 TRITIUM**

Before issuing this equipment be sure that personnel are briefed in the emergency procedure as outlined below:

1. All equipment should be thoroughly inspected before and after each issue to ensure serviceability.
2. If damage is detected inform store personnel and do not use.
3. If the radioactive source is broken the person in charge will IMMEDIATELY ADVISE ALL PERSONNEL PRESENT TO HOLD BREATH AND EVACUATE THE VICINITY AND DO NOT RE-ENTER AREA FOR 30 MINUTES
4. The person in charge will ventilate the area and contact the SO Rad Safe or the FLog RadSO who will initiate any required cleanup.

FLog RADSO                    Mr J. Dares 722-7953 Cell 452-0215

SO Rad Safe                    Mr. J. MacKenzie 721-6398 Cell 499-7854

## Appendix 6 – NAIRS FIRE RESPONSE

1. In the event of a fire in a space containing NAIRS, bunker suits, rubber boots and Chemox breathing apparatus will provide the necessary protection against any internal hazard. The Base Fire Dept or Halifax Region Municipality will be the responders to all fires in storage areas that contain NAIRS (see Table 2 above). The following procedure shall be used:
  - a. use standard procedures to fight the fire;
  - b. once the fire is extinguished, post a sentry in breathing apparatus by the compartment. No one shall re-enter the compartment except under the direction of the SO Rad Safe, FLog RadSO, or identified Fire Fighter with radiation safety training;
  - c. the fire-fighting attack team shall proceed to an area adjacent to the compartment and be confined/quarantined until the level of contamination is determined. The attack team and sentry shall be provided with C4 respirators until they have been surveyed by the SO Rad Safe or designated Fire Fighter knowledgeable in radiation decontamination procedures. If contamination is found, then the Fire Department's decontamination procedures will be used to decontaminate exposed personnel;
  - d. rounds in compartments adjacent to the fire shall be conducted by personnel other than the Fire-Fighting attack team to prevent the spread of contamination;
  - e. a survey shall be carried out by a qualified RadSO or a qualified Fire Fighter to determine if radioactive material has been released; and
  - f. personnel that have been involved in the incident and have entered the space shall not eat, drink, smoke or touch anything else that may be ingested before being thoroughly surveyed and decontaminated if necessary.
  - g. all items potentially contaminated shall be sealed in plastic bags and if readings indicate, sealed in shielded containers for disposal as radioactive waste.
2. Base storage areas holding NAIRS shall prepare appropriate accident response procedures for their holdings. Units shall contact the Base Fire Dept and arrange a visit to review any procedures required to effectively respond to a NAIRS related fire.
3. Decontamination/clean up procedures after a fire will be implemented by the SO Rad Safe or designate when dealing with land based facilities. Procedures for fire fighting on ships are contained in Ship's Class SEMS.
4. The SO Rad Safe, MARCOM/MSRMS 4-2 and DGNS/DNSC shall be included in the priority message reporting on the nature of the incident and the progress of the decontamination procedures.

**Appendix 7 - Radiation Compliance Certificate (RCC)**

Unit/Ship	Date: (When was the decommissioning conducted)
Decommissioning conducted by:	
Location: (brief description of site or object decommissioned)	
Isotope/Equipment Storage History (What was historically stored at the site to be decommissioned, such as: Six CAMs Ni63, 20 C7 scopes H3)	
Reason for decommissioning (brief explanation - RadSO should contact Base RadSO for direction)	
Swipe documentation: (attach all paperwork to this document for future reference)	
Swipe batch # from RMC: (Attach copy of results)	
Formation RadSO notified:	Date:
Signature RadSO/ Custodian:	Date:

**DIRECTIVE #S16 – EXPLOSIVES SAFETY****References**

- A. MARCORD 46-8 Ammunition and Explosives Safety
- B. DAOD 3002-3 Ammunition and Explosives Safety Program
- C. A-GG-040-006/AG-001 DND Explosives Safety Program
- D. Ammunition and Explosives Instructions (A&EIs)
- E. C-09-153-001/TS-000 Ammunition and Explosives Safety Manual Vol 1- Storage and Transportation
- F. A-GG-040-006/AG-002 DND Ammunition Accident/Incident/Defect/Malfunction Reporting
- G. C-09-216-001/TX-000 Ammunition Restrictions; Stock Classes 1300-1410
- H. DAOD 3002-0 Ammunition and Explosives
- I. DAOD 3002-1 Certification of Ammunition and Explosives
- J. DAOD 3002-2 Insensitive Munitions
- K. DAOD 3002-4 Accident, Incident, Defect or Malfunction Reporting
- L. DAOD 3002-5 Use of Firearms, Ammunition and Explosives
- M. CF Supply Manual
- N. CF Guidance to CFADs
- O. MARCORD CS-06 - Transportation of explosives and ammunition by motor transport, ammunition lighter, and military aircraft within Maritime Command
- P. MARCORD 46-502- Maritime EOD Disposal Policy
- Q. MARCORD 46-7 –Ammunition Management
- R. C-74-300-AO1/CS-01, Identification and Marking of Dummy and Display Ammunition
- S. Maritime Command Ammunition Allocation (MCAAL)
- T. D-09-002-010/SG-000Assessment of the Safety And Suitability For Service Of Ammunition And Explosives

**Purpose**

1. To provide direction and assign responsibility for implementing the MARLANT Explosives Safety Program to maximize the safety of all civilian and military personnel, while minimizing personal injury, death and materiel losses.

**Scope**

2. This Directive applies to all users and handlers of ammunition and explosives and their respective chains of command within MARLANT integral units and assigned lodger units who receive administrative and logistic support from CFB Halifax and CFS St John's.

## Definitions

3. **Ammunition:** A device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material, for use in military operations, and includes a non-charged or inert replica of such a device. This Directive does not deal with nuclear or toxic hazards or their classification.

4. **Ammunition or explosives accident:** Any undesired event involving the premature or unintended detonation or initiation of an ammunition or explosive that results in personal injury or death, or materiel losses.

5. **Ammunition or explosives incident:** Any undesired event involving ammunition or explosive that could, but does not, result in personal injury or death, or materiel losses. This includes theft.

6. **Explosive:** An item that is made, manufactured or used to produce an explosion or a detonation or pyrotechnic effect, and includes anything prescribed to be an explosive by the regulations, but does not include gases, organic peroxides or anything prescribed not to be an explosive by the regulations.

## Explosive Safety Organization and Responsibilities

### NDHQ / Command Level

7. The Directorate of Ammunition and Explosives Regulation (DAER) is responsible for the overall Ammunition and Explosives Safety Program (AESP) within DND and the CF. The Maritime Ammunition and Explosive Safety Officer (AESO), located within CMS/DMPOR, is responsible for the overall Maritime AESP

### Formation/Base Level

8. Within MARLANT, the SO Explosives Safety is the OPI for Explosives Safety responsible for:

- a. unit visits and surveys;
- b. annual inspections of lockups, licence holders and registered sites;
- c. explosives awareness training;
- d. training for Unit Explosives Custodians;
- e. preparation of DND 1004 (Explosive Storage Licence) for all MARLANT supported units; and
- f. ammunition accident and incident investigations and preparation of the detailed reports for the Unit involved.

9. Furthermore the SO Explosives Safety is also the Base Explosives Safety Officer for CFS St. John's and CFS Sydney. In both locations the Station COs shall appoint a Unit Explosives Safety Officer (UESO) to assist SO Explosives.

## **Unit Level**

10. The Unit Ammunition and Explosives Safety Officer (UESO) is responsible for the Unit AESP and ensures that the unit is in compliance with all applicable references. The Unit Ammunition Representative (UAR) shall provide assistance to the UESO. Each unit CO shall designate a UESO and a UAR.

## **Direction**

### **The Ammunition and Explosives Safety Program (AESP)**

11. It is MARLANT's policy to maintain an AESP that is consistent with the roles and objectives of DND/CF, Maritime Command (MARCOM) and the Formation. This requires that all DND employees and CF members involved with, or responsible for, ammunition or explosives participate in and support the program.

12. The AESP is a functional concept combining occupational safety and accident prevention that extends over the training, operational and support activities of the DND/CF, MARCOM and MARLANT. The AESP shall be conducted in accordance with A-GG-040-006/AG-001, DND Explosives Safety Program.

### **Application of the AESP**

13. The AESP applies to the complete life cycle of ammunition and explosives, and the full range of circumstances in which they are used, in particular:

- a. use of ammunition and explosives in sea and land operations;
- b. all air environment ammunition and explosives activities except flying operations;
- c. use of ammunition and explosives in basic and non-basic individual training and education (IT&E);
- d. research and development relating to ammunition and explosives;
- e. engineering tests and quality assurance of ammunition and explosives;
- f. transportation of ammunition and explosives; and
- g. supply and storage of ammunition and explosives.

## **Explosives Training**

14. The SO Explosives Safety is responsible for insuring that UESO's and UAR's have received available formal training. Effective training is essential if the MARLANT explosives safety program is to be successful. COs must recognize that it is necessary for

all personnel who are involved with explosives to be adequately trained to perform their duties safely, and that such personnel have a responsibility to observe explosives' safety.

15. The SO Explosives is responsible for providing unit level Explosives Safety briefings. These briefings can be requested by the UESO and can be delivered to a wide audience ranging from NCM's to Officers.

### **Licensing Of Explosives Storage**

16. Ammunition storage for shore based units who have a requirement for ready-use ammunition, shall be licensed for storage IAW reference E.

17. New DND 1004 Explosives Storage Licenses shall be requested by the UESO and endorsed by the CO for onward staffing to SO Explosives. Units requiring ready-use ammunition storage should review options and A&E storage policy with SO Explosives prior to submission.

18. Ammunition not listed on the DND 1004 explosives storage license for the ready-use lock-up shall not be stored in the lock-up. Requests to change the DND 1004 must be staffed through SO Explosives

### **Incident, Accident, Defect and Malfunction Investigation and Reporting**

19. The aim of explosives safety investigations and reporting is to:

- a. Determine exact causes to prevent identical or similar type events;
- b. Quickly warn other organizations which could be subject to an identical or similar event;
- c. Collect data and gain experience on accidents and incidents;
- d. Correct system weaknesses that can cause bodily harm or damage and loss of material and facilities; and
- e. Assist Commander MARLANT in deciding priorities for their explosive safety efforts.

20. Complete details of the requirements of the DND explosives safety accident, incident, defect and malfunction investigation and reporting system are contained in reference F.

### **Records**

Audit and inspection reports

Ammunition and explosives inventory

Incident, Accident, Defect and Malfunction Reports

**Enquiries**

MARLANT, Formation Safety and Environment:  
SO Explosives Safety (SO ExpSafe) – Tel. 902-721-8623.

**DIRECTIVE # S17 – OCCUPATIONAL HEALTH AND SAFETY PROGRAM****References**

- A. DND General Safety Program, A-GG-040-001/AG-001, Chapter 7, Occupational Health
- B. DND General Safety Standards, A-GG-040-009/AG-001, Chapters 20
- C. Canada Labour Code, Part II
- D. CANFORGEN 118/12
- E. Canadian Occupational Health and Safety Regulation (COSHR)
- F. Preventive Medicine Program and Personnel, CF H Svcs Gp Policy 4410-19

**PURPOSE**

1. To provide direction and assign responsibility for implementing the MARLANT Occupational Health and Safety program to ensure the health and safety of every person at work is protected.

**SCOPE**

2. This Directive applies to all DND/CF civilian and military personnel working in MARLANT integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

**DEFINITIONS**

3. **Occupational illness:** Defined by Treasury Board as any disease, abnormal health condition or disorder caused by exposure to environmental factors or substances associated with the workplace, and which includes acute and chronic illness or disease which may result from inhalation, absorption, ingestion or direct contact with a substance. However, “occupational illness” and “occupational injury” are defined in the Government Employment Compensation Act (GECA) as under provincial jurisdiction; and thus, the specific definition of these terms may vary from one province to another.

4. **Occupational Health Hazard:** An identified hazard to employee health capable of causing an occupational illness. An occupational health hazard generally falls into one of the following categories:

- a. **Chemical:** liquids, gases dusts, fumes, mists and vapours;
- b. **Physical:** ionizing and non-ionizing radiation, lasers, noise, vibration, sanitation, ventilation and extremes of temperature and pressure; and
- c. **Biological:** insects, mites, moulds, yeasts, fungi, viruses and bacteria.

5. **Qualified Person:** Means in respect of a specified duty, a person who, because of his/her knowledge, training and experience, is able to perform that duty safely and properly.

## Responsibilities

6. Formation Safety and Environment Officer (FSEO):
  - a. has the overall responsibility and provides direction and oversight for hazard identification in MARLANT workspaces to meet the requirements of Part XIX of Reference E;
  - b. is responsible for the implementation of the Safety Program and compliance with the Canada Labour Code;
  - c. is to consult with the Base Surgeon regarding investigation/inspection of occupational health hazards falling under the purview of specialist safety programs such as laser, non-ionizing radiation, ionizing radiation and explosives safety;
  - d. is to provide N4 Mat communication strategies for internal and external audiences regarding the occupational health and safety of the civilian workforce; and
  - e. is solely responsible for coordinating the receipt of, and response to, external communications on safety issues between the various levels within the Formation, other Commands within DND, external regulatory agencies and private sector organizations.
7. In workplaces occupied by CF personnel, or both CF and DND civilians, the Base Surgeon provides all general health-related workplace investigations/inspections (Reference D), and recommends operationally appropriate corrective measures when needed. The Base Surgeon or delegate shall:
  - a. determine when and how occupational health investigations take place, including whether internal resources (i.e. Preventive Medicine Technicians (PMed Techs)) or external resources (i.e. contractors working for FSE) will be used for occupational health and safety work place investigations such as occupational health surveys, testing/sampling; and
  - b. establish evidence-based remedial or mitigating measures when occupational or environmental health hazards are encountered.
8. In workplaces occupied by DND civilian personnel only, the Base Surgeon assists the FSEO to determine whether internal resources such as PMed technicians, or external resources, such as contractors working for FSE, will be used. If external services are to be used, the Base Surgeon shall:

- a. provide technical assistance to ensure occupational health concerns are considered, and the contract specifications ensure any health risks are evaluated;
- b. assess the resultant report(s) and provide recommendations to the chain of command and FSE regarding evidence-based remedial measures in the context of operational requirements; and
- c. provide oversight and direction to PMed Technicians IAW Reference F.

9. Chain of Command (through their UGSOs): is responsible to advise the Formation Safety Officer (FSafeO) of all requests for occupational health investigations and inspections and to collaborate with FSE when there are operational considerations that may constrain corrective options.

10. Formation Safety Officer (FSafeO) will:

- a. liaise with the Base Surgeon on occupational health and safety issues within the Formation; and
- b. advise the FSEO of situations potentially requiring investigation or inspection.

11. Preventative Medicine Technicians (PMed Techs) will:

- a. conduct health investigations and surveys assigned by the Base Surgeon;
- b. liaise with FSE Staff Officers Occupational Health and Safety concerning occupational health and safety concerns in the Formation.

12. Commanding Officers (COs) are responsible to:

- a. appoint health and safety representatives or committees (as appropriate) and UGSOs within their command, ensure they have the requisite training and they function efficiently and effectively;
- b. provide healthy and safe working environments through proactive hazard identification, communicating health and safety policies, ensuring all subordinates are trained regarding health and safety responsibilities, ensuring required workplace safety inspections are completed and adequate resources are expended in promoting of workplace safety;
- c. initiate protective measures, as required, and maintaining ongoing conditions necessary to protect employees from exposure to health hazards at work;
- d. ensure their staff contact FSE as soon as an occupational health issue arises;
- e. permit and facilitate investigations and surveys;

- f. distribute copies of the PMed or contracted investigation reports to the Workplace Health and Safety Committee, UGSO and any other internal addressee as deemed appropriate; and
  - g. implement recommendations resulting from investigations and surveys.
13. Workplace Health and Safety Committees shall:
- a. receive, consider and expeditiously address complaints relating to the health and safety of the employees;
  - b. assist the employer in investigating and assessing the exposure of employees to hazardous substances;
  - c. cooperate with health and safety officers including those of the CF Health Services (PMed), federal regulatory agencies such as HRSDC (Labour) or Transport Canada (for Maritime Occupational Health and Safety Inspections);
  - d. have full access to all government and department reports (excluding employee medical records), studies and tests, relating to the health and safety of employees represented by the committee; and
  - e. ensure PMed/contracted reports are readily accessible to affected employees.
14. Unit General Safety Officers shall:
- a. track unit inspections (supervisors, managers, workplace and safety committee etc) to ensure requirements under the DND General Safety Program are met;
  - b. liaise with the FSafeO regarding workplace health and safety concerns arising from the inspections (or from any other source of information) which may warrant a formal investigation.
- DIRECTION**
15. All issues and/or concerns regarding occupational health and safety for both civilian and military members shall be referred to FSafeO immediately, who shall be advised of:
- a. the location and description of the facility to be investigated;
  - b. the general nature of the suspected health hazard; and
  - c. the name of the Commanding Officer, or Officer-in-charge.
16. The FSafeO will prioritize requests for investigation/inspection and advise the FSEO of the situation.

17. The Base Surgeon in consultation with the FSEO, shall conduct a preliminary evaluation of situations requiring investigation to determine an appropriate course of action. This may include, but is not limited to:

- a. the decision to initiate PMed or contracted occupational health and safety investigations or surveys;
- b. make recommendations on occupational health and safety study design; and
- c. consultation with assignees on interpretation of results and development of recommendations.

18. FSEO or delegate will coordinate access to DND property by contracted investigators. The FSafeO or appointed delegate shall accompany contracted personnel while they are on-site.

19. All requests for PMed services, for all units (military and/or civilian), shall be made through the FSafeO who (in consultation with the FSEO) shall determine the need to access PMed services and solicit Base Surgeon expertise.

### **Collecting Samples**

20. All samples necessary for the conduct of an occupational health investigation/survey shall be collected by a qualified person, following acceptable evidence-based protocols and using an appropriate method. Samples for occupational health investigations/surveys shall be collected by the agency designated this responsibility by the FSEO, in consultation with the Base Surgeon. Sample integrity shall be maintained by using a “Chain of Custody” protocol. This is usually provided by the sampling agency or analytical laboratory, but it can be of any form provided it identifies the sampler and confirms he/she is qualified, identifies where the sample was taken, and for what purpose, and demonstrates that the sample that was taken is the sample that was analyzed. The laboratory (laboratories) processing samples must be accredited to analyze the type of sample and parameter being assessed, and shall use either a CF method, or a NIOSH or EPA method when no relevant Canadian method exists.

### **Indoor Air Quality Investigations**

21. In MARLANT, to comply with reference E (para 2.26), the name and telephone number of the person designated as the contact point for employees with indoor air quality concerns is to be posted on the unit General Safety Notice Board. It is recommended the designated person be a member of the Workplace Health and Safety Committee. After initial fact finding, this person is to contact FSE (at 721-6882) who will provide guidance and, if necessary, engage PMed and FCE to complete the investigation mandated at COSHR 2.27(1).

## **Communication**

21. Good communication and a strong working relationship between the Base Surgeon, FSEO, FSafeO, UGSOs, PMed Techs, and the Workplace Health and Safety Committee/Representative are crucial to ensure occupational health hazards are identified and addressed to mitigate potential risk.

## **Records**

Requests for hazard investigations

Reports and recommendations from OHS investigations and surveys

All pertinent correspondence

## **Enquiries**

MARLANT - Formation Safety and Environment:

Contact, FSEO - Tel. 902-721- 6881.

## DIRECTIVE #S18 - SAFETY COMMITTEES

### References

- A. A-GG-040-001-AG-001, Chapt.3: Safety Councils and Committees
- B. C-02-040-009/AG-001, Chapt. 8, Annex A, Treasury Board Directive 2-20, Committees and Representatives Directive
- C. Canada Labour Code Part II, Section 135, Workplace Health and Safety Committees
- D. A-GG-040-005/AG-001, Workplace Health and Safety Committee Guide

### Purpose

1. To provide direction and assign responsibility for MARLANT Safety Committees to maximize the safety of civilian and military personnel.

### Scope

2. This directive applies to all MARLANT units including integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **Bargaining agent:** An employee organization: that has been certified by the Public Service Staff Relations Board as bargaining and the certification has not been revoked;

4. **Regional office:** The regional office of Human Resources Skills Development Canada (HRSDC) for the administrative region in which the work place is situated;

5. **Safety and health committee:** A committee established pursuant to policy and legal Standards referenced at B and C;

6. **Safety and health representative:** A representative appointed pursuant to Policy and legal Standards referenced at B and C;

7. **Safety officer:** A person designated as a safety officer pursuant to the Canada Labour Code, Part II, and includes a regional safety officer;

8. **Work place:** Any place where an employee is engaged in work for the employee's department, i.e., the place of assignment as a function of employment.

### Responsibilities

9. Within MARLANT the Formation Safety Officer is responsible for implementation of this Directive.

**Direction****FSEMC/Safety Council**

10. The Formation Safety and Environmental Management Committee (FSEMC) shall perform the functions of the MARLANT Safety Council. The FSEMC is chaired by the Assistant Chief of Staff (ACOS) (Mat) with the Formation Safety Environmental Officer (FSEO) as secretary. Members comprise of Single Point of Responsibility (SPRs), Commanding Officers (COs) and senior management of all MARLANT integral and assigned lodger units.

11. The FSEMC conducts the annual review of the Formation Safety Environmental Management System (SEMS) and addresses safety and environmental matters consonant with the responsibilities and authority of the membership. Safety and environmental problems of a lesser nature should be handled by the Unit Safety Committees (USCs), Workplace Health and Safety Committees (WHSCs), and Unit General Safety Officers Working Group (UGSOWG), as described below. Terms of Reference (TOR) for the FSEMC are contained in the Formation SEMS, Annex 4A.

12. Since the FSEMC deals primarily with policy, budgetary and major safety and environmental matters only, USCs and WHSCs are required to review, discuss and recommend action on safety matters not requiring action by the FSEMC. Where the unit normally employs mainly military personnel, or has a combined military and civilian workforce, but less than 20 civilians, these units shall standup USCs. If the unit normally employs 20 or more civilian workers, this committee shall be formed as a Workplace Health and Safety Committee (WHSC) as required by reference C.

13. USCs or WHSCs requiring that a safety or environmental issue be addressed at the FSEMC level, may request that the unit CO contact the Base Commander, who will have the option of either addressing the issue at the next scheduled Branch Head meeting or will schedule a special meeting of the FSEMC.

**Unit Safety Committees**

14. USCs are working committees established where less than 20 civilians are normally employed, including all fleet units. USCs are responsible for reviewing, discussing and recommending actions on safety matters not requiring action by the FSEMC. The USCs are also responsible for taking action on directives from the Commander MARLANT and the FSEMC, and dealing with current safety issues and concerns that affect or may affect the Formation's resources or the effectiveness of the unit.

15. The USC shall be chaired by the person having the authority to act on the committee's decisions, including the CO, Executive Officer (XO), or senior officer, with membership representative of the unit including line and staff section heads (or their deputy), junior members or employees with no managerial functions.

16. At no time shall a unit General Safety Officer (GSO) sit as either a committee member or chairperson. The unit GSO attends committee meetings as an ex-officio member to provide advice to its members and co-chairs where necessary. As well, since there are supervisory functions at almost all ranks within the military, it is suggested that ranks below Master Seaman (MS) be considered an appropriate rank to represent any junior members within the workplace.

17. Unit Safety Committee meetings shall be convened as required, but not less than four times per year. The proceedings of USC meetings should be designed to permit the sharing of diversified and specialized knowledge to assist in reviewing safety problems, developing means for corrective methods and seeking means of converting the methods into action for hazard occurrence prevention. In general, the USC should deal with:

- a. recommendations for improvement and development of the General Safety Program and/or other specialty safety programs;
- b. matters that affect the safety of personnel, materiel, works and buildings;
- c. review of hazardous occurrence experience, causes and corrective action requirements;
- d. actions necessary to eliminate unsafe conditions and prevalent personnel operating errors;
- e. safety training, education, motivation and promotional requirements;
- f. special safety campaign activities;
- g. changes in policies, procedures, equipment, environment, etc., that affect safety or personnel and materiel;
- h. previous minutes' pending matters;
- i. requirements for, and findings of, safety inspections and surveys;
- j. recommendations to the FSEMC on matters beyond local capability or resources;
- k. health and safety matters referred by subordinate safety committees, safety representatives, or by personnel unable to resolve health and safety matters with their immediate supervisor;
- l. safety budgeting and funding requirements, expenditures, etc;
- m. management and supervisory responsibility, participation and action respecting safety; and
- n. review new workplace hazards and ensure these are appropriately dealt with.

18. The proceedings of safety committee meetings shall be recorded and distributed to committee members with a copy posted on all unit safety notice boards for two months and another copy sent to the Formation Safety Officer (FSafeO). The minutes are a valuable means of communicating safety problems and corrective measures to all agencies within the organization and for recording and monitoring the development, status and progress of the General Safety Program and other specialty safety program activities.

19. Committee minutes should provide the following information:

- a. Brief description of the tabled health or safety item(s) and an indication of where action is required by the committee;
- b. Brief description of the committee's recommendation regarding the item, and whether any reports are required;
- c. Name of person tasked to action the item;
- d. Date for person tasked to provide updates; and
- e. An indication of which items are for information purposes, and which items are ongoing or closed.

### **Workplace Health and Safety Committees**

20. By law, Workplace Health and Safety Committees (WHSC) are required where 20 or more employees normally work (reference C). The number of WHSCs established by each unit will vary depending upon the roles and circumstances within each unit. Factors to be considered when deciding the number of WHSCs required, and the WHSC size are:

- a. number of employees to be represented;
- b. degree of hazard in the workplace;
- c. amount of functions performed, variety of worksites and the number of shifts required;
- d. number of unions involved;
- e. number of military on the labour side of the committee, if permitted;
- f. workplace's Injury Frequency Rate (IFR)and Injury Severity Rate (ISR); and
- g. number of workplace health and safety sub-committees necessary.

21. The size of a committee may be considered appropriate when all employee groups/levels in the workplace are suitably represented and a sufficient number of members exist to carry out the committee's legislated duties.

22. Each WHSC shall have at least fifty percent representation appointed by the bargaining agents and the remainder appointed by the unit CO. Military representatives may be chosen by the bargaining agent if requested, but normally their membership will be from within management's allocation. All selected workplace health and safety committee members must receive prescribed training in health and safety and be informed of their committee member responsibilities, as contained in reference A.

23. Committee members may serve for more than one term, but no more than two terms for public service employees. When vacancies occur, they must be filled within 30 days after the next regular committee meeting.

24. Members of the committee should be selected for their ability to work co-operatively in a problem-solving manner. A quorum shall consist of a simple majority of the members, providing at least half are bargaining agent representatives and at least one member is a representative of the employer.

25. Names, telephone numbers and work locations of all members of the WHSC shall be posted on all unit health and safety notice boards. Should this information change for any reason, the safety notice boards should reflect these updates as soon as possible.

26. Committee members are entitled to time off from their work as is necessary to attend meetings or to carry out any other committee functions. This includes reasonable meeting preparation time and time required for travel, as authorized by both chairpersons of the committee.

27. WHSCs shall have two alternating chairpersons; one selected by the bargaining agent representatives, and the other by the CO or section head. The employer and employees may also select alternate members to serve as replacements for committee members who are unable to perform their functions for any reason. Alternate members shall meet the same criteria as the members they are replacing, e.g. unit managers shall not be appointed as alternates for employee representatives.

28. For workplaces requiring that a WHSC be established, persons exercising managerial functions shall not represent employees, but may represent management on the committee. "Managerial functions" refers to having authority in relation to budget and spending as well as authority to approve an employee's leave.

29. The purpose of the WHSC is to prevent accidents and injury to health arising out of, linked with or occurring in the course of employment. This is considered by both DND senior union members and senior management as too important to allow either labour or management to use the committee as a forum to impinge on the other's prerogatives. The procedures for problem

resolution, the decision-making process, guidelines for creating recommendations and responsibilities of various members are described in detail in reference D.

30. Workplace Health and Safety Committees shall establish their own rules of procedure in respect of the time and place of regular meetings of the committee, and such procedures for its operations, as it considers advisable. However, the committee is required to meet during regular hours at least nine times per year at regular intervals, and, where meetings are urgent, because of an emergency or other special circumstance the committee shall meet as required whether or not it is during regular working hours. The WHSC terms of reference must at least include the responsibilities listed below in addition to any others the committee deems appropriate or is required by reference C. A MARLANT WHSC, in respect of the workplace for which it is established:

- a. shall receive, consider and expeditiously dispose of complaints relating to the health and safety of the employees;
- b. shall participate in the implementation and monitoring of the Department's health and safety programs for the prevention of hazards in the workplace, that also provides for the education of employees in health and safety matters, as developed by the National Health and Safety Policy Committee;
- c. where the program referred to above does not cover hazards unique to a workplace, shall participate in the development, implementation and monitoring of a program for the prevention of those hazards, that also provides for the education of employees in health and safety matters related to those hazards;
- d. shall participate in all of the inquiries, investigations, studies and inspections pertaining to the health and safety of the employees, including any consultations that may be necessary with persons who are professionally or technically qualified to advise the committee on those matters;
- e. shall participate in the implementation and monitoring of a program for the provision of personal protective equipment, clothing, devices or materials;
- f. shall ensure that adequate records are maintained on complaints, work accidents, injuries and health hazards related to the health and safety of employees and regularly monitor data relating to those complaints, accidents, injuries and hazards;
- g. shall cooperate with health and safety officers including those of the Canadian Forces (CF) medical service, federal regulatory authorities such as Health Canada and Human Resources Skills Development Canada (HRSDC) (Labour), and unit, base, wing and formation GSOs;

- h. shall participate in the implementation of changes that may affect occupational health and safety, including work processes and procedures, and participate in the planning of the implementation of those changes;
- i. shall assist the employer in investigating and assessing the exposure of employees to hazardous substances;
- j. shall inspect each month all or part of the workplace, so that every part of the workplace is inspected at least once each year;
- k. shall render a recommendation on all health and safety issues prior to submitting them to a higher authority; and
- l. shall participate in the development of health and safety policies and programs;

31. A WHSC shall maintain records of all matters that come before it. Minutes of all meetings shall be signed by both chairpersons and distributed as follows:

- a. one copy to FSafeO, UGSO, file (kept for five years), and one copy for each committee member; and
- b. one copy to be posted on the health and safety notice board for a period of at least two months.

32. The committee chairperson representing management shall prepare a report of the committee's activities during the 12-month period ending 31 Dec on the form set out in Annex A and submit it no later than 1 Feb each year to FSafeO for consolidation and transmission to HRDSC by 01 Mar . The management co-chair shall complete the report and both they and the employee co-chair shall sign it. The report is then:

- a. sent to FSafeO for distribution to the regional office of HRSDC and within MARLANT/MARCOM as required; and
- b. posted on the Health and safety notice board for a period of at least 2 months.

33. The mandatory requirements of Federal Public Service civilian personnel collective bargaining agreements, where applicable, must be observed in the establishment and structuring of workplace health and safety committees, as provided at reference B.

34. Regardless of the type of committee established within the workplace, it is important to ensure the ratio of military and Public Service Employees as well as the various occupations, and/or the employee groups/levels are reflected in the committee's membership.

35. In some instances, it may be appropriate for a unit to establish more than one WHSC. This will depend upon the unit's size, its complexity, and geographic location of its buildings. The unit CO, however, will render the decision under those circumstances.

## Unit Safety Sub-Committees

36. Unit Safety Sub-Committees (USSC) may prove beneficial within specific units depending upon the unit's size, its complexity, geographic location of its buildings, and/or the number of work groups employed within that unit. For example, a unit may employ a large number of personnel from a particular work group who would prefer to have a sub-committee established to address only their health and safety concerns rather than appointing one person to represent that group on either a USC or a WHSC. Having a sub-committee for this reason ensures that all matters are given the appropriate attention and the committee members are all associated with the same work group.

37. The sub-committee members are required to provide copies of its meeting minutes to the unit's main committee, i.e. the USC or the WHSC. This ensures the main committee is kept abreast of all recommendations and decisions arising from the sub-committee's meetings and is afforded the opportunity to become involved should its chairperson(s) deem this appropriate.

## Training Programs

38. DND/CF is committed to providing all members of workplace committees with the appropriate training to understand their roles and responsibilities and perform their duties. In order to meet this commitment, the following minimum training standards are to be met by all workplace committees and their members:

- a. **Basic Safety Officer Training Course.** The two co-chairs of the workplace committee must attend this course as soon as practicably possible upon being named to the position. This will ensure that they are able to dispense with their responsibilities as co-chairs and provide positive direction to the workings of the workplace committee.
- b. **Safety Management Course.** All other members of the workplace committee must attend this course as soon as practicably possible upon being named as a member of the workplace committee. This will ensure that they receive the minimum training required to be able to perform their duties as a member of the workplace committee.
- c. **Occupational Health Course.** Although occupational health expertise is available from the Senior Medical Officer and/or Preventive Medical Technician, a few members of the workplace committee, especially those representing workplaces comprising significant, special or numerous hazards, should attend this course. This would ensure an increased level of expertise within the workplace committee thus allowing it to deal with questions and situations arising out of occupational health issues.
- d. **Safety Program Evaluator's Course.** At least one of the members of the workplace committee must attend this course. This course will ensure that this member is able to perform the duties of the SPDET evaluator, as described at

reference A, Chapter 9, when the workplace committee performs its annual General Safety Program evaluation.

- e. **Hazardous Occurrence Investigation Training.** At least two members of the workplace committee, preferably one from management and one from the bargaining agent, must attend this training. This is to ensure that the workplace committee has the required expertise on-hand to perform the Hazardous Occurrence Investigation and Reporting requirements as outlined at reference A, Chapter 4.

39. Committee members benefit from the exchange of information at meetings. Committee work depends on a wide range of knowledge and information. So that workplace committee members can expand their knowledge, it is recommended that time be set aside at each meeting for education and new information.

### **Health and Safety Representatives**

40. In workplaces where fewer than 20 civilian employees are normally employed, or where an employer is not required to establish a WHSC, a health and safety representative shall be selected by the employees who do not exercise managerial functions. If the employees are represented by a trade union, the trade union shall appoint the representative and will do so in consultation with any employees in the workplace not represented by a trade union. These selected representatives will perform their tasks in accordance with the requirements of the Canada Labour Code, Part II.

### **Unit General Safety Officers Working Group (UGSOWG)**

41. The UGSOWG provides a forum for the exchange of ideas regarding safety programs and issues and the implementation and maintenance of the MARLANT and unit management systems. The UGSOWG members comprise all ship and shore UGSOs and Formation Safety and Environment (FSE) safety personnel. The UGSOWG is co-chaired by FSafeO and Formation Safety Environmental Management System Officer (FSEMSO) to address management system issues. TOR for the UGSOWG is contained in the Formation SEMS, Annex 4A.

42. The UGSOWG meets quarterly and is responsible for:

- a. Reviewing the status of Safety Management Programs;
- b. facilitating the implementation and maintenance of Unit SEMSs consistent with Z1000/14001;
- c. identifying and discussing opportunities for the improvement of safety performance through the SEMS;
- d. identifying and sharing common components of the SEMSs, such as Standard Operating Procedures (SOPs);

- e. consolidating information on unit hazards and significance criteria as input to the Formation Risk Prevention Program;
- f. identifying and discussing Unit training needs; and
- g. planning, assisting with, and communicating safety awareness and promotion.

**Attachments**

Form for annual report to HRSDC.

**Enquiries**

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5471.

## DIRECTIVE #S19 - ERGONOMICS PROGRAM

### REFERENCES

- A. Canada Labour Code Part II, 125 (1) (t) and (u) of the Act;
- B. A-GG-040-001-AG-001, Chapt.10;
- C. COHS Regulations Part XIX, Hazard Prevention Program;
- D. MARCORD 66-01, August 2007, Annex K, Ergonomic Safety.

### PURPOSE AND SCOPE

1. To provide direction and assign responsibility for the application and administration of the MARLANT Ergonomics Program. The aim of the Program is to identify and reduce or eliminate the potential for ergonomic risk factors thereby safeguarding employees from this type of hazard.
2. This directive applies to all civilian employees, including those employed by integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic except as provided below in the “Exceptions” section.

### DEFINITIONS

3. **Ergonomics:** A discipline that involves fitting the job to the worker and not the worker to the job. It is the science of adapting workstations, tools, equipment and job practices to be compatible with the individual worker thus reducing the risk of injury due to risk factors.
4. **Ergonomics Program:** The application of ergonomics in a system that includes the following components: health and risk factor surveillance, job evaluation and analysis, medical management and training.
5. **Ergonomic Assessment:** The detection and evaluation of common office ergonomic risk factors/hazards with a focus on force, repetition and sustained awkward posture. Assessments may include a participant discomfort survey, observational photographs and/or anthropometric measurements.
6. **Ergonomic Assessment Report:** Documentation stemming from an Office Ergonomic Assessment that identifies existing risk factors/hazards and provides recommendations for the reduction or elimination of those risk factors/hazards.

### DIRECTION

#### Responsibilities

7. Formation Safety and Environment Officer (FSEO) provides oversight and direction for the MARLANT Ergonomics Program.

8. Formation Safety Officer, through the Safety Program Administrator, is responsible for implementation of the MARLANT Ergonomics Program.
9. Staff of the CFHSvcsC(A) Physiotherapy Section perform all ergonomic assessments and provide postural and ergonomic training for MARLANT military members.
10. UGSOs shall maintain a file of ergonomic request forms, assessments and reports and shall record all actions taken to implement the recommendations contained in the reports.

## **Operational Direction**

### **Military Ergonomic Assessments**

11. Military members requiring an ergonomic assessment shall book an appointment with their Care Delivery Unit for referral to Physiotherapy.

### **Civilian Ergonomic Assessments**

12. Requests for Office Ergonomic Assessments for civilian personnel shall be forwarded, in writing, e-mail is permissible, to the FSE Safety Program Administrator, and must include a completed Ergonomic Assessment Request Form. Forms can be downloaded from the MARL website or by contacting the FSE Safety Program Administrator at 902-721-5471.

13. Office Ergonomic Assessment services are contracted through Base Logistics (Blog) by a call-up against the National Master Standing Offer Agreement unless determined otherwise by FSE staff. The supervisor and the employee will complete the ergonomic assessment request form then forward it to FSE with a copy to the section head and the UGSO. This serves as confirmation that the unit accepts financial responsibility to implement all recommendations included in the resulting report.

14. When an employee requests an Office Ergonomic Assessment that is NOT authorized by his/her supervisor, the employee may justify the requirement by obtaining a note from his/her health care provider. This note will ensure an Office Ergonomic Assessment request is processed. Any cost incurred by the employee to obtain such a note is to be borne by the employee.

15. Following receipt of an Office Ergonomic Assessment Report, corrective measures shall be implemented. Funding for corrective measures is a unit responsibility. A follow-up evaluation should be conducted, after recommendations are implemented, to measure the effectiveness of the recommendations, address any equipment issues that may have developed and determine if further action is required. Follow-up evaluations are arranged through the FSE Safety Program Administrator.

16. Employees may further request a re-assessment, on the advice of their health care provider and/or after transfer to another permanent workstation. Requests for re-assessments will be processed in the same manner as original requests. Supervisors should include the date

of the original assessment and the reason for the re-assessment in their written request to the FSE Safety Program Administrator.

17. Office Ergonomic Assessment Reports are generated and promulgated following all assessments and re-assessments. The report is forwarded to the Section/Div Head as the Action Addressee. Copies are provided for the Supervisor, UGSO and the employee as Info Addressees. A cover letter signed by the FSEO accompanies each report and directs action addressees to provide the FSE Safety Program Administrator with a status report detailing the implementation of recommendations outlined in the report within the specified time allotment. An explanation should be provided when recommendations cannot or will not be implemented.

18. A Hazardous Occurrence Investigation Report (DND663) must be initiated if office ergonomic hazards contributed to occupational illness or injury. Standard reporting processes must be followed.

19. Potential ergonomic hazards should be anticipated by managers and supervisors when designing new tasks, and when purchasing office furniture and equipment.

### **Exceptions**

20. The following exceptions are outside the scope of this directive:

a. Industrial Workplaces

In cases where there is a requirement for an industrial assessment the unit shall submit a request in writing, email is acceptable, for FSE to assist with selection and contracting of a consultant to conduct the assessment. FSE shall also provide oversight of the work and assist with a review of the assessment report and implementation of recommendations. The cost of the assessment will be borne by the requesting unit.

b. Students and Contractors

The MARLANT Ergonomic Program does not apply to students or contractors even if they are employed by integral or assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic. Units with student or contract employees requiring office ergonomic assessments are responsible to fund and contract for this service through BLog following established contracting procedures. FSE shall be advised of these assessments and shall be provided with a copy of the resulting report. FSE personnel are available to provide advice and consultation prior to contact with BLog.

c. NPF/PSP employees

Units with NPF/PSP employees requiring office ergonomic assessments, are responsible to fund and contract for this service through BLog following established contracting procedures. FSE shall be advised of these assessments and shall be provided with a copy of the resulting report. FSE personnel are available to provide advice and consultation prior to contact with BLog.

**ENQUIRIES**

FSEO: Tel. 902- 721-6881/Facsimile 902-721-5417.

**CFHSvcsC(A) Physio Department:** Head of Physiotherapy: Tel. 902-721-5481,  
Physiotherapist: Tel. 902-721-8975.

**DIRECTIVE #S20 – GENERAL SAFETY PROGRAM: ROLES AND RESPONSIBILITIES****References**

- A. DND General Safety Program, A-GG-040-001/AG-001, Volume 1, Chapter 2, Responsibilities
- B. DND General Safety Program, A-GG-040-001/AG-001, Volume 1, Chapter 3, Safety Councils and Committees
- C. DND General Safety Program, A-GG-040-001/AG-001, Chapter 4, Hazardous Occurrence Investigation, Reporting and Analysis
- D. MARLANT SEMS, Directive #S17, OH Program
- E. Canada Labour Code, Part II, Articles 124, 125 Duties of employers; Article 126, Duties of employees
- F. CFAO 34-23, Occupational Health

**Purpose**

- 1. To provide direction and assign responsibility for implementing the MARLANT General Safety Program, with respect to the roles of the Formation Safety Officer and Unit General Safety Officers (UGSOs).

**Scope**

- 2. This Directive applies to all DND/CF civilian and military regular forces and reserve members working in all MARLANT integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

**Responsibilities**

- 3. Commander MARLANT: has overall responsibility for ensuring a General Safety Program (GSP) consistent with the DND/MARCOM GSP is developed, implemented and controlled. This includes appointing a General Safety Council, a General Safety Committee and ensuring that applicable General Safety sub-Committees and/or OHS Workplace Committees are stood up and implemented.

- 6. Assistant Chief of Staff (Materiel) (ACOS (Mat)): has the day to day responsibility to ensure that the MARLANT GSP is implemented and controlled.

- 7. Formation Safety and Environment Officer (FSEO): has the overall responsibility for the MARLANT GSP and provides direction and oversight for the conduct of the Program. The Formation GSP provides for:

- a. Effective general safety hazardous occurrence investigation and reporting;

- b. Review of OHS performance;
  - c. Integration of OHS and accident prevention into all functional activities and training;
  - d. Selection and conduct of OHS training for management, supervisors and trades personnel. This includes promotion and conduct of a continuing on-the-job OHS training program and the provision for indoctrination and OHS training for new personnel; and
  - e. Creation and maintenance of a program of OHS management that holds line management responsible and accountable for implementing the required accident prevention measures for the OHS of their personnel and materiel resources.
8. Formation Safety Officer (FSafeO): FSafeO is MARLANT's General Safety Officer is responsible for managing the implementation of the Formation GSP. The GSO's responsibilities fall into seven main areas:
- a. Program development, administration and evaluation;
  - b. Training and education;
  - c. Promotion and motivation;
  - d. Consulting, liaison and monitoring;
  - e. Accident prevention, investigation and analysis;
  - f. Safety Council and committees; and
  - g. Return to Work.
9. FSafeO shall receive copies of DND 663s and CF 98s to ensure that appropriate hazardous occurrence investigations and reporting have taken place.
10. Commanding officers (COs): are responsible for developing, implementing and controlling a GSP consistent with MARLANT's GSP, specifically they shall:
- a Appoint a General Safety sub-committee or OHS Workplace Committee as applicable;
  - b Appoint a UGSO and provide sufficient financial and personnel support to manage the Unit's GSP outlined at "c" below; and
  - c Implement and control a program of general safety to prevent accidental death or injury as well as damage to, or destruction or loss of equipment, materiel, works and buildings throughout all areas and activities under their functional control, and that provides the program elements outlined in 7 a-e above.

## Line Officers

11. OHS and accident prevention are major responsibilities of line organization officers and their civilian equivalents. The manager is accountable for accidental losses and must set an example by establishing objectives and policies which will influence the accident prevention effort and motivate subordinates to identify and eliminate potential OHS hazards. The responsibilities of officers/managers at all levels are detailed at reference A. The key responsibilities include:

- a. Implementing the commander's OHS policy and establishing a continuing effort to carry it out;
- b. Integrating OHS and accident prevention considerations and practices into all operations, contracts and activities for which they are functionally responsible;
- c. Determining training needs and arranging for education and training; and
- d. Conducting monthly OHS inspections of all areas under their functional control.

## Supervisors

12. Supervisors are ideally placed to identify OHS hazards and problems. Since they deal directly with individuals and the job, they are in the best position to improve safety attitudes, knowledge and skill and to insist on safe work practices. They also have a legal obligation to do so. Supervisors' responsibilities are detailed at reference A. The key responsibilities include:

- a. Be knowledgeable of and enforce at all times OHS policies, regulations, standards and procedures pertaining to activities, personnel, materiel, works and buildings for which they are directly responsible;
- b. Conduct OHS indoctrination and hazardous material (WHMIS) training to newly assigned personnel, and give five minute safety talks to all subordinates or when new equipment or new operating procedures are implemented;
- c. Ensure personnel are adequately trained, qualified and fit to perform their assigned tasks in a safe manner;
- d. Conduct weekly unplanned and planned OHS inspections of activities and materiel in all areas under their functional control;
- e. Investigate and report all hazardous occurrences and near misses that occur in all areas under their functional control;
- f. Make OHS training, educational and motivational material available to all personnel under their control and promote OHS and accident prevention on a continuing basis;

- g. Report unsafe situations beyond their capability to resolve to the appropriate authority;
- h. Ensure all personnel are made aware of workplace hazards and are trained on appropriate safety precautions; and
- i. Stop work immediately whenever they observe an unsafe condition on a job site which in their opinion is a serious danger or hazard to workers.

## **Individuals**

13. All personnel shall implement the OHS policy of their chain of command and accident prevention efforts. In addition, individuals have specific legal responsibilities as detailed at reference E, and summarized below. Specifically each employee shall:

- a. Use any safety materials, equipment, devices and clothing that are intended for the employees protection and furnished to the employee or that are prescribed;
- b. Follow prescribed procedures with respect to the health and safety of employees;
- c. Comply with all instructions concerning the health and safety of employees;
- d. Cooperate with the policy and workplace committee or the health and safety representative;
- e. Report to his/her supervisor anything that is likely to be hazardous to the health and safety of the employee, or that of the other employees or other persons granted access to the work place;
- f. Report every accident or other occurrence arising in the course of or in connection with the employee's work that has caused injury to the employee or to any other person;
- g. Comply with every oral or written direction of a health and safety officer and appeals officer concerning the health and safety of employees; and
- h. Report to the employer any situation that the employee believes to be a contravention of the General Safety Program by the employer, another employee or any other person.

## **Health and Safety Committee Representatives**

14. Every DND workplace at which 20 or more civilian employees are employed shall establish an OHS workplace committee. Units, such as hips, with mainly/only military members shall also stand up safety committees. The formation, membership and function of these committees are prescribed at references B, Chapter 3 and reference D.

15. Every DND workplace at which 20 or more civilian employees are employed shall establish an OHS workplace committee. Units, such as hips, with mainly/only military members shall also stand up safety committees. The formation, membership and function of these committees are prescribed at references B, Chapter 3 and reference D.

16. In workplaces where there are less than 20 civilian personnel the CO will appoint an OHS representative, chosen by the employees' trade union in consultation with any employees who are not so represented.

17. If there is no union, the CO shall appoint an OHS representative selected by the employees who do not exercise managerial functions from among their peers.

### **Contractors**

18. OHS procedures and concerns must be written into all civilian contracts to ensure that civilian contractors working on DND property will follow the Formation's OHS policy and procedures and comply with applicable OHS legislation.

### **Medical Staff**

19. The Formation medical officer is responsible for OHS for DND military personnel as defined in reference F, CFAO 34-23, Occupational Health.

### **Direction**

18. It is noted at reference A that "GSO" refers to the person performing the General Safety Officer function at any level within DND, and the terms of reference for each "GSO" may vary according to the roles of the organization served by the "GSO". To clarify the situation within MARLANT this Directive defines the specific expectations of the identified general responsibilities and the responsibilities for each of the seven areas given above for the FSafeO, and the various UGSOs. In the following paragraphs, responsibilities assigned to FSafeO may be delegated to another FSE member.

19. Legal and Other Requirements

<b>FSafeO Responsibility</b>	<b>UGSO Responsibility</b>
FSafeO is the local expert on Part II of the Canada Labour Code; the Treasury Board Manual, Occupational Safety and Health Volume; and other pertinent OHS regulations, directives, standards, etc.	UGSOs must have sufficient knowledge of unit activities and operations and safety regulations, and DND policy, orders, and directives to determine which apply to the unit, and be able to counsel the unit CO and other personnel on compliance.

## 20. Program Development, Administration and Evaluation

<b>I.D.</b>	<b>FSafeO Responsibility</b>	<b>UGSO Responsibility</b>
a.	Develop, plan, coordinate and administer the MARLANT GSP and ensure its compliance with the DND GSP.	Develop, plan, coordinate and administer the Unit GSP and ensure its compliance with MARLANT's GSP.
b.	Review the MARLANT GSP and suggest improvements for problem areas.	Review the Unit GSP and suggest improvements for problem areas.
c.	Ensure OHS audits of units are conducted annually, and line personnel briefed on weaknesses found.	Act as the point of contact for Formation safety audits and inspections conducted by FSE.
d.	Develop, with line authority, safety inspection checklists.	Assist with the preparation of appropriate safety inspection checklists, and ensure they are used within the Unit as applicable.
e.	Ensure an FSE file system is maintained to regulate audit schedules, maintain audit reports and keep various checklist formats.	Ensure a Unit safety file system is maintained.
f.	Develop, prepare and administer the annual allocated general safety budget for FSE.	Develop, prepare and administer the Unit's annual allocated general safety budget.
g.	Recommend changes to Formation safety policies, standards and procedures that will improve local safety performance.	Recommend changes to Unit safety policies, standards and procedures that will improve Unit safety performance.
h.	Assist MARLANT integral and lodger units in implementing and administering their own GSPs.	Ensure the annual preparation of the Unit SPDET and submission to FSE.
i.	Coordinate the submission to HRSDC of the Workplace OHS Committees' annual report.	Ensure the Unit's Workplace OHS Committee's annual report for HRSDC is submitted to FSE.

## 21. Training and Education

<b>I.D.</b>	<b>FSafeO Responsibility</b>	<b>UGSO Responsibility</b>
a.	Determine MARLANT's safety training needs, and acquire the necessary resources to satisfy these requirements.	Determine Unit's safety training needs, and determine how to satisfy these requirements.
b.	Consolidate unit nominations to ensure compatibility with their job requirements.	Load safety training candidates onto applicable courses.
c.	Host general safety courses conducted on site but funded by other agencies.	Host general safety courses conducted at the Unit but funded by FSE.
d.	Administer general safety courses conducted at MARLANT.	Administer general safety courses conducted at the Unit.
e.	Participate as an instructor in safety training courses.	Where qualified, participate as an instructor in Unit safety training courses.
f.	Ensure, on behalf of FSEO that orientation, indoctrination, safety briefings and five minute safety talks are conducted as required.	Ensure, on behalf of the CO that orientation, indoctrination, safety briefings and five minute safety talks are conducted as required.
g.	Teach supervisors how to investigate hazardous occurrences.	Ensure Unit supervisors investigate and report hazardous occurrences as required by reference B.
h.	Create and conduct new safety training when the need arises.	Maintain and continually upgrade Unit safety promotion, training and education material and ensure Unit web site is update on safety matters as needed.
i.	Educate OHS Workplace committee members on their duties and responsibilities.	Remain current on Unit health and safety issues.

<b>I.D.</b>	<b>FSafeO Responsibility</b>	<b>UGSO Responsibility</b>
j.	Maintain and continually upgrade Formation safety promotion, training and education material and ensure web site is update on safety matters as needed.	N/A
k.	Remain current on emerging health and safety issues.	N/A

## 22. Promotion and Motivation

<b>I.D.</b>	<b>FsafeO Responsibility</b>	<b>UGSO Responsibility</b>
a.	Administer the Formation general safety recognition and well done awards.	Nominate Unit candidates for safety awards.
b.	Contribute articles and safety information through various media sources to highlight general safety.	Safety “stories” sent to FsafeO to evaluate whether worthy of forwarding for publication.
c.	Administer distribution of safety poster throughout the Formation to ensure adequate distribution and display.	Administer distribution of safety poster throughout the Unit to ensure adequate distribution and display.
d.	Manage the Formation general safety distribution lists for publications and posters.	N/A
e.	Develop and implement various safety promotional ideas to enhance the MARLANT program.	Develop and implement various safety promotional ideas to enhance the Unit program.
f.	Ensure the FSE general safety notice board is maintained and current.	Ensure the Unit general safety notice board is maintained and current.

## 23. Consulting, Liaison and Monitoring

<b>I.D.</b>	<b>FSafeO Responsibility</b>	<b>UGSO Responsibility</b>
a.	Provide Formation-wide advice to FSEO on OHS, and in particular the provisions of Part II of the Canada Labour Code and its regulations and on all Treasury Board and DND OHS directives, standards and procedures in particular those dealing with committees, refusal to work, return to work and protective clothing.	Provide advice to the Unit CO on OHS, and in particular the requirements of Part II of the Canada Labour Code and its regulations, that apply to the Unit. and MARLANT OHS directives, standards and procedures in particular those dealing with committees, refusal to work, return to work and protective clothing.
b.	Monitor and advise on the WHMIS and hazardous material safety program as it applies to the safety of personnel.	Monitor and advise on the Unit WHMIS and hazardous material safety program as it applies to the safety of personnel.
c.	Liaise with FCEO to ensure that civilian contractors and Defence Canada Construction (DCC) comply with all safety orders, regulations and standards.	Ensure that contractors working for the Unit comply with all safety orders, regulations and standards.
d.	Verify that appropriate safety clauses are inserted in local purchase and construction contracts, as required.	N/A
e.	Receive and review civilian personnel officer's listing of WCB "Employer's Report of Accident" for employees who have sustained injuries from accidents, and ensure that the hazardous occurrence forms are initiated.	Ensure that all appropriate hazardous occurrence /WCB forms are initiated for Unit members who sustain injuries from accidents.

<b>I.D.</b>	<b>FSafeO Responsibility</b>	<b>UGSO Responsibility</b>
f.	Make key personnel, including OHS committee members, aware of new developments in the general safety field that apply to the Formation.	Make the CO, supervisors and OHS committee members aware of new developments in the general safety field that apply to the Unit.
g.	Provide general safety support and advisory services to subordinate lodger and satellite units.	N/A
h.	Monitor the Formation-wide workplace to ensure that basic engineering practices such as guarding devices, barriers and PPE are correctly used, and in conjunction with other experts such as line officers, Supply Officers, PMed Techs, LCMMs, etc., assist in determining the requirements for additional safety devices.	Monitor the Unit workplaces to ensure that basic engineering practices such as guarding devices, barriers and PPE are correctly used.
i.	Co-ordinate and report on general safety related visits by outside agencies, such as HRSDC, Labour Health and Safety Officers, and Health Canada	Inform FSafeO of any proposed general safety related visits by outside agencies.
j.	Identify and advise FSEO of any errors, omissions and/or poor practices in the Formation GSP.	Identify and advise CO of any errors, omissions and/or poor practices in the Unit GSP.
k.	Provide technical advice and support in the selection, training and career progression of GSOs at subordinate levels.	N/A

## 24. Accident Prevention, Investigation and Analysis

<b>I.D.</b>	<b>FSafeO Responsibility</b>	<b>UGSO Responsibility</b>
a.	Use specialized knowledge and the results of hazardous occurrence investigations to advise line authorities how to: <ol style="list-style-type: none"> <li>1. eliminate causative factors associated with hazardous occurrences;</li> <li>2. develop measures to reduce the degree of hazard to an acceptable level; and</li> <li>3. reduce the severity of potential accidents by recommending guards, PPE or other specialized safety equipment.</li> </ol>	Use the results of hazardous occurrence investigations to advise line authorities how to improve safety performance within the Unit.
b.	Prepare the annual Formation statistical General Safety report including all information required by Treasury Board as input for the Safety Environment Report (SER).	Prepare the annual Unit statistical General Safety report including all information requested by FSE as part of the FSEMC Management review.
c.	Develop methods, in conjunction with line authorities, of identifying hazards and evaluating the attendant risk of current and proposed facilities.	Ensure supervisors are identifying job hazards and applying controls to minimize the risk.
d.	Prepare and interpret Formation-wide analyses of personnel and materiel losses resulting from accidents.	Prepare and interpret analyses of personnel and materiel losses resulting from accidents within the Unit.
e.	Compile, review and validate Formation-wide reports of injuries, property damage and accidents, and compile statistics and interpret relevant causative factors.	Compile, review and validate Unit reports of injuries, property damage and accidents, and interpret relevant causative factors. Send this information to FSafeO to develop Formation general safety statistics.

I.D.	FSafeO Responsibility	UGSO Responsibility
f.	Report accidents and incidents to HRSDC and other outside agencies as required by legislation.	Report accidents and incidents to FSafeO.
g.	Assist the line authority in conducting or arranging for OHS studies and/or surveys (reference C).	Make the CO aware of any Unit infrastructure safety and/or health concerns and report to FSafeO for assessment, advice and resolution.
h.	Report any safety or health hazard that FSafeO is aware of to FSEO for assessment, advice and resolution.	N/A (see above).

## 25. Safety Council and Committees

I.D.	FSafeO Responsibility	UGSO Responsibility
a.	Co-chairs the UGSO Working Group	Member of the Unit General Safety committee or Workplace OHS committee as applicable.
b.	Reviews minutes of all committees he/she participates on to ensure action items are addressed.	Reviews minutes of the Unit committee he/she participates on to ensure action items are addressed.
c.	Provides briefings and recommendations when requested.	Provides Unit briefings and recommendations when requested.

## 26. Return to Work.

I.D.	FSafeO Responsibility	UGSO Responsibility
a.	As chair of the Formation Return to Work Committee, administers the Formation Return to Work Program.	Participates as a member of the unit RTW Committee.
b.	Provides advice, information and training on the Return to Work Program.	Ensures unit RTW Committee receives the necessary information and training.
c.	Provides case management recommendations and determines the need to contract professional case management services.	Reviews all RTW cases that require case management services and forwards to Formation for required action.
d.	Assists in locating areas where injured employees can do modified work.	Assists in determining suitable modified work assignments within their unit.
e.	Assists managers and supervisors in determining the feasibility of modifying the injured employees workplace.	Seeks direction/assistance when determining the requirements for modifying the workplace to accommodate an injured employee.

## Records

Training records  
Completed accident/incident report forms  
Completed WCB forms  
Safety inspection reports  
Hazard identification and assessment reports  
Safety Audit reports  
Completed SPDET Reports  
Management review reports

**Enquiries**

MARLANT - Formation Safety and Environment:  
Contact, FSEO - Tel. 902-721- 6881.

**DIRECTIVE #S21 - ACCOMMODATING PERSONS WITH ENVIRONMENTAL ILLNESS / MULTIPLE CHEMICAL SENSITIVITY****References**

- A. Canadian Human Rights Act.
- B. Canada Labour Code Part II.
- C. Treasury Board of Canada Secretariat - Policy on the Duty to Accommodate Persons with Disabilities in the Federal Public Service, June 2002.
- D. General Safety Standards C-02-040-009/AG-001, (Ch. 18, 19 and 20).
- E. Accommodating Employees with Environmental Sensitivities – A Guide for the Workplace.
- F. CFAO 19-40 Human Rights – Discrimination.
- G. CPAO 2.02 Human Rights – Discrimination.
- H. DAOD 5015-0 Workplace Accommodation.
- I. Policy for Developing a Scent-Free Workplace – The Lung Association.
- J. D Safe G Advisory – Environmental Sensitivities; A Message from the Departmental Health and Safety Policy Committee.
- K. Canadian Human Rights Commission Report: Accommodating the environmentally sensitive protects everyone.
- L. The Medical Perspective on Environmental Sensitivities.
- M. Accommodation for the Environmental Sensitivities: Legal Perspective.
- N. HRM Guide Canadian Employment Law - Dealing With Fragrance Sensitivity in Workplaces.
- O. Formation Safety and Environment (FSE) Education Package.
- P. A-GG-040-009/AG-001, Return to Work Program Manual.
- Q. ADM (HR-Civ) Workplace Accommodation Guidelines.
- R. Policy and Program A-GG-040-001/AG-001, Chapter 9.

**Purpose**

1. To provide direction and assign responsibility for implementing sound management practices that ensure all MARLANT units and lodger units, comply with MARLANT's policy for accommodating persons with disabilities, specifically environmental illness.

**Scope**

2. This Directive applies to all MARLANT integral and lodger units either occupying MARLANT infrastructure or who have civilian or military employees under the Commander MARLANT.

**Definitions**

3. **Environmental Illness (EI):** A medical condition triggered by adverse reactions of individuals exposed to external environmental agents, such as chemical, biological or electromagnetic. Confirmed cases of Environmental Illness/Multiple Chemical Sensitivity (EI/MCS) may require accommodation in the workplace as per the Canadian Human Rights

Act, Treasury Board Policy and the Department of National Defence's Workplace Accommodation Directive (Ref H).

4. **Multiple Chemical Sensitivity (MCS):** A subset of environmental illness, defined as a chronic condition in which the symptoms are reproducible with repeated low-level chemical exposure, i.e., lower than previously tolerated. The symptoms improve or resolve themselves when the chemicals are removed. The responses occur to multiple chemically unrelated substances, and symptoms involve multiple organ systems.

5. **Due Diligence:** Reasonable verification, precaution or actions taken to identify or prevent foreseeable risks.

6. **Environment:** Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation. Surroundings within this context extend from within an organization to the global system.

7. **Legal and Other Requirements:** The legislation, regulations, bylaws, industry standards, and the organization's own policies applicable to the organization's safety programs.

8. **Workplace Health and Safety Committee:** Means a committee established pursuant to the Canada Labour Code Part II, Section 135, Workplace Health and Safety Committees; Treasury Board Directive 2-20, Committees and Representatives Directive; and C-02-040-009/AG-001, Chapt. 8, Annex A.

9. **Compliance:** Conformity with the law, collective agreements, regulations, policy and directives.

10. **Undue Hardship:** The limit to which employers and service providers are expected to accommodate in a given situation, taking into consideration, but not limited to, the following factors (Ref H and Q):

- a. availability of options for accommodation;
- b. realistic ability to meet the costs associated with accommodation; and
- c. health and safety of the public, DND employees and CF members.

## **Responsibilities**

11. **Formation Safety and Environment (FSE):** FSE is responsible for:

- a. Ensuring this directive is implemented and maintained using the Formation verification (audit) process;
- b. Providing oversight and guidance during the environmental assessment process;

- c. Providing direction and oversight to ensure activities within MARLANT do not negatively impact persons with environmental sensitivities;
  - d. Providing direction and oversight of all required health investigations and surveys;
  - e. Promptly determining required investigations/surveys and approving the best approach(s);
  - f. Promptly approving persons/organizations collecting samples;
  - g. Securing external consultants to conduct IAQ investigations; and
  - h. Interpreting results and disseminating recommendations and reports from investigations and surveys conducted.
12. **Health Canada:** Health Canada is responsible for:
- a. Through FSE, providing advice on hygiene aspects of the work environment for civilian personnel.
13. **Fleet Services Medical Officer (FSMO):** FSMO is responsible for:
- a. Providing oversight and direction for any assigned health investigations and surveys conducted by Preventive Medicine (PMed).
14. **Preventive Medicine (PMed):** PMed is responsible for:
- a. Providing advice on hygiene aspects of the work environment for military personnel; and
  - b. Conducting requested health investigations and surveys.
15. **Formation Construction Engineering (FCE):** FCE is responsible for:
- a. Ensuring proper construction methods and materials are used in buildings;
  - b. Ensuring proper maintenance and control of HVAC systems;
  - c. Ensuring contracts for janitorial services include “use of scented cleaning products” clause;
  - d. Confirming janitorial service contracts include provision of Material Safety Data Sheets (MSDSs) for all products used by janitorial staff; and
  - e. Advising building occupants, in advance, of scheduled renovations.
16. **Commanding Officers (COs):** Commanding Officers are responsible for:

- a. Ensuring the health and safety of employees;
  - b. Creating and maintaining an inclusive, accessible, barrier-free work environment;
  - c. Accommodating the individual employee with EI/MCS to the point of undue hardship;
  - d. Respecting individual's right to privacy and confidentiality;
  - e. Ensuring an appropriate indoor air quality program is implemented and maintained; and
  - f. Educating workplace personnel regarding EI/MCS.
17. **Managers/Supervisors:** Managers/Supervisors are responsible for:
- a. Examining all systems to identify any barriers to employees with EI/MCS, and taking necessary steps to remove those barriers;
  - b. Proceeding promptly with individual accommodation requests by consulting with the employee to identify the nature of the accommodation and to determine the accommodation appropriate to that person;
  - c. Informing employees and preventing and eliminating discrimination of those suffering from EI/MCS;
  - d. Dealing with complaints of discrimination immediately;
  - e. Contacting the HRO immediately following a request for accommodation in relation to EI/MCS;
  - f. Promptly initiating the CF/DND General Safety Hazardous Occurrence Investigation Report (Form DND663) for work-related EI/MCS issues and ensuring it is properly investigated;
  - g. Ensuring completion and submission of the Worker's Compensation Notice of Accident and Claim form (within WCB prescribed timeframes) for any work-related EI-MCS that results in need for medical attention and/or loss of time from work or loss of earnings related to the illness within;
  - h. Forwarding the Worker's Compensation Board (WCB) form to HR-Civ within the appropriate time period;
  - i. Promptly informing the Unit General Safety Officer (UGSO) when an employee is unable to return to work due to EI/MCS or when a medical

- professional has indicated the employee is able to return to work subject to identified limitations being accommodated;
- j. Consulting with employees who are environmentally sensitive in an attempt to identify problematic irritants in an attempt to remove barriers;
  - k. Requesting the affected employee obtain validation for their condition from a medical practitioner immediately following the employee's report of EI/MCS;
  - l. Requesting the affected employee maintain a log to document times, events, activities, environmental conditions occurring at the onset of symptoms to assist in determining trigger(s)/source(s);
  - m. Promptly providing equipment and services for employees with EI/MCS, as it relates to the workplace or work environment, as well as repairs to such equipment;
  - n. Documenting all communication with the affected employee;
  - o. Consulting and collaborating with stakeholders as necessary;
  - p. Respecting individual's right to privacy and confidentiality;
  - q. Participating in EI/MCS awareness training;
  - r. Ensuring appropriate signage is conspicuously posted throughout the workplace; and
  - s. Ensuring workplace inspections are conducted in accordance with Ref R, including HVAC systems, to identify potential triggers/sources.
- 18. Unit General Safety Officers (UGSOs):** The UGSOs are responsible for:
- a. Providing advice and assistance to managers when responding to accommodation requests; and
  - b. Educating workplace personnel regarding EI/MCS.
- 19. Workplace Health and Safety Committee:** The Workplace Health and Safety Committee is responsible for:
- a. Addressing EI/MCS occupational health matters, as required;
  - b. Providing recommendations to the employer for any EI/MCS matter that has been brought to the committee's attention; and
  - c. Ensuring relevant occupational health reports are readily accessible to all affected employees.

20. **Return To Work Committee:** The RTWC is responsible for:
  - a. Providing advice and guidance to those responsible for administering the RTW Program.
21. **DND/CF Personnel:** DND/CF personnel are responsible for:
  - a. Adhering to DAOD 5015-0 (Ref H) and the Workplace Accommodation Guidelines (Ref Q);
  - b. Adhering to DND's Workplace Accommodation Guidelines; and
  - c. Complying with the requirements outlined in the Treasury Board Policy on Duty to Accommodate Persons with Disabilities in the Federal Public Service.
22. **All Employees:** All employees are responsible for:
  - a. Complying with the Canada Labour Code Part II, section 126 (1);
  - b. Understanding that your employer has a legal duty to provide accommodation to employees with disabilities, including workers with environmental sensitivities. In certain instances, your participation and cooperation regarding an employee who requires an accommodation due to environmental illness may be critical in being able to achieve the accommodation they require to continue to be a productive member of the workplace team;
  - c. Understanding that employees who receive accommodation because of their sensitivities are not receiving a favour or “special treatment”. Rather, accommodation is a right under the law;
  - d. Checking with employees who are environmentally sensitive before bringing new substances into the workplace;
  - e. Avoiding the use of products that contain volatile organic compounds (VOCs), such as cleaning products and office supplies, including correction fluid and solvent-based markers. Use tolerated alternatives: unscented, non-toxic cleaning products; unscented, water-based markers; and dry correction tape;
  - f. Respecting any “no scent” or “low-scent” policy established in your workplace; and
  - g. Participating in the education process through workshops, conferences and publications provided by your employer.
23. **Affected Employees:** Employees affected by EI/MCS are responsible for:

- a. Consulting with their supervisor to attempt to identify problematic irritants in the workplace;
- b. Collaborating/cooperating with the department or its representatives in the process of identifying or finding most appropriate means to accommodate their employment-related needs;
- c. When requested by the manager, providing satisfactory medical validation for work-related EI/MCS condition from medical professional immediately following report of EI/MCS to manager; and
- d. Maintaining a log to document times, events, activities, environmental conditions occurring at the onset of symptoms to assist in determining trigger(s)/source(s).

## **Background**

24. In the 1980s, physicians of industrialized nations began reporting a variety of chronic conditions in association with the presence of chemical triggers at home, in the workplace or from industrial pollution. The chemicals included natural and synthetic materials found in food, pollen, spores, dust, aerosols, powder, liquid, hair, etc.

25. These diagnoses were controversial because environmental illness had not been previously identified and there were potential social and financial ramifications to both the private and public sectors. The medical establishment and government bureaucrats initially blamed psychosomatic reasons for the illnesses. However, EI and MCS are now acknowledged to exist by many medical practitioners and the Treasury Board of Canada.

26. The policy on the Duty to Accommodate Persons with Disabilities in the Federal Public Service, effective 3 June 2002, includes “environmental sensitivities” as a disability. The goal of the accommodation policy is to ensure that barriers are removed so that employees have equal access to opportunities within the Federal Public Service (Ref H and Q).

27. As per the Canada Labour Code Part II, s.124, the employer has a legal obligation to protect the health and safety of every person employed by the employer. The Canadian Human Rights Act also states that employers must accommodate individuals and groups of individuals to the point of undue hardship considering issues of health, safety and cost.

28. The Employment Equity Act, Canadian Human Rights Act and DAOD 5015-0 Workplace Accommodation Directive apply to National Defence and the Canadian Forces; therefore, all managers of civilian employees are responsible for respecting the policy on the Duty to Accommodate Persons with Disabilities in the Federal Public Service (Ref H).

29. The environmental sensitivities policy of the Canadian Human Rights Commission was promulgated in 2007 following reviews including, “The Medical Perspective on Environmental Sensitivities” (Ref L) and “Accommodation for the Environmental Sensitivities: Legal Perspective” (Ref M).

## Direction

30. It is MARLANT's intention to promote a safe and healthy workplace in which all military and civilian personnel can work. Therefore, to assist in achieving this objective, all units are reminded of their obligation to adhere to Treasury Board's Policy on the Duty to Accommodate Persons with Disabilities, which includes EI/MCS, and DND's Workplace Accommodation Directive (Refs C, H and Q).

31. Where there is an ongoing EI/MCS issue in buildings comprised of multiple units, a Building Safety Committee (BSC) shall be established. To ensure proper representation on the BSC, at least one member from each Workplace Health and Safety Committee in the building shall represent their unit and attend quarterly meetings that shall be chaired on a rotational basis.

32. While implementing DAOD 5015-0 and Treasury Board's Policy on the Duty to Accommodate contributes to the wellness of employees and reduces the likelihood of associated lost work days, a well-established indoor air quality program is critical for assisting in preventing employees from experiencing adverse reactions to environmental triggers. Therefore, all MARLANT units are also required to comply with the General Safety Standards (Ref D) pertaining to indoor air quality when implementing this policy.

33. Due to the complexity of EI/MCS, MARLANT units are directed to address reported EI/MCS matters on a case-by-case basis. Although a workplace may have more than one employee suffering from EI/MCS, matters such as trigger-source, severity of symptoms, and the solutions available can vary substantially and impact the options for corrective action.

34. In general, construction, renovation, repair and maintenance should be conducted to minimize the introduction of chemicals into the workplace. Materials should have low toxicity and produce low emissions, and good management practices are required to minimize worker's exposure to other environmental triggers, including moulds, electromagnetic radiation, cleaning chemicals, scented products, pesticides, paints, etc.

35. Accommodation requires support and cooperation by both managers and employees as exposures to many environmental agents can be mitigated simply by behavioural changes. Some of the most basic, no-cost actions, which demonstrate respect for individuals, reap the greatest rewards including productive, healthy and highly attended workplaces. However, educating all persons in the workplace is critical before many no-cost actions can be successful. Therefore, units are encouraged to use the material provided in the education package developed by FSE and available on the FSE website (Ref I) and to consult with ADM HR Civ where necessary.

36. Managers are responsible for recurring and non-recurring costs associated with workplace accommodation for their employees through the normal business planning process.

## Principles Of This Directive

37. The following are guiding principles all stakeholders shall follow when implementing this directive.

38. **Precautionary Approach:** MARLANT will act promptly if a risk to health is suspected.

39. **High Risk Occupations/Locations:** Special attention needs to be given to workers in industrial areas and on board ships due to the use of many materials, possible exposure to radiation and the nature of the confined spaces.

40. **Education/Communication:** The focus will be on activities which demonstrate that such practices as “minimal operation of vehicles/ships alongside public buildings” is one simple approach to reducing impacts to nearby employees.

41. **Dignity, Respect and Mutual Trust:** These are the foundations for working relationships between employer and employee and fellow employees.

42. **Right to Know and Complain:** Employees have the right to know and be trained on any health hazard to which they may be exposed and to bring concerns of these matters to their supervisor.

43. **Best Practices:** MARLANT should use the most current practices in its operations such as when a new building is commissioned allow for the de-gassing of materials from the building before it is occupied.

44. **Routine Maintenance and Monitoring:** This should be a practice, particularly in industrial areas and should include CO<sub>2</sub>, TVOC, bacteria and mold.

## Enquiries

MARLANT, Formation Safety Officer (FSafeO): Tel. (902) 721-5472

## DIRECTIVE #SE1 - HAZARDOUS MATERIAL MANAGEMENT

### References

- A. Canadian Environmental Protection Act
- B. Canada Labour Code Part II
- C. COHS Regulations, Part X – Hazardous Substances
- D. Hazardous Products Act
- E. Transportation of Dangerous Goods Regulations Clear Language (TDG)
- F. National Fire Code of Canada
- G. Nova Scotia Environment Act and Regulations
- H. Newfoundland and Labrador Environment Act and Regulations
- I. DAOD 4003-0 Environmental Protection and Stewardship
- J. DAOD 4003-1 Hazardous Material Management
- K. Environmental Directive ED 4003 – 1/2003 Spill Reporting
- L. MARCORD G19 Halocarbon Management
- M. MARCORD 66-5 Hazardous Materials Management
- N. C-02-040-009/AG-001 General Program Safety Standards Manual
- O. A-GG-040-004/AG-001 General Safety Program - Hazardous Materials Safety Manual
- P. Emergency Response Guidebook 2008

### Purpose

1. This Directive provides direction and guidance for the proper selection, procurement, handling, storage, use, transportation and disposal of hazardous materials.

### Scope

2. This Hazardous Material (HazMat) Management Directive applies to all integral and lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **Controlled product:** Any product, material or substance specified by the regulations made pursuant to paragraph 15(1)(a) of the Hazardous Products Act to be included in any of the WHMIS classes listed in Schedule II of the Act.

4. **Dangerous Good:** HazMat while being transported as regulated under the TDGA.

5. **Emergency:** A sudden situation or set of circumstances which if not prevented, eliminated, controlled, contained or addressed could result in a significant danger, injury and/or damage to personnel, environment and/or assets.

6. **Emergency Response:** An action carried out in a particular organization, community or region to protect human health and the environment from the impacts of an emergency.

7. **Emergency Response Plan (ERP):** A plan that outlines what is to be done if there is an accident involving certain dangerous goods and that is in accordance with the Transportation of

Dangerous Goods Regulations, Part 7, Emergency Response Assistance Plans. E2 Plan is an Environmental Emergency Plan required under Canadian Environmental Protection Act (CEPA) Regulations.

8. **HazMat Control Authority:** An individual acting on the authority of the Commanding Officer to approve the introduction or continued use of a HazMat.

9. **Hazardous Material (HazMat):** Any material that if handled improperly can endanger human health and well-being, or the environment, or equipment.

10. **Hazardous Waste (HazWaste):** Any product, substance or organism that is a hazardous material, that is no longer used for its original purpose and that is intended for treatment or disposal but does not include any product that is listed in TDG Class 1 and Class 7.

## **Hazmat Management Responsibilities**

### **Materiel Group**

11. J4 Mov Dangerous Goods: Provides training to all DND/CF personnel involved in the transportation of dangerous goods.

12. Director Supply Chain Operations (DSCO): Maintains the Hazardous Materials Reference Application (HMRA) with up to date Material Safety Data Sheets as well as the inventory module and also responsible for Annex SE1A – Compatibility Charts.

13. Life Cycle Material Manager (LCMM): Ensures that the hazardous material specific to the maintenance and operation of equipment is the least hazardous which meets operational requirements, and ensures that Formation, ships and operating units are provided with all pertinent information on the hazardous material for use in the equipment during the selection of equipment phase. Identify PCB components in equipment, and ensure base, ships and operating units are aware of in-service equipment containing PCBs.

### **MARLANT**

14. Assistant Chief of Staff Material (ACOS Mat): Provides oversight for the HazMat Management Program, and ensures that MARLANT personnel receive adequate resources to implement the Program. Approves the commissioning and decommissioning of PCB storage sites and conducts an annual inspection of indoor and outdoor PCB storage sites.

15. Formation Safety and Environment Officer (FSEO): Provides direction for the HazMat Management Program including the management of PCBs ensuring its currency, implementation and maintenance throughout the Formation, and provides specialist advice through Formation Safety and Environment personnel.

16. Formation Logistics Officer (FLogO):

- a. Responsible for the overall storage of all warehoused material with a Storage Characteristic and Handling Code (SCHC) of "D" and all in-service items with a Storage Characteristic and Handling Code (SCHC) of "P", as identified by LCMMs;
- b. Responsible for the proper storage of waste hazardous material;
- c. Ensures proper Personal Protective Clothing and Equipment are available to FLog employees when handling HazMat/HazWaste;
- d. Ensures proper spill kits are available to FLog employees on site;
- e. Acts as liaison with PWGSC to ensure that contracting is in place for the proper disposal of hazardous waste;
- f. Ensures reporting on the disposal of HazWaste to FSE;
- g. Ensures labelling of HazWaste is in accordance with Reference O;
- h. Manages the contracts for dangerous goods and hazardous wastes;
- i. Ensures payment is withheld until PWGSC receives and forwards all related documents to FLog Contracting Authority;
- j. Prepares any required Environmental Assessments (EAs) and forwards to FSE for review and registration;
- k. Responsible for the proper storage of waste PCBs IAW reference A as described in Storage of PCB Material Regulations (SOR/92-507) and Reference P; and
- l. acts as liaison with the LCMM to ensure that in-coming non-PCB items are not identified as containing PCB.

17. Base Operations Officer (BOpsO):

- a. Maintains the Base Emergency Response Plan (BERP);
- b. Responsible for the Emergency Response Teams;
- c. Conducts inspections of HazMat stores from a safety (location , fire suppression and PPE) and emergency response perspective;
- d. Ensures the Fire Department responds to any fire and renders the spill site safe in conjunction with Formation Construction Engineering (FCE), Water Fuels and Environment (WFE) and the designated FSE representative;
- e. Ensures the Military Police provide access control and policing; and

- f. Ensures Queen's Harbour Master (QHM) responds to any water borne spill, including those originating on land.
18. Formation Construction Engineering Officer (FCEO):
- a. maintains the operation of the Oily Waste Water Treatment Plant;
  - b. responsible for the management of the WFE HazMat and POL Clean-up Teams and their assistance to BOps Fire Department for the clean-up of spill sites;
  - c. responsible for the maintenance of oil/fuel and waste oil/fuel tanks;
  - d. ensures HazMat Management is incorporated into its contracts;
  - e. ensures proper Personal Protective Clothing and Equipment are available to FCE employees when handling HazMat/HazWaste;
  - f. identifies all electrical equipment including but not limited to power transmission equipment, electrical transformers and electrical capacitors built before 1980;
  - g. identifies and replace all ballasts manufactured before 1980, which may contain PCB or can not be identified as containing PCB with non PCB;
  - h. identifies all elevators throughout MARLANT suspected of containing PCBs in their brake assemblies;
  - i. samples and analyzes suspect PCB liquids in electrical equipment and elevators for PCB;
  - j. maintains the integrity of the PCB storage sites; and
  - k. forwards analytical results, any change in location or maintenance history of transformers to FSE, SO HazMat.
19. JTF Atlantic Public Affairs Officer (JTF (A) PA): Assists the Formation with external agencies on media communication when dealing with Hazardous Material issues.
20. Formation Environmental Protection Officer (FEPO): Provides oversight for the implementation and maintenance of the MARLANT HazMat Management Program including PCB containing materials.
21. Integrated Waste Hazardous Material Officer (IWHMO):
- a. maintains the proper labeling of HazWaste containers;
  - b. inspect HazMat/HazWaste storage sites daily for leaks/spills;

- c. inspects HazMat/HazWaste storage including PCB storage sites weekly for non-compliance;
  - d. ensures site(s) are kept secure and maintains list of persons authorized to enter. When necessary admits authorized visitors and maintains visitor register;
  - e. responsible for the disposal of HazWaste and maintaining Annex SE1D of this directive;
  - f. responsible for notifying FSE on waste disposal. Maintains proper labelling of waste PCB containers;
  - g. ensures a copy of the Emergency Response plan, including PCBs, is maintained at the storage site(s);
  - h. ensure proper personal protective clothing and equipment are available to employees handling HazMat, HazWaste and PCB equipment;
  - i. responsible for notifying Environment Canada if an incoming item was registered with an Environment Canada PCB Item Serial label; and
  - j. responsible for the disposal of waste PCB when amount exceeds twenty five (25) drums of PCB equipment and/or PCB liquid in storage; and
  - k. responsible for maintaining all documentation and records indefinitely.
22. Staff Officer Hazardous Material (SO HazMat):
- a. develops, interprets and advises MARLANT units on HazMat/HazWaste Management policy;
  - b. advises and recommends on products usage based on identified substance lists from DND and Environment Canada;
  - c. conducts audits and formal/informal site inspections for non-compliance;
  - d. provides TDG and spill clean-up training to applicable MARLANT personnel;
  - e. responsible for receiving notification of HazMat spills and reporting on “Spillnet” database;
  - f. coordinates the management of Hazardous Material Reference Application (HMRA) within MARLANT;
  - g. responds to spills and provide advice to the Discoverers and Emergency Response Teams;
  - h. participates in the BERP planning, testing and evaluation exercises;

- i. maintains an inventory and a database of in-service and in-storage PCB material;
- j. conducts quarterly inspections of the indoor and outdoor PCB storage site for compliance; and
- k. Monitors changes to waste PCB inventory and prepares reports as required for FSEO to issue to NDHQ and Environment Canada.

23. Unit/Ship Commanding Officer (CO): COs/SPRs shall appoint a Unit HazMat Coordinator. COs of units and SPRs are responsible for developing, implementing, and maintaining a Unit HazMat Management Program consistent with the requirements of the Formation Hazmat Management Plan. Unit HazMat Management Programs shall encompass the following three elements:

- a. awareness and training, including General WHMIS Training and Products Specific Training;
- b. elimination/reduction of HazMat/HazWaste;
- c. procedures for proper handling of HazMat throughout the time it is in their possession and/or under their control; and
- d. notifies SO HazMat if equipment is known to contain or suspected of containing PCB.

24. Unit HazMat Coordinator: Duties will be determined by their CO and should include but not be limited to the following responsibilities:

- a. acting as unit OPI regarding all aspects of HazMat management;
- b. assisting in the development of unit SOPs related to HazMat including those contained within the unit's SEMS/EMS.
- c. advising the UGSO and UEnvO on all matters relating to HazMat/HazWaste management;
- c. maintaining an inventory of the types and locations of all HazMat held, by ensuring that Departments/Sections update the HazMat inventory database known as Hazardous Material Reference Application (HMRA) at least once per quarter, and providing an updated inventory to FSE annually on 15 October;
- d. ensuring that all HazMat in use within the unit is correctly posted/labelled and that MSDSs are available to personnel;
- e. acting as liaison with specialists to properly classify and assign priorities to HazMat in use;

- f. monitoring unit stocks levels of HazMat;
  - g. recommending less hazardous alternatives where feasible;
  - h. conducting rounds and ensuring that both unused stock and HazMat is properly stored, segregated, identified, and disposed;
  - i. assisting in the development of appropriate unit emergency response procedures based on EMS requirement;
  - j. identifying and coordinating unit training relating to HazMat/HazWaste management;
  - k. assessing the requirement for, and ensuring the procurement of, all necessary HazMat handling equipment;
  - l. reviewing all incidents involving HazMat to evaluate the need to improve procedures to prevent similar incidents;
  - m. maintaining a master file of current MSDSs for all HazMat on site; and
  - n. attending Unit Safety and Environment Committee meetings.
25. Supervisors: Supervisors play a pivotal role in the establishment, promotion and maintenance of a viable HazMat program and a safe work environment. Their responsibilities include:
- a. providing training to all employees on HazMat/HazWaste used or generated in the workplace, such as but not limited to, WHMIS Product Specific Training, Transportation of Dangerous Goods, Respiratory Protection Program, Hazmat Spill Awareness Training, etc;
  - b. ensuring appropriate spill kits are available, properly stocked in the workplace and employees are trained on their application
  - c. ensuring that Personal Protective Equipment is available and personnel are trained in its use; and
  - d. investigating and reporting all HazMat accident/incidents and taking or recommending corrective action.
26. Individuals: All personnel have basic HazMat responsibilities including:
- a. reporting to supervisors all hazardous conditions, accidents/incidents that they are aware of or are involved in;
  - b. complying with all laws, regulations, directives, instructions and procedures related to HazMat/HazWaste used or generated in their workplace; and

- c. taking all necessary precautions to ensure their own safety and the safety of others.

## Direction

### General

27. MARLANT is mandated by legislation and policy to manage hazardous materials responsibly, minimize the sources for introducing pollutants into the natural environment, ensure appropriate management of potential pollutants, maximize opportunities to reduce, reuse and recycle consumable materials and packaging and maximize pollution prevention opportunities.

### Battery Disposal

28. With the exception of wet batteries, all batteries shall be placed into the battery box with their ends taped. Cell phone batteries shall be bagged and have affixed to them the name, telephone number and unit of the employee. Cell phone batteries will be tested and if passed will be rejuvenated and returned to the employee.

### Bio-infectious Waste (BIW)/Medical Waste

29. In accordance with reference C, all ship and shore units' biomedical waste shall be properly packaged, labelled and forwarded to the CF Health Services Centre (Atlantic) (CF H Svcs C(A)) for refrigerated storage at **4 degrees Celsius**. CF H Svcs C(A) sends biomedical waste for disposal by incineration. Biomedical waste **shall not** be disposed of at the landfill site.

### Chemical Disposal

30. For chemical disposal refer to Annex SE1D attached to this directive.

31. All drummed chemicals prior to leaving the Base for disposal shall be analyzed for contents and classification.

### Emergency Response Plan

32. Refer to MARLANT SEMS Part III.

### HazMat Handling and Use

33. HazMat use and handling are managed by Material Safety Data Sheets (MSDS) Binders/Folios as follows:

- a. The employee must read and understand the MSDS before using the product;
- b. An up to date inventory (HMRA holding report) of the storage locker/area must be located in the front of the MSDS binder/folio. This inventory list in the binder/folio must be indexed to each MSDS in the MSDS section. The inventory list in the binder/folio must be dated;

- c. MSDSs must be current and up to date for each product in stock. Three years unless indicated in HMRA;
- d. This binder/folio should be near to the storage locker/area and also in a Master Unit binder near to the main entrance of the building/unit; and
- e. The master binder must have an index of hazardous material storage locations. Following the index, all the MSDSs per storage location shall be listed. The master binder must have an inspection record sheet at the front to indicate, inspections and musters of the binder.

### **Identification/Labeling**

34. The label is not intended to contain or provide all the necessary information. See reference D, E, M and P. However, all HazMat “products” shall be labelled IAW Reference D (WHMIS). When WHMIS labels become damaged, illegible or are not visible, they must be replaced with an appropriate workplace label. The person working with the product shall ensure that a workplace label is in place. All HazMat/HazWaste Storage locations shall be labelled IAW Reference E.

### **Inventory Reporting**

35. All ships and shore units must send an annual status report message of HazMat inventory entered into the HMRA NLT 15 October. The HMRA Hazardous Material Inventory Holdings Input Form (Annex SE1F attached in this directive) is provided to assist with this report. Any questions on HMRA shall be directed to DSCO for database operation questions, or to the MARLANT FSE HMRA coordinator for local HMRA setup and management issues.

36. All units are responsible to update and keep current their HazMat inventory holdings on the HMRA Web site.

37. Upon returning to Halifax, all ships shall report to FSE the quantities, types and locations of hazardous waste disposed of in foreign ports.

### **Spill Prevention and Reporting**

38. Refer to MARLANT SEMS Directive #E1, Spill Prevention and Reporting.

### **Storage**

39. Refer to Annex SE1A of this Directive and Reference O for storage and chemical compatibility. Select a proper storage site. Provide the appropriate Personal Protective Equipment (PPE). Control access to the site/facility and provide security.

## Training

40. HazMat Product Specific Training is essential to proper use and handling of any products.

41. HazMat Product Specific Training shall be recorded and kept on file as per instructions on the Product Specific Training record form at Annex SE1E of this directive. The conduct of HazMat Product Specific Training is the supervisors' responsibility.

42. Formation Logistics Personnel who:

- a. Ship and receive dangerous goods by all four combined modes of transportation (road, sea, military air and commercial air) shall be 3K certified;
- b. Perform Hazardous Material Packaging for shipping in accordance with all applicable Laws, Regulations and Orders shall be in possession of the Hazardous Material Packaging Specialty ME course OSS-AGWH; and
- c. Store Hazardous Material or Hazardous waste shall be in possession of the Control of Hazardous Material Specialty TB course OSS-AHCI, and shall be HAZWOPER trained.

43. Every driver who transports Dangerous Goods will be trained in accordance with TDG Regulation Part 6. This training is offered by TEME.

44. Every DND firefighter shall be trained to the HazMat Operation Level IAW DAOD 4007-5.

45. HazMat Technician training will be available to members of the HazMat Emergency Response Team (ERT), and an Incident Commander course will be available to senior members of the HazMat ERT. ERT members will be fit tested according to the requirements of the Respiratory Protection Program.

46. Every DND employee shall be basic WHMIS certified and receive workplace product-specific training. For training contact the FSafeO or UGSO.

47. Hazardous Material Spill Response Training will be offered and conducted as a component of specific trade training.

48. A Hazardous Material Officer's course will be offered through FSE.

49. The Hazardous Material Reference Application (HMRA) database will be available to all CF and DND employees as a source of information and training on HazMat products and inventories used and catalogued within DND, and courses will be provided through FSE.

**Transportation**

50. Transportation requirements must meet Reference E requirements and include:

- a. packaging, labelling and placement of symbols and placards IAW mode of transportation;
- b. loading and unloading vehicle;
- c. providing documentation;
- d. keeping documentation for the prescribed time limit; and
- e. having spill equipment available.

**Records**

51. The following records are applicable:

- a. Waste manifest copies 2 and 6;
- b. Shipping documents;
- c. Analytical reports;
- d. Spill reports;
- e. Regulatory compliance inspection/investigation report;
- f. Audit reports;
- g. Significant incident reports;
- h. Training records and certificates according to Laws, Regulations and DND Directives DND PCB Storage Register Parts 1, 2 and 3;
  - i. PWGSC contra ting documents;
  - j. Certificate of Treatment and Destruction;
  - k. DND and PWGSC signed invoice;
  - l. Disposal company material handling summary;
  - m. Correspondence to NDHQ DSCO and Environment Canada;
  - n. Decommissioning / commissioning reports;

- o. Environmental assessments;
- p. DND PCB storage site access authorization list;
- q. DND PCB storage site visitor / inspector register; and
- r. PCB serial number register.

**Attachments**

Annex SE1A - Compatibility Chart

Annex SE1B - TDG Chart

Annex SE1C - WHMIS Chart

Annex SE1D - HazWaste Containers Chart

Annex SE1E - HazMat Product Specific Training Record Form

Annex SE1F - HMRA - Hazardous Material Inventory Holdings Input Form

**Enquiries**

MARLANT, Formation Safety and Environment:

Staff Officer Hazardous Materials (SO HazMat): Tel. (902) 721-5492

## ANNEX SE1A – COMPATIBILITY CHART

### Hazardous Material Compatibility Chart

This chart provides a guide for segregating hazmat in storage facilities and workshops based on the Transport of Dangerous Goods (TDG) classification.

### Charte de compatibilité des matières dangereuses

Cette charte est un guide pour la ségrégation des matières dangereuses dans les installations d'entreposage et dans les ateliers, basés sur la classification du Transport des Marchandises Dangereuses (TMD).

TDG Class	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	8
	=										
	C	=									
	X	C	=								
	C	C	X	=							
	C	C	S	C	=						
	S	C	S	S	S	=					
	DS	C	DS	S	DS	DS	=				
	X	C	S	X	X	X	X	=			
	X	C	X	X	X	X	X	C	=		
	X	C	C	DS	DS	DS	DS	S	X	=	
	X	C	S	S	S	S	X	X	X	S	=

**LEGEND**

C = Compatible - may store together  
 DS = Data Sheet - refer to Material Safety Data Sheet  
 S = Incompatible - separate by minimum 1 m horizontal distance  
 X = Incompatible - do not store together in same fire compartment.  
     Separate by a minimum of 3 m when in an outdoor storage area.

**LÉGENDE**

C = Compatible - peuvent être entreposés ensemble  
 DS = Data Sheet - voir la fiche signalétique  
 S = Incompatible - séparer par un minimum d'un mètre de la distance horizontale  
 X = Incompatible - ne pas entreposer ensemble dans le même compartiment à l'épreuve du feu.  
     Séparer par une distance minimum de 3 mètres lorsqu'entreposé à l'extérieur.

**ANNEX SE1B – TDG CHART**

CLASS	PLACARD	DESCRIPTION
1 EXPLOSIVES		<b>Explosives</b> Any chemical compound, mixture or device, the primary or common purpose of which is to function by explosion.
2 GASES		Division 2.1 Flammable Gas Division 2.2 Non-flammable, non-toxic Gas Division 2.2 Oxygen Division 2.3 Toxic Gas
3 FLAMMABLE LIQUIDS		<b>Flammable Liquids</b> which give off a flammable vapour at temperatures of not more than 60.5°C
4 FLAMMABLE SOLIDS		Division 4.1 Flammable Solid Division 4.2 Spontaneously Combustible Division 4.3 Dangerous When Wet
5 OXIDIZING SUBSTANCES		Division 5.1 Oxidizers Division 5.2 Organic Peroxide
6 TOXIC SUBSTANCES		Division 6.1 Toxic Substances Division 6.2 Infectious Substances
7 RADIOACTIVE MATERIAL		<b>Radioactive Material</b> Any material with a specific activity greater than 70 kBq/kg
8 CORROSIVES		<b>Corrosives</b> Can cause severe damage by chemical action when in contact with living tissue or can materially damage other freight
9 MISCELLANEOUS		<b>Miscellaneous</b> Articles and substances which during transport present a danger not covered by other classes
OTHER		<b>Dangerous</b> Mixed loads <b>Marine Pollutant</b>

**ANNEX SE1C – WHMIS CHART**

<b>The symbol represents...</b>	<b>It means that the material...</b>	<b>And that you should...</b>
 <b>Class A Compressed Gas</b>	<ul style="list-style-type: none"> <li>Poses an explosion danger because the gas is being held in a cylinder under pressure.</li> <li>May cause its container to explode if heated in a fire.</li> <li>May cause its container to explode if dropped.</li> </ul>	<ul style="list-style-type: none"> <li>Handle with care;</li> <li>Keep cylinder away from potential sources of ignition.</li> <li>Store the containers in the area designated by your supervisor.</li> </ul>
 <b>Class B Combustible and Flammable Material</b>	<ul style="list-style-type: none"> <li>Is one that will burn and is therefore a potential fire hazard.</li> <li>May burn at relatively low temperatures: flammable materials catch fire at lower temperature than combustible materials.</li> <li>May burst into flame spontaneously in air or release a flammable gas on contact with water.</li> <li>May cause a fire when exposed to heat, sparks, and flames or as result of friction.</li> </ul>	<ul style="list-style-type: none"> <li>Keep the material away from heat sources and other combustible materials.</li> <li>Never smoke when working with or near the material.</li> <li>Store the material in a cool, fire-proof area, as designated by your supervisor.</li> </ul>
 <b>Class C Oxidizing Material</b>	<ul style="list-style-type: none"> <li>Poses a fire and/or explosion risk in the presence of flammable or combustible material.</li> <li>May cause fire when it comes in contact with combustible material such as wood.</li> <li>May react violently or cause an explosion when it comes into contact with combustible material such as fuels.</li> <li>May burn skin and eyes on contact.</li> </ul>	<ul style="list-style-type: none"> <li>Keep the material away from combustible materials and store in the areas designated by your supervisor.</li> <li>Keep the material away from sources of ignition.</li> <li>Never smoke when working with or near the material.</li> <li>Wear proper protective equipment, including eye, face and hand protection and protective clothing.</li> </ul>
 <b>Class D Div 1 Poisonous &amp; Infectious Material</b>  <b>Immediate and Serious Effects</b>	<ul style="list-style-type: none"> <li>Is potentially fatal poisonous substance.</li> <li>May be fatal or cause permanent damage if it is inhaled or swallowed or if it enters the body through skin contact.</li> <li>May burn eyes or skin on contact.</li> </ul>	<ul style="list-style-type: none"> <li>Handle the material with extreme caution.</li> <li>Avoid contact with the skin or eyes by wearing proper protective equipment, including eye, face and hand protection and protective clothing.</li> <li>Avoid inhaling by working in well-ventilated areas and/or wear respiratory equipment.</li> <li>Wash or shower thoroughly after using.</li> <li>Store the material in designated areas only.</li> </ul>
 <b>Class D Div 2 Poisonous &amp; Infectious Material</b>  <b>Other Toxic Effects</b>	<ul style="list-style-type: none"> <li>Is a poisonous substance that's not immediately dangerous to health.</li> <li>May cause death or permanent damage as a result of repeated exposure over time.</li> <li>May be a skin or eye irritant.</li> <li>May be a sensitizer, which produces a chemical allergy.</li> <li>May cause cancer.</li> <li>May cause birth defects or sterility.</li> </ul>	<ul style="list-style-type: none"> <li>Avoid contact with the skin or eyes by wearing proper protective equipment, including eye, face and hand protection and protective clothing.</li> <li>Avoid inhaling by working in well-ventilated areas and/or wear respiratory equipment.</li> <li>Store the material in designated areas only.</li> </ul>
 <b>Class D Div 3 Poisonous &amp; Infectious Material</b>  <b>Biohazardous Infectious Material</b>	<ul style="list-style-type: none"> <li>May cause a serious disease resulting in illness or death.</li> </ul>	<ul style="list-style-type: none"> <li>Take every measure to avoid contamination.</li> <li>Handle the material only when fully protected by the proper, designated equipment.</li> <li>Handle the material in designated areas where engineering controls are in place to prevent exposure.</li> </ul>
 <b>Class E Corrosive Material</b>	<ul style="list-style-type: none"> <li>Causes severe eye and skin irritation upon contact.</li> <li>Causes severe tissue damage with prolonged contact.</li> <li>May be harmful if inhaled.</li> </ul>	<ul style="list-style-type: none"> <li>Keep container tightly closed.</li> <li>Avoid contact with the skin or eyes by wearing proper protective equipment, including eye, face and hand protection and protective clothing.</li> <li>Avoid inhaling by working in well-ventilated areas only and/or wearing the proper respiratory equipment, as designated by your supervisor.</li> </ul>
 <b>Class F Dangerously Reactive Material</b>	<ul style="list-style-type: none"> <li>Is very unstable.</li> <li>May react with water to release a toxic or flammable gas.</li> <li>May explode as a result of shock, friction or increase in temperature.</li> <li>May explode if heated when in a closed container.</li> <li>Undergoes vigorous polymerization.</li> </ul>	<ul style="list-style-type: none"> <li>Keep material away from heat.</li> <li>Open containers carefully; Do not drop them.</li> <li>Store the material in a cool, flame-proof area, as designated by your supervisor.</li> </ul>

**ANNEX SE1D – CONTAINER POSTER**

 <p><b>Blue open head drum</b> <b>Fût bleu sans couvercle</b></p> <p>Used for solid/dry chemicals such as corrosives, poisons or dangerous when wet. Produits chimiques solides ou secs tels que les matières corrosives, toxiques ou dangereuses au contact de l'eau.</p>
 <p><b>Blue bung drum</b> <b>Fût bleu à bonde</b></p> <p>Used for liquid chemicals such as Corrosives, poisons and flammables. Produits chimiques liquides tels que les matières corrosives, toxiques et inflammables.</p>
 <p><b>Rag and filter drum</b> <b>Fût pour filtres et chiffons</b></p> <p>Used for oily/hydrocarbon rags and filters. Note: comes in three colors, color designates user. Chiffons et filtres gras/hydrocarbonés. Nota: Il existe trois couleurs selon l'utilisation.</p>
 <p><b>White oil drum</b> <b>Fût pour hydrocarbures blancs</b></p> <p>Used for oil/hydrocarbon products, not for grease. Produits gras/hydrocarbonés, pas de graisse.</p>
 <p><b>Jetty waste container</b> <b>Contenant de déchets pour la jetée</b></p> <p>Used for collection of smaller quantities of waste. Note: unit comes with a compatibility chart. It also comes with a flip style placard holder and placards. Sert à la collecte des petites quantités de déchets. Nota: comprend un tableau de compatibilité, des plaquettes et un support à plaquettes.</p>
 <p><b>Battery box</b> <b>Boîte à batteries</b></p> <p>Used for the collection of batteries, Tape both terminals then place battery in box. Sert à la collecte des batteries. Couvrir les deux pôles et mettre la batterie dans la boîte.</p>
 <p><b>Secondary containment tray</b> <b>Bac de confinement secondaire</b></p> <p>Used for spill containment in working areas. Sert à la retenue des fuites et débordement dans les espaces de travail.</p>

## **ANNEX SE1E – PRODUCT SPECIFIC TRAINING**

**Qualification Record for Military/Civilian Hazardous Material Training (Protected when completed)**

### **Identification**

Name:	MOC-GPM/Classification
SIN/PRI:	

## **Qualifications**

## 1. WHMIS Training

Type	Administrator's Stamp/Initial	Date (DD/MM/YY):	Training Location
WHMIS Basic			
WHMIS Supervisors			
WHMIS Train the trainer			

## **2. Specific Workplace Hazardous Material Training (To include the following)**

Understanding/location of MSDS – Product Identification and Hazards – Engineering Controls required – Administrative Controls – Personal Protective Equipment (PPE) required – Labels – First Aid – Emergency Response – Workplace Procedures/SOPs – Storage, Use and Disposal.

### **3. Material Specific Training to be Recorded on Chart below**

## Distribution

## **On Posting/Release require:**

1. Retention for three years on Unit WHMIS training file.
  2. MBR receives copy; Forward copies to A. MIL – UER and B. CIV – PERS file

WHMIS training is a legal requirement. This document records hazardous material training, which the person named above has completed.

## **WHMIS Training Record**

**ANNEX SE1F - HMRA - HAZARDOUS MATERIAL INVENTORY HOLDINGS INPUT FORM**  
 (\* mandatory input)

<b>SECTION IDENTIFICATION</b>	
Base*	
Unit*	
Section*	
Contact Name*	
Date*	

<b>LOCATION</b>	
Building Name*	
Building Number	
Room Name*	
Room Number	
Storage Location*	
Storage Location Number	

Item I.D.	Supplier Name*	Brand Name*	Ref Nos/Part Nos	Stock Code (NSN)
1				
2				
3				
<b>Add rows as required</b>				

Item I.D.	Actual Count	Max Quantity*	Container Size*	Container UoM*	Container Type*	HMRA ID
1						
2						
3						
<b>Add rows as required</b>						

Instructions on next page

**SECTION IDENTIFICATION**

1. Holdings information will be identified to the Section level.
2. If you know the UIC for the Base and Unit, this may also be entered
3. If you know the Supply Account Code for the Section, this may be entered
4. The business rules treat entities such as Base Supply and Base CE Section as Units even though they do not have a distinct UIC from their Base
5. Contact Name - consists of Rank, First, Last, Phone (Other contact information will be captured in HMRA, such as e-mail, full address)
6. Date - Date Holdings for storage area was completed. This is used to determine when products were entered into use in a Storage Location.

**LOCATION DATA**

1. Building Number - A building must have either a locally assigned Building Number and/or a Building Name, which is recorded in CE facilities information. Street address will be included in final functionality
2. Room Name - This refers to the room function such as Workshop, Laboratory, Carpenter Shop, and Engine Bay. Avoid using a Section designation for naming a Room
3. Room Number - Enter Room Number if exists
4. Storage Location - Enter Storage Location Name and Number, if exists. Examples: "Locker 2", "POL Shed", "Cleaning Stores", "Paint Stores", "HAZMAT"

**PRODUCT IDENTIFIER DATA**

1. Supplier - Enter Supplier Name
2. Brand Name - Enter Brand Name. If product known to be in several forms add this to description. Example: WD-40 Aerosol, WD-40 Liquid. If the Product is a kit, a separate entry should be made for each part of the kit. Example "Epoxy Glue - Resin" & "Epoxy Glue - Hardener"
3. Reference Numbers - Add any part numbers found on container separated by a semi-colon (;)
4. Stock Code - Enter NSN(s) if known

**HOLDINGS DATA**

1. Count Actual - Add actual quantity of material on hand
2. Max Quantity - Enter Maximum quantity of largest container of product that can be held in Storage Location
3. Container Size - Numeric - Add container size of largest container of product held in Storage location
4. Container UoM - Enter Container Unit of Measure, preferable kg (kilogram) for Gases, Solids and Articles; L (liter) for Liquids and Pastes. Other metric and Imperial Measures can be added here, but will be converted when rolled into HMRA Holdings
5. Container Type - Enter the container type "Bottle", "Drum", "Can", "Aerosol", "Box", "Kit"

## DIRECTIVE #SE3 – ASBESTOS MANAGEMENT

### References

- A. C-02-040-009/AG-000, DND General Safety Standards, Chapter 21
- B. C-98-007-002/TP-001, Guidelines for Asbestos Control
- C. Hazardous Substances Directive, Treasury Board Directive, April 19 1999
- D. C-02-040-009/AG-000, DND General Safety Standards, Chapter 20

### Purpose

1. To provide direction and assign responsibility for implementing the Formation Asbestos Management Program to reduce, eliminate or control the health and environmental hazards associated with the procurement, handling, use, storage and disposal of asbestos and/or materials that contain asbestos.

### Scope

2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **Asbestos:** includes any of the minerals crocidolite, amosite, chrysotile, anthophyllite, tremolite or actinolite (amiante).

4. **Asbestos Containing Material (ACM):** any material that contains asbestos.

5. **Asbestos process:** refers to any handling of materials which generate airborne asbestos fibres, including:

- a. sawing, cutting, drilling or abrasion of asbestos materials;
- b. packing or unpacking of asbestos;
- c. installation or removal of asbestos insulation or coverings;
- d. mixing or application of asbestos cements, plasters, putties or similar compounds;
- e. cleaning of asbestos contaminated clothing; or
- f. storage, conveyance or disposal of materials containing asbestos.

6. **Friable Materials:** Materials that are easily crumbled and can readily release asbestos fibres.

7. **Non-Friable:** Materials that have a binder such as cement, vinyl or asphalt to hold the product together. Products made from non-friable material will generally release fibres only when they are cut, shaped or otherwise worked.

## Responsibilities

8. **Formation Safety and Environment Officer (FSEO):** The FSEO provides oversight and direction and ensures that this directive is implemented and maintained.
9. **Formation Construction Engineering Officer (FCEO):** FCEO ensures that:
  - a. Studies are carried out to identify the presence of asbestos and determine its location and amount;
  - b. Construction Engineering (CE) personnel and contractors comply with this Directive;
  - c. A CE Asbestos Education Program is established, implemented and maintained; and
  - d. A database of all asbestos locations in MARLANT is maintained.
10. **CO of Fleet Maintenance Facility Cape Scott (FMFCS):** The CO FMFCS ensures that FMF personnel and contractors comply with this Directive, and an FMF Asbestos Education Program is established, implemented and maintained.
11. **Managers/Supervisors:** Managers/Supervisors are responsible for ensuring that their subordinates are aware of the presence of asbestos prior to starting a job and comply with the provision of any operating or work instructions provided for that job, including the use of personal protective equipment (PPE).
12. Supervisors shall arrange for adequate supply of PPE, coveralls, headgear and footwear, ensure PPE is worn properly and arrange a medical surveillance program as prescribed at reference D.
13. Supervisors shall establish medical and environmental surveillance programs as required.
14. **UEnvOs:** Provide oversight for the disposal of waste asbestos and associated hazardous material.
15. **UGSOs:** Ensure that asbestos surveys are carried out as appropriate and relevant personnel receive asbestos education and training.
16. **Contract Officers:** Inform contractors of the presence of asbestos at a work site.
17. **Procurement:** Inform contractors of the presence of ACM at the proposed work site, and ensure this is identified and addressed in the resulting bids and successful contracts. Arrange for the purchase of asbestos substitutes whenever possible.
18. **All Personnel:** Bring the suspected presence of asbestos to the attention of the area supervisor. Comply with SOPs and work instructions. Attend asbestos education, and participate in medical surveillance program if prescribed.

**Direction****General**

19. Inhalation of asbestos fibres may result in adverse health effects to those exposed. This Directive is intended to provide guidance on the basic precautions, which are required for the protection of employees who may be exposed to an asbestos process.

20. Where ever possible, the use or processing of asbestos shall be avoided and less hazardous materials substituted.

21. Managers/Supervisors shall:

- a. ensure that every asbestos process under their control is identified, and the processes are carried out and controlled in compliance with the requirements of this directive, SOPs and work instructions;
- b. notify the appropriate regional or zone director of the Medical Services Branch, Workplace Health and Public Safety (Health Canada), concerning the details of every existing and new asbestos process under their jurisdiction; and
- c. ensure that every person involved in an asbestos process is familiar with and complies with the requirements of this directive and relevant SOPs and work instructions for the handling, use and disposal of asbestos and asbestos containing material (ACM).

**Control**

22. Areas where asbestos processes are carried out shall have appropriate control measures such as ventilation, wet/damp processing, and separate enclosure or isolation of the process from workers to minimize the dispersal of asbestos dust into the general workplace.

23. Accumulations of asbestos waste or dust shall be removed at least daily. Heavy accumulations of such waste or dust shall be removed as frequently as reasonable during a work shift.

24. All cleaning to remove asbestos waste or dust shall be performed by a vacuuming or wet cleaning methods to prevent the dispersal of asbestos dust. Waste shall be disposed of in compliance with applicable local requirements.

25. The breathing zone in the workplace shall be maintained below the prevailing threshold limit value for asbestos.

## **Personal Protective Equipment**

26. Appropriate PPE shall be provided and every person who is required to wear PPE shall be fully instructed in the proper use, care and maintenance of that equipment.

27. A change room, suitable for changing into and out of protective work clothing and for clean storage of street clothes shall be provided for the use of employees who work with asbestos. Protective clothing that has been exposed to asbestos shall not be taken away from the work place by the employee.

28. Laundering of such protective clothing shall be arranged in a manner that does not expose any other person to the asbestos hazard.

## **Health Surveillance**

29. All employees who are regularly exposed to an asbestos process shall be medically examined.

30. Employees involved in an asbestos process shall be routinely informed by their management of all known asbestos hazards, and of the need to develop safe and healthy work and personal habits as part of an Asbestos Education Program.

## **Environmental Surveillance**

31. Environmental surveillance of relevant workplaces shall be conducted, using Workplace Health and Public Safety (Health Canada) approved sampling and analytical methods, to monitor compliance with the prevailing threshold limit value. All test results shall be made available to relevant management, workplace committees and then to any affected employees, in a reasonable time after sampling/testing is completed.

## **Identification and Delineation**

32. Where appropriate, managers shall initiate studies to identify the presence, location, boundaries and quantity of asbestos and asbestos containing material.

## **Education**

33. As required, managers shall ensure that Asbestos Education Programs are established, implemented and maintained.

## **Contractors**

34. Procurement and contract officers shall inform contractors and subcontractors of the likelihood of coming into contact with asbestos while working at MARLANT, and the policies, procedures, SOPs, and work instructions that they must follow.

**Disposal**

35. All ACM shall be disposed of in accordance with Formation direction and Unit SOPs.

**Records**

Asbestos Studies and Reports  
Asbestos education and training  
Notification of contractors  
Medical surveillance  
Air Monitoring Results  
Asbestos waste manifests  
Obsolete asbestos database

**Enquiries**

MARLANT, Formation Safety and Environment:  
Formation Safety and Environment Officer (FSEO) – Tel 902-721-6881

## DIRECTIVE #SE4 AGENCY INSPECTIONS AND INVESTIGATIONS

### References

- A. DOAD 2008-3, Issues and Crisis Management
- B. MARLANTORD 66-8, Safety and Environmental Management
- C. CEPA - Part 10, Enforcement
- D. CLC Part II, Health and Safety Officers and General Matters
- E. MOU, HRDC (Labour Branch) and Safety and Security Group Transport Canada

### Purpose

1. To provide direction to MARLANT integral and lodger units, regarding procedures to follow when Federal/Provincial Safety/Environmental Officers, and/or Inspectors/Investigators require access to DND property.
2. It is used for situations where a MARLANT integral or lodger unit is being inspected or under investigation for a potential OHS or environmental offence.

### Scope

3. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

4. **Inspector:** an enforcement officer/individual who carries out an inspection to detect problems and to ensure that an activity or facility is in compliance with legislation. An inspector may enter and inspect any place to review activities, equipment and any paper and/or electronic record. During the course of an inspection, an inspector can become an investigator, however the inspector must communicate this change in purpose.
5. **Investigator:** an enforcement officer that visits a site to review activities, equipment and any paper and/or electronic record for the purpose of gathering evidence to support the prosecution of an individual or organization.
6. **Evidence:** any testimony and/or records, including samples provided for analysis, that a provincial or federal officer deems necessary to support an enforcement action. National Defence Act exclusions may apply.
7. **Safety Officer/Environmental Officer:** any person who meets the standard of knowledge and skills required to carry out effectively the duties and responsibilities of safety officers and has been designated as such by the Minister.
8. **Warrant:** a legal document issued under an act authorizing and outlining the manner in which an enforcement officer conducts an inspection or exercises any power.

## Responsibilities

9. **Commanding Officers (COs):** COs are responsible for ensuring that their personnel co-operate with the safety officer, inspector/investigator, and inform the FSEO regarding the situation.
10. **Assistant Chief of Staff Materiel (ACOS Mat):** ACOS (Mat) provides advice to the MARLANT Commander regarding inspections and investigations.
11. **Unit Environmental Officers (UEnvOs)/UGSO:** As appropriate, the UEnvO or UGSO must inform the CO about inspections and investigations, and should accompany the inspector/investigator during the visit.
12. **Formation Safety and Environment Officer (FSEO):** The FSEO provides advice and support as necessary to COs and informs ACOS (Mat).
13. **Assistant Judge Advocate General (AJAG):** AJAG reviews the facts of the matter and provides legal advice.
14. **Public Affairs Officer (PAffO):** PAffO opens a file, monitors the situation and deals with the media as necessary.

15. **Individuals:** When approached by an external agency Safety/Environmental Officer or Inspector/Investigator, the individual must inform the UEnvO/UGSO as appropriate. The individual shall accompany the inspector/investigator until the CO, XO or UEnvO/UGSO relieves them.

## Direction

### General

16. One of the methods used to enforce OHS and environmental legislation is the appointment of Safety/Environmental officers and inspectors, who have various powers granted to them under the relevant legislation. These powers include entry to premises with or without warrants, the authority to review documents and records and take samples for analysis.

17. It is important that DND personnel co-operate with designated Safety/Environmental Officers and Inspectors or Investigators at all times. Non co-operation with a designated Safety/Environmental Officer, Inspector or Investigator is an offence under safety and environmental legislation.

### Reason for an Inspection or Investigation

18. There are at least four conditions under which a Safety Officer, Inspector or Investigator would require access to DND property:

- a. as part of an inspection/investigation of a specific area or function;
- b. as the result of a notice of warrant;
- c. to follow up a complaint; and
- d. after receipt of a hazardous occurrence report.

## **Inspection**

19. The inspection may be predetermined, random, due to an OHS complaint or environmental incident, or the suspicion of one. An inspection can become an investigation if the inspector believes an infraction has occurred, or there is the potential for an OHS or environmental incident, but then must state that the purpose of the visit has changed.

20. During the course of any visit a safety officer, inspector or investigator could decide that materials or documents are required for evidence. In this case, DND personnel shall document the request, noting the specific material required and release the required material. The CO shall refer the matter through the normal chain of command, and shall report the matter IAW reference A, including any additional information such as legislation under which the inspection/investigation is being conducted and other circumstances.

21. In some cases where an agency Safety Officer/ Inspector/Investigator believes a safety or environmental concern exists, or evidence could be destroyed, the Investigator may insist on carrying out the investigation without providing time to seek legal counsel. If that occurs:

- a. the investigation is allowed to continue;
- b. the contact person shall make a note to file stating that the request to seek legal counsel was refused; and
- c. the FSEO shall be contacted to inform AJAG ASAP.

22. All employees shall cooperate in every reasonable manner with Safety/Environmental Officers/Investigators' requests and not obstruct an investigation.

23. As noted at references C and D, provincial Safety Officers and Environmental Inspectors may also inspect or investigate federal facilities provided they are operating under delegated authority from their federal counterparts. Under these circumstances they may inspect only to federal standards. Similarly, as noted at reference E, other federal departments may act on each others behalf for the application and enforcement of federal legislation.

24. Once on site with delegated authority, the provincial Safety/Environmental Officer, Inspector/Investigator has the same powers as a federal inspector/investigator from the concerned department.

25. Municipal authorities generally do not have access to DND property.

## **Investigation**

26. Where an individual receives a warrant/direction, or learns that a warrant/direction will be served, that person shall, through the proper chain of command, inform the UGSO/UEnvO of the impending visit, the purpose of the visit, areas to be visited and the legislation applicable to the visit. In turn the UGSO/UEnvO shall assess the situation and inform the CO, who in turn informs the FSEO.

27. The individual shall escort the Safety/Environmental Officer/Investigator until such time as the appropriate UGSO/UEnvO or member of FSE can relieve them. Personnel from MARLANT integral and lodger units shall co-operate fully with a Safety/Environmental Officer/Investigator. If a copy of the order/warrant/notice is not already held, DND personnel shall request a copy.

28. In the event that a Commissioner makes the first contact with a Safety/Environmental Officer/Investigator, the Commissioner shall contact FSEO.

## **Access to DND Property**

29. The Canadian Environmental Protection Act (CEPA) and Canada Labour Code Part II provide for entry, inspection, investigation, and seizure by Safety/Environmental Officers/Investigators designated by the Minister. When such entry or any disclosure of information is requested that could reasonably be expected to be injurious to the defence or the security of Canada or any state allied with or associated with Canada, the information or access may be denied temporarily while AJAG considers the situation.

30. Denial of access shall be exercised judiciously, and only when AJAG deems it necessary to do so. When access is denied FSEO shall contact AJAG immediately for direction and advise the chain of command.

## **Records**

Sampling data  
Inspection notes  
Related notes to file  
Photographs  
Communications with AJAG and the FSEO  
Eyewitness testimony

## **Enquiries**

MARLANT, Formation Safety and Environment:  
Formation Safety and Environment Officer (FSEO): Tel. 902-721- 6881.

## DIRECTIVE #SE5 - TRAINING PROGRAM

### References

- A. Canada Labour Code, Part II
- B. A-GG-040-001/AG-001, DND General Safety Program, Volume 1 Policy and Program, Chap. 1
- C. A-GG-040-003/AG-001, DND General Safety Program, General Safety Training Manual
- D. MARCORD 43-2, RadHaz Safety
- E. MARLANTORD 34-24, Radiation Safety
- F. CFAO 66-4 LASER Safety
- G. A-GG-040-006/AG-001 Explosives Safety Program
- H. Nuclear Safety Instructions - Series 3 Training
- I. ISO 14001, Environmental management systems – Requirements with guidance for use
- J. Z1000, Occupational health and safety management
- K. MARLANT Safety and Environmental Management System Manual

### Purpose

1. To provide direction and assign responsibility for developing and implementing the Formation Safety and Environmental Training Programs.

### Scope

2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic. The additional safety and environmental training required is determined by each job/position.

### Definitions

3. Detailed definitions can be found in references C, D, E, F, G, J and K.

### Responsibilities

4. Maritime Staff Risk Management Services (MSRMS) identifies all military personnel's safety and environmental training requirements according to trade. Training packages are developed and all military personnel are trained according to their trade and required level of safety and environmental knowledge.
5. Formation Safety Officer (FSafeO) is the OPI for the overall safety training for the programs under Formation Safety and Environment's control. The incumbent identifies specific safety training needs and ensures this training is provided. Specific training opportunities are managed by the relevant Safety Program OPI.

6. Safety Program Administrator is responsible for maintaining safety training records for the UGSO Courses, specialty lectures, safety briefings and all other safety courses hosted by FSE.

7. Formation Safety and Environmental Management Systems Officer (FSEMSO) provides oversight and is responsible for:

- a. identifying specific environmental training needs, and ensuring this training is provided to MARLANT military and civilian personnel;
- b. assisting units to identify civilian environmental training needs; and
- c. developing, implementing and maintaining the Formation Environmental Training Program.

8. Staff Officer SEMS Administration is responsible for:

- a. coordinating the delivery of the Formation Environmental Training Program, including the UEnvO Course; and
- b. maintaining a current contact list of UGSOs and UEnvOs, and statistics on the number that have received training.
- c. maintaining environmental training records, for the UEnvO Courses, specialty lectures, environmental briefings, Basic HMRA operators course and all other environmental courses provided by FSE.

9. FSE Administration Officer is responsible for maintaining the records for all training undertaken by FSE staff.

10. Subject Matter Experts (SMEs) are responsible for providing specific specialty training to CFNOS, CFNES and other units as requested, and providing SO SEMS Admin with the resulting training statistics and records.

11. Unit General Safety Officer(UGSO) and Unit Environment Officer (UEnvO) are responsible for:

- a. assisting supervisors to identify the unit's safety/environmental training needs;
- b. providing for the continuing education of unit personnel in safety awareness and environmental stewardship;
- c. planning for, and providing assistance with safety and environmental general awareness briefs, or arranging for FSE personnel to deliver GABs; and
- d. reporting annually to FSE on the number of personnel who received GABs.

12. Supervisors identify safety and environmental training needs for their personnel such as product specific WHMIS training and five-minute safety talks, and ensure this training is delivered either from within the department, through FSE or external sources.

13. All personnel shall attend all prescribed courses consistent with their duties.

### **Direction**

14. Each safety program has different training requirements. These training requirements are detailed at the references shown in Table 1. Course offerings are also listed on the FSE website.

<b>Table 1: Safety Training Requirements</b>	
<b>Program</b>	<b>Training Reference</b>
General Safety	Reference C
RadHaz (Non-ionizing) Safety	Reference D
Radiation (Ionizing) Safety	Reference E
LASER Safety	Reference F
Explosives Safety	Reference G

15. Environmental training includes training required by legislation and training to enhance environmental stewardship. The FSEMSO conducts environmental training needs analyses for FSE personnel and ensures the required training is provided.

16. FSE assists units to assess their safety and environmental training needs for MARLANT's civilian personnel. Note that military personnel receive some safety and environmental training through their trades training.

17. Where necessary, the FSEMSO/FSafeO ensure training material and programs are developed when these are not available from other sources, or where it is more cost/effective for FSE to develop its own.

18. The SO SEMS Admin acts as Director for the UEnvO Course. In this capacity he/she:

- a. issues a MARLANTGEN message for course nominations six weeks prior to course dates;
- b. submits course material to translation seven weeks prior to course dates;
- c. issues joining instructions and course loading message two weeks prior to course dates;
- d. reserves the course location and equipment required;

- e. makes an appointment with the BComd to deliver opening remarks;
  - f. ensures books, handout disks, timetable, name plates, mugs, posters, etc are packaged for each student;
  - g. collects current newspaper articles and updated reference material for class reading material; and
  - h. Has course certificates and reports prepared no later than the first day of the course.
19. On completion of the UEnvO course, the SO SEMS Admin:
- a. reviews and compiles data of critiques and examination results;
  - b. writes thank you letters for guest lectures; and
  - c. sends course reports and critiques to the Canadian Forces Recruiting, Education and Training System (CFRETS).

## **Records**

FSE personnel training records  
UEnvO Training Course records  
UGSO Training Course records  
Safety Information Database (SID) information on training  
UEnvO/UGSO Contact Lists

## **Enquiries**

MARLANT, Formation Safety and Environment:

FSEMSO : Tel. (902) 721 - 8622  
FSafeO: Tel. (902) 721 - 5472

**DIRECTIVE #SE6 – FORMATION VERIFICATION PROCESS,  
INSPECTIONS/SURVEYS AND SPDET****References**

- A. Canada Labour Code, Part II, COHS Regulations
- B. A-GG -040-001/AG-001, General Safety Program and Policy, Chapter 9, Inspections and Surveys
- C. MARCORD 43-2 RADHAZ
- D. MARLANTORD 34-24 Radiation Safety
- E. DGNS SOP No 2.06 Radiation Program Compliance Inspection Report
- F. A-GG-040-006/AG-001 Explosives Safety Program
- G. CFAO 66-4 LASER Safety
- H. CFTO C-55-040-001/TS-001 RF Safety Program
- I. MARCORD 66-4 Laser Safety Program
- J. Nuclear Safety Instruction (NSI) 6-600 Radiological Hazardous Occurrence Investigations
- K. DAOD, 4003-0, Environmental Stewardship and Program
- L. MARCORD 4-12, Environmental Stewardship and Program
- M. MARLANTORD 66-8, Safety and Environmental Management
- N. MARCOM Verification Protocols
- O. ISO 19011, Guidelines for quality and/or environmental management systems auditing

**Purpose**

1. To provide direction and assign responsibility for conducting inspections, surveys and verifications designed to maximize the safety of all civilian and military personnel and prevent or mitigate adverse impacts to the environment.
2. To evaluate the compliance of integral and lodger unit operations with applicable legislation, orders and policy.
3. To verify that ship/shore unit management systems conform, as applicable, to the principles of current versions of CSA Z1000/ISO 14001 and the MARLANT SEMS.
4. To assess whether the SEMS being verified is suitable, adequate and effective.

**Scope**

5. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

**Definitions**

6. **Client:** Sponsor of the verification, such as the Formation Commander.

7. **Inspections:** Either a scheduled or unscheduled visit to a site to verify that activities and operations are functioning as required. Some inspections are mandated by legislation or policy, while others are conducted to demonstrate due diligence. Inspections may be conducted by MARLANT personnel, but may also be carried out by MARCOM, OGDs and safety and environmental agencies.

8. **Lead verifier:** Person qualified to manage and perform verifications.

9. **Non-compliance:** A verification finding that one or more activities or products do not meet a legislative or policy requirement.

10. **Non-conformance/Non-conformity:** A verification finding that one or more of activities or products do not meet a requirement of CSA Z1000 or ISO 14001 and/or the applicable SEMS.

11. **Non-conformance Report (NCR):** A standardized form used to document findings of non-compliance, non-conformance or opportunities for improvement. These are sometimes called Corrective Action Requests (CARs).

12. **Surveys:** A type of inspection generally conducted by superior headquarters, workplace health and safety committees or by safety staff.

13. **Verification:** Systematic examination in order to determine whether activities and related results conform to planned arrangements and whether these arrangements are implemented effectively and are suitable for achieving the organization's policy and objectives.

14. **Verification concern:** An inference, based on incomplete evidence, that the system being verified may not conform to the verification criteria. This indicates the need to obtain more evidence to substantiate that either the system does or does not conform.

15. **Verification conclusion:** Professional judgement or opinion expressed by a verifier about the subject matter of the verification, based on and limited to reasoning the verifier has applied to verification findings.

16. **Verification criteria:** Policies, practices, procedures or requirements against which the verifier compares collected verification evidence about the subject matter. Requirements may include but are not limited to standards, guidelines, specified organizational requirements, and legislative or regulatory requirements.

17. **Verification evidence:** Verifiable information, records or statements of fact, which:

- a. can be qualitative or quantitative, used by the verifier to determine whether verification criteria are met; and

- b. is typically based on interviews, examination of documents, observation of activities and conditions, existing results of measurements or tests or other means within the scope of the verification.
18. **Verification findings:** Results of the evaluation of the collected evidence compared with the agreed verification criteria, which provide the basis for the verification report.
19. **Verification observation:** Statement of fact made during a verification and substantiated by objective evidence.
20. **Verification program:** A set of one or more verifications planned for a specific time frame and directed towards a specific purpose. *Note: A verification program includes all activities necessary for planning, organizing and conducting the verifications.*
21. **Verification team:** Group of verifiers, or a single verifier, designated to perform a given verification; the verification team may also include technical experts and verifiers-in-training. One of the verifiers on the team performs the function of lead verifier.
22. **Verifier:** Person qualified to perform verifications.
- ### Responsibilities
23. Commanding Officers (CO) are responsible to ensure their ship/unit is ready to be verified at the scheduled time and that personnel designated for interviews are available.
24. Point of contact (POC) may be, as appropriate, the UGSO, the UEnvO, the UHazMat Coord, the URadSafeO, the URadHazO or the UExplO. The POC is the point of contact and liaison between the ship/unit and the OPI who is conducting or coordinating the inspection, survey or verification.
25. Formation Safety and Environment Officer (FSEO) provides direction and oversight for the Formation Inspection and Verification Program, and reviews and issues the verification reports.
26. Formation Safety Officer (FSafeO) is the overall OPI for safety Inspections and Surveys. Specific safety inspections and surveys are managed by the applicable Safety Program OPI.
27. Formation Safety and Environmental Management System Officer (FSEMSO) provides overall management of the Formation Verification Program, and reviews verification reports.
28. SO Verification manages and coordinates all components of the verification program and acts as a lead verifier or verification team member as required.

29. Lead Verifier is assigned for every verification. The lead verifier is responsible for arranging the verification schedule, developing verification plans, selecting verifiers, liaison with the POC of the organization being verified, managing all verification activities, evaluating verification evidence and coming to verification findings and conclusions. The lead verifier also debriefs the CO at the end of the on-site work and prepares the verification report.

30. The Organization being Verified is responsible for providing office space for the verification team for the duration of the verification, and ensuring any documents and records requested by the verification team are made available. The organization being verified is also responsible for making personnel available for interviews, and determining and implementing any required corrective action resulting from the verification.

## Direction

### Inspections and Surveys

31. At reference A, Part 135. (7) (k), work place committees are mandated to inspect all, or part of the work place every month so that, at a minimum, every part of the work place is inspected every year. Similarly, reference B, requires the following General Safety inspections:

- a. **Monthly:** Officers-in-charge, line organization officers and work place health and safety committees will conduct safety inspections of all areas and equipment under their functional control. The labour co-chair from the appropriate work place health and safety committee shall be included as a member of the inspection party.
- b. **Weekly:** Supervisory levels (NCMs and civilian equivalents) will conduct safety inspections of areas and equipment under their functional control. A labour representative may be invited to assist in this inspection.
- c. **Daily, or at the beginning of Each Shift or Work Assignment:** Individuals will conduct a safety inspection of their work site, equipment, tools, etc., for hazardous conditions. Identified hazards should be rectified immediately or reported to the supervisory staff if considered beyond one's own control.

32. Checklists shall be customized for each type of inspection, and sample checklist questions are provided as appendices to Annex B of reference B, for this purpose. Inspections shall be carried out in accordance with the instructions given at reference B, and completed checklists kept as records.

33. Other safety programs have different requirements for inspections/surveys. Details of these requirements are provided at the references shown in Table 1. Surveys for General, LASER and Explosives safety are typically similar in that they are part of the

review process for the specific programs. Surveys for Radiation Safety involve a more in-depth process where measurements of swipe and leak tests are done to ensure that radioactive sources have not leaked.

<b>Table 1: Safety Inspection and Survey Procedures</b>	
RadHaz Safety	Reference B, C and H
Radiation Safety	Reference D, E and J
LASER Safety	Reference B, G and I
Explosives Safety	Reference F

34. Surveys for RadHaz involve taking various measurements, applicable to the source as outlined at reference H.

35. Surveys for both the Radiation and RadHaz program are generally conducted at the National level. However, designated personnel in MARLANT units that have been trained can also conduct surveys.

36. The legally required monthly inspections of waste PCB facilities are conducted by SO HazMat.

### **Verification Process**

37. At references K and L, DND Policy 4003-0, Environmental Program and Stewardship and MARCORD 4-12 Environmental Program and Stewardship both direct units to implement EMSs consistent with the principles of ISO 14001. Due to integration of safety and environment the management systems must now also conform to CSA Z1000.

38. Safety and environmental verifications are integral to CSA Z1000 and ISO 14001 respectively. The Formation Verification Program is designed to conduct combined safety and environmental verifications of ships/shore units within MARLANT on behalf of the Admiral.

39. Verifications ensure that ships/shore units are adhering to legal and policy requirement, and their SEMS conform to the principles of CSA Z1000 and ISO 14001.

### **Frequency**

40. High-risk units are verified every 18 months while other units are verified every thirty six months. The risk is evaluated every three years by FSafeO and FEMSO and the verification frequency adjusted accordingly.

### **Notice**

41. After review of the Operational Schedule, the verification schedule for the FY is issued in March for the units to be verified in the next fiscal year. The verification timetable is confirmed in a notice sent to the ship/unit with the verification plan

approximately four weeks before the first day of the verification. In addition, a preliminary three-year schedule is prepared for review by FSEMC at the annual management review meeting.

### **Verifier and Lead Verifier Qualifications**

42. To be a member of a verification team, personnel must have successfully completed, at a minimum, four days of training comprising a two-day course on the CSA Z1000/ISO 14001 standards and a two day course on auditing principles. Verification team leaders must have successfully completed, at a minimum, a four-day Lead Verifier course.

### **Procedure**

43. Formation verifications are conducted in accordance with references N and O, and comprise eight key components:

- a. Verification plan;
- b. Opening meeting;
- c. Collecting evidence;
- d. Findings and conclusions;
- e. Closing meeting;
- f. Verification report
- g. Corrective action plan; and
- h. Follow-up.

44. The Verification Plan includes the following:

- a. Date and location of the verification;
- b. Verification leader and team members;
- c. Verification objectives and scope (includes compliance and conformance);
- d. Verification criteria (CSA Z1000, ISO 14001, MARLANT SEMS);
- e. Expected time and duration of major verification activities;
- f. Identification of the verification team members;
- g. Schedule of interviews and meetings;
- h. Distribution of final report; and
- i. Expected date of issue of the verification report.

45. The opening meeting is conducted at the beginning of the on-site portion of the verification. The purpose of the meeting is to provide a brief summary of the objectives and scope of the verification and answer any final questions the organization being verified may have before the start of the verification. The meeting is also used to introduce the verification team members to the organization's senior staff.

46. Verification evidence is collected by document and records' reviews, informal and formal interviews and rounds. The organization being verified shall ensure designated personnel are available for interviews, and/or to provide information to verifiers.

The evidence is documented by verifiers in working papers. Evidence is presented to the lead verifier for use in arriving at findings/conclusions and preparing the report at the end of the verification. The verification team reviews the evidence and assists the Lead to determine findings and conclusions.

47. A closing meeting is scheduled for the last day of the verification to present the findings/conclusions. Attendees should be the same as the opening meeting. At the closing meeting efforts shall be made to agree on the findings/conclusions, but the Lead Verifier has the final say at this stage.

48. The final verification report shall be issued to the Unit CO within forty-five days following the date of the closing meeting. Draft reports are not issued. The Unit is responsible for ensuring the information in the report is communicated to all effected work-place parties.

49. The ship/shore unit shall send a corrective action plan for the verification findings, using the NCR form, to the Lead Verifier within 45 days of receiving the verification report. For urgent issues, the Lead Verifier shall contact the organization's POC for a status report approximately halfway through the schedule for the corrective action. If progress is deemed unsatisfactory, the FSEMSO shall be informed and appropriate action taken.

50. When organizations being verified are found to have issues from the previous verification that have not been addressed, this shall be brought to the attention of the FSEO for action.

### **Safety Program Development and Evaluation Technique (SPDET)**

51. MARLANT units are required to conduct annual safety program self-evaluations using the SPDET process, and report the results to DSafeG through FSE. The call letter is sent out by FSEO in December/January. Units must submit their completed SPDETS to FSE by the end of February. FSE conducts a statistical analysis of the submissions and forwards the SPDETS and analysis to DSafeG by 31 March.

### **Records**

Verification working papers  
Verification Reports  
Verification Plan letter  
Corrective Action Plans  
Verification Schedules  
Inspection Reports  
Survey Reports

**Enquiries**

MARLANT, Formation Safety and Environment:

Safety:            FSafeO:            Tel. (902) 721-5471  
Environment: FSEMSO:        Tel. (902) 721- 8622

## DIRECTIVE #SE7 – WATER MANAGEMENT

### REFERENCES

- A. Defence Environmental Strategy (DES, 2013)
- B. Defence Federal Sustainable Development Strategy 2011/12 to 2013/14
- C. Instruction 4400-98 – Water Supplies at DND Establishments
- D. CFMO 36-02, Water Supplies – Sampling and Sterilization
- E. Canadian Forces Construction Engineering Manual
- F. Canadian Forces Health Manual
- G. Health Canada, Guidelines for Canadian Drinking Water Quality, 2012 (or the most recent version)
- H. C-98-15W-002/MG-010 Water Supply And Distribution Systems, January 2002
- I. BCE Environmental Management System - Annex 9 – Water Management Standard Operating Procedure
- J. Guidance for Providing Safe Drinking Water in Areas of Federal Jurisdiction, May 2013
- K. ADM(FinCS) [http://admfincs.mil.ca/dfpp/faq\\_e.asp#Hos](http://admfincs.mil.ca/dfpp/faq_e.asp#Hos)
- L. Canada Occupational Health and Safety Regulations, Part IX Sanitation
- M. Nova Scotia Occupational Health and Safety Regulations
- N. Canada Labour Code, Part II
- O. A-PS-110-001/AG-002 Public Support for Morale and Welfare Programs in the Canadian Forces, February 2007

### Purpose and Scope

1. The purpose of this directive is to provide direction and assign responsibility for implementing the MARLANT Water Management Program to ensure an appropriate program is in place for applicable MARLANT properties and Personnel Support Programs (PSP) managed facilities.
2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander MARLANT.

### Definitions

3. **Baseline Chemical Analysis:** An analysis for all chemical parameters, including initial screening for radiological parameters, with Maximum Acceptable Concentrations (MACs) as provided at Ref G.
4. **Distribution System:** A network of pipes leading from a well or treatment system to consumers' systems.
5. **Due Diligence:** the measure of prudence, activity or close attention that is expected from, and ordinarily exercised by, a reasonable and prudent person under the particular circumstances.
6. **Exceedence:** A parameter found to be greater than the criteria outlined in Ref G.

7. **Groundwater:** The water found in underground aquifers which supply wells and springs.

8. **Potable Water:** Water that is free of pathogenic bacteria or contaminants and is fit for human consumption in accordance with Ref G.

9. **Raw Water:** Water drawn from any source prior to any water treatment process.

10. **Surface Water:** Any water body on the land surface, including running water such as streams, rivers and brooks, or quiescent water such as lakes, reservoirs and ponds that is subject to surface run-off.

11. **Water System:** All components from the point of collection of water to the consumer. This can include groundwater supplies, surface waters, storage reservoirs and supply systems, intakes, treatment systems, service reservoirs, distribution systems, service lines to individual buildings, backflow prevention valves, hydrants, plumbing, point-of-entry and point-of-use treatment devices.

## **Responsibilities**

12. Commanding Officers (COs) of all integral and lodger units are responsible for conserving water as part of their daily activities and processes, including assessing any general water use and industrial processes that use water to identify potential water conservation initiatives.

13. Base Construction Engineering Officer (BCEO) is responsible for the operation, sampling, reporting and maintenance of MARLANT owned water systems. This includes:

- a. treating and sampling of all potable water conveyed to MARLANT properties for public consumption;
- b. ensuring safeguards are in place to guarantee the water being supplied is potable;
- c. sampling and reporting of water systems for all properties under PSP control, meeting applicable regulatory and DND Policy requirements, and as per applicable agreements, Memorandums of Understanding (MOUs), Directives and Service Level Agreements (SLAs);
- d. ensuring a sampling program is in place, which is reviewed on an annual basis, to confirm the sampling program meets applicable regulations and guidelines and assess potential risk to water systems;
- e. ensuring the sampling program includes a sample plan based on a baseline detailed in Ref J, which should be re-assessed every five-years, if site conditions change, or if the baseline indicated the re-assessment be conducted more frequently;
- f. routine microbiological testing at multiple locations throughout MARLANT;

- g. conducting the initial review of sample results as they are received to compare to guidelines and identify exceedences;
  - h. maintaining the sampling results data (including laboratory certificates) to assess trends within the data, revisit historical results, and maintain information on any water quality issues;
  - i. providing all sampling results to Formation Safety and Environment (FSE) and all adverse sample results (including laboratory certificates) to Preventive Medicine (PMed);
  - j. following the process for water exceedences as outlined in Annexes A and B of this Directive;
  - k. developing corrective action in coordination with PMed, as needed;
  - l. reporting adverse drinking water quality incidents into WaterNet;
  - m. installing water meters on all buildings over 1000 m<sup>2</sup> and collecting, monitoring and reporting water consumption data for MARLANT properties, including site-specific metered buildings;
  - n. maintaining water coolers for units who have approval to purchase bottled water as per Paras 39 and 40; and
  - o. assessing and implementing water conservation opportunities.
14. The Base Surgeon (BSurg), through PMed, provides medical supervision over the quality of water supplies for both ships and land based units. This includes:
- a. making recommendations concerning the quality of water as may be necessary for the protection and preservation of health;
  - b. obtaining and submitting water samples independent of those taken by BCE, which includes the interpretation of the water sample laboratory reports;
  - c. interpreting water results collected by BCE when exceedences are identified and following the processes for exceedences, as outlined in Annexes A and B of this Directive;
  - d. determining water potability when an occupational health and safety (OHS) concern is raised;
  - e. performing monthly random microbiological testing for quality assurance purposes only;
  - f. issuing health advisories, such as boil water advisories, for distribution by FSE; and
  - g. advising on corrective action with BCE, as needed.
15. Formation Safety and Environment Officer (FSEO): FSEO is responsible for directing the MARLANT water management program and is the point of contact for external agencies. FSEO distributes BSurg recommendations and guidance to units or building occupants.
16. Staff Officer Pollution Prevention (SO Poll Prev): SO Poll Prev as the OPI and subject matter expert (SME) is responsible for the implementation and maintenance of the MARLANT water management program. This includes:
- a. providing input for local water management policy;

- b. conducting water studies for program improvement or conservation initiatives;
  - c. analyzing monitoring results and assisting with the development of corrective action plans;
  - d. updating the comprehensive management plan for the water management program;
  - e. preparing the annual submission for the water management program for the FSE Level 3 Capability Plan; and
  - f. providing associated reports within DND and for external agencies.
17. Staff Officer Occupational Health and Safety (SO OHS): Units experiencing OHS water concerns are to contact the SO OHS, through their Unit General Safety Officer in accordance with MARLANT SEMS Directive S17. The SO OHS will inform PMed of all queries and coordinate unit access to their services.
18. Personnel Support Programs (PSP) is responsible for the operation and maintenance of the water system(s) at properties under their control. PSP facilities shall be provided with Public Support IAW Ref O and local MOUs and agreements.
19. Base Logistics (BLog) is responsible for contract oversight with respect to purchase of bottled water, which includes the requirement for BLog to inform FSE of Units that have bottled water as well as the Unit justification (procedures outlined in para 39 and 40).

## **General**

20. MARLANT is responsible for the protection of the health of all potable water consumers occupying MARLANT properties. This is achieved by providing them with a clean, safe and reliable supply of potable water while ensuring the efficient use and conservation of all potable water sources. This involves ensuring the water storage, distribution systems and treatment equipment are functioning properly and the quality of potable water meets the requirements of Ref G.

21. To ensure stagnant water (water not used for more than 6 hours) has been removed from the water lines, occupants should endeavour to flush the cold water supply (until the water temperature reaches its coldest) before consumption (per Ref G).

## **Maintenance of Water Infrastructure**

22. BCE is responsible for testing water infrastructure to ensure contamination events are detected and appropriately addressed and extraneous water loss is minimized. This is achieved through routine maintenance of plumbing systems and potable water analysis to determine if a change in water quality or consumption is occurring within the distribution system.

23. When a water source is provided by a municipality, the municipality's responsibility for the quality of the water generally ends at the point where the water enters a supply system or a building's plumbing system.

24. A routine maintenance schedule for water infrastructure shall include the following elements:

- a. inspection of a building's plumbing for cross-connections;
- b. pressure testing;
- c. flushing of water lines and hydrants;
- d. regular disinfection of drinking fountains; and
- e. monitoring of water quality.

## Water Conservation

25. To promote effective, responsible management of water at MARLANT properties, units shall use practical alternatives for reducing water consumption, while maintaining water quality. During construction projects MARLANT shall strive to install water-saving devices.

## Monitoring/Sampling

26. Monitoring potable water helps assess the water quality and determine the presence and concentration of disinfection by-products. Operational monitoring will help ensure the potable water system is operated effectively and extraneous loss of water is minimized, while compliance sampling ensures the water leaving a plant and distribution system meets the established requirements at Ref G.

27. Only water samples collected by BCE, PMed or Health Canada, or by a third-party contractor hired by BCE, PMed, Health Canada or FSE, shall be used to assess water quality. Due to the isolated location and nature of the activities conducted at some PSP locations, it may be more feasible for on-site personnel to collect water samples on behalf of WFE. If this is the case, PSP shall update site-specific MOUs, and following the requirements of MARLANT SEMS Directive S17 - Occupational Health and Safety Program, for collection of samples. The updated MOU shall be reviewed by BCE, PMed and FSE prior to PSP initializing sampling by on-site personnel. In the event of adverse water quality results, which results in the BSurg providing risk mitigation direction, the BSurg final assessment and review of results must be provided to the Unit Safety Committee. Units shall not deviate from the BSurg's recommendations/direction without first consulting with PMed and FSE.

28. As per Ref B, and pursuant to departmental strategic frameworks, buildings >1000 m<sup>2</sup> shall have utility meters (including water meters) installed by March 2013. Building specific data shall be collected by BCE and provided to FSE on an annual basis. Water utility data will be used to assess trend and develop and measure water conservation initiatives.

## Sampling Frequencies

29. **Bacteria:** For all systems, a minimum of four samples per month shall be taken at regular intervals throughout the month.

30. **Chlorine/Chloramine residuals:** Samples to be tested for chlorine residuals shall be collected at the drinking water treatment plant and in the distribution system to determine chlorine dosage levels and to monitor water quality.

31. The operational range for chlorine in drinking water is between the detection level and 5 mg/L. However, a minimum free chlorine residual of 0.2 mg/L at all points in the distribution system is considered desirable to prevent bacterial growth. Other disinfection processes, such as ultraviolet disinfection, can be used in the treatment plant, but in these cases residual chlorine must still be maintained in the drinking water distribution system.

32. At bacteriological sample locations, it is recommended that chlorine residuals and pH levels are monitored during the sampling process. A free chlorine value of 0.04mg/L or greater should be maintained at these locations as an indication of available disinfection. pH levels quickly indicate changes in water quality and should be maintained between 6.5 and 8.5. If chlorine residuals fall below 0.04mg/L, or pH levels fall outside of the range, 6.5-8.5, BCE shall take the necessary action to restore these parameters to the prescribed levels.

33. **Baseline Chemical Analysis:** A program for identification of chemical contaminants shall include annual monitoring for surface water sources, and monitoring every two years for groundwater sources, unless otherwise specified at Ref G.

### **Required Action when a Contaminant is Identified or Suspected**

34. When a contaminant is identified or suspected, PMed and FSE shall be informed immediately. BCE shall take all steps necessary to isolate and contain the contaminant. PMed shall approve the method of removing the contaminant from the potable water system. The process to action exceedances against Ref G identified by BCE is provided in Annex A of this directive. The process to action potential water concerns raised by an individual or unit is provided in Annex B of this directive.

### **Boil Water Advisory**

35. A boil water advisory shall be issued for the affected area in cases of:

- a. suspected/confirmed E. coli contamination, significant deterioration in source water quality, equipment malfunction during treatment or distribution, or inadequate disinfection; or
- b. microbiological contaminates other than E.Coli, unacceptable turbidity, disinfectant residuals or particle counts as determined by PMed; or
- c. situations where the operation of the system would compromise public health as determined by PMed.

36. When a confirmed contaminant has been identified, the procedure initiated in Annex A will be followed. The BSurg will issue correspondence to FSE outlining if a boil water advisory or other imposed water restrictions are to be issued. FSE will distribute the boil water advisory to the unit / building occupants.

37. Boil water advisories or other imposed water restrictions can only be rescinded by the Senior Medical Authority. Boil water advisories are usually rescinded by the BSurg as soon as the quality of the treated water, in at least two consecutive sets of samples, has returned to acceptable levels, or when the treatment, distribution or operational malfunction has been corrected and sufficient water displacement has occurred in the distribution system to eliminate any remaining contaminated water.

## Bottled Water

38. The hospitality regulations at Ref K, pertaining to the purchase of bottled water, states that if the water is potable, in accordance with Ref G, then purchases of bottled water should be considered a hospitality function and public funds are not to be used. If water has been deemed non-potable, or a source of drinking water is not available, such purchases are not considered a hospitality function and Units will be required to provide justification. In order to justify bottled water for procurement, Units must provide one of the following to BLog/Contracts at [+BLog\\_Local\\_Purchasing@CFB\\_Halifax\\_BLog\\_CSO@Halifax](mailto:+BLog_Local_Purchasing@CFB_Halifax_BLog_CSO@Halifax):

- a. If water is deemed potable and a Unit requires bottled water for an event, the Unit must provide a completed Hospitality Request Form signed by the appropriate delegated official. See <http://halifax.mil.ca/N8/hosp.htm>; or
- b. If water is non-potable as determined by PMed, the Unit must provide paperwork from FSE stating PMed validated the water and deemed it to be not safe for consumption. Once this information is provided, BLog Contracts can purchase bottled water without hospitality approval; or
- c. If water is potable; however, a source of drinking water is not available or the location of the source of water is not close enough to the work area that drinking or washing is inhibited; the Unit must provide justification to BLog Contracts, and inform FSE. As per Refs M, N and PMed direction, drinking is considered inhibited if there is no source of drinking water other than a personal service room (janitor's closet or washroom) or a source of drinking water is further than 200 m from the workplace. Instances where other site-specific reasons may cause drinking or washing to be inhibited, FSE is available to provide guidance on this policy as needed. If drinking or washing is inhibited, BLog Contracts can purchase bottled water without hospitality approval; or
- d. When water is deemed non-potable at PSP Special Interest facilities, the Facility Manager will purchase water in accordance with NPP contracting guidelines.

39. BLog Contracts shall maintain a list of Units that are approved for bottled water and provide to BCE. BCE must ensure the water purchased meets applicable drinking criteria and water cooling units are properly maintained and inspected for units that are approved to purchase bottled water.

40. Units or individuals that are not approved for bottled water, and purchase their own bottled water through personal funds, are responsible to ensure the water they purchase meets applicable drinking criteria and cooling units are properly maintained and inspected.

## **ATTACHMENTS**

Annex E7A: Process: WFE Identifies Exceedence against Ref G

Annex E7B: Process: Unit Raises Potential Water Concerns

## **RECORDS**

Monitoring Reports - BCE

Maintenance and Inspection Records - BCE

Property Water Source List – BCE

Water Consumption Records – BCE

WaterNet - BCE

## **ENQUIRIES**

Formation Safety and Environment:

SO Pollution Prevention (SO Poll Prev) – Tel. (902) 722-4977 / Fax (902) 721-5417

SO Occupational Health and Safety (SO OHS) – Tel. (902) 722-4964 / Fax (902) 721-5417

**ANNEX SE7A - PROCESS: WFE IDENTIFIES EXCEEDENCE AGAINST REF G**

1. WFE shall immediately notify PMed and FSE following the identification of an exceedence for any parameter against Ref G.
2. As a minimum, WFE and FSE shall provide the following information to PMed:
  - a. general background information such as the sample location;
  - b. all available analytical information, including laboratory certificates;
  - c. details of the distribution system;
  - d. availability of a source of water within the building; and
  - e. any other relevant info specific to the issue.
3. Following notification, PMed shall review and interpret the analytical results, evaluate the situation, and assess risk.
4. If there is no risk, as assessed by PMed, PMed shall inform FSE and BCE by e-mail confirming the water is considered potable.
5. If risk is identified, the BSurg shall issue correspondence to FSE and BCE outlining the exceedences, the representative health risk(s), and any action that must occur to ensure the risk to occupants is minimized. FSE will forward the correspondence to the Unit CO and UGSO informing them of the BSurg requirements and restrictions. The CO shall ensure information is shared with their respective workplace health and safety committee. In the event bottled water must be provided to the Unit, FSE will also forward the correspondence to BLog Contracts.
6. Any follow up action from the BSurg correspondence will be addressed as required by FSE, BCE, and others as required. This may include further follow up sampling, flushing of water lines, investigation into an alternative water source, boil water advisories, etc. Requirements for flushing of lines should be undertaken as a short term measure, recognizing the MARLANT requirement for water conservation whenever possible. Flushing should be conducted only as required to ensure occupational health and safety issues are met and a cost-benefit analysis should be conducted to determine if the provision of bottled water is more cost effective. Ref J includes direction for routine flushing of the plumbing system including a minimum requirement for all inactive areas of the plumbing system every 6 to 8 weeks.

**ANNEX SE7B - PROCESS: UNIT RAISES POTENTIAL WATER CONCERNS**

1. Unit General Safety Officers (UGSOs) are to be advised of all water quality concerns within their Unit and contact the SO OHS to provide all relevant details of the issue. SO OHS will:
  - a. notify PMed of Unit concern;
  - b. coordinate Unit access to PMed and BCE services as required; and
  - c. engage WFE to conduct a review of recent and historic sampling results and to assess the distribution system through a coordinated effort with BCE Engineering and Utility staff.
2. As a minimum, WFE and FSE shall provide the following information to PMed:
  - a. specific Unit concerns;
  - b. all available analytical information, including laboratory certificates;
  - c. details of the distribution system;
  - d. availability of a source of water within the building; and
  - e. any other relevant info specific to the issue.
3. Following notification, PMed shall review and interpret available information and analytical results, assess risk and develop an action plan in coordination with WFE and FSE. If analytical results are not available, PMed shall advise WFE of the required sampling program to investigate the unit concern and WFE shall collect samples for analysis as soon as possible. Only water samples collected by BCE, PMed or Health Canada, or by a third-party contractor hired by BCE, PMed, Health Canada or FSE, shall be used to assess water quality.
4. If there is no risk as assessed by PMed, PMed shall inform FSE and BCE by e-mail confirming the water is considered potable and FSE will inform the Unit CO and UGSO. The CO shall ensure information is shared with their respective workplace health and safety committee.
5. If risk is identified, the BSurg shall issue correspondence to FSE and BCE outlining the exceedences, the representative health risk(s), and any action that must occur to ensure the risk to occupants is minimized. The Unit CO shall be copied on the correspondence. FSE will forward the correspondence to the Unit CO and UGSO informing them of the BSurg requirements and restrictions. The CO shall ensure information is shared with their respective workplace health and safety committee. In the event bottled water must be provided to the Unit, FSE will also forward the correspondence to BLog Contracts.

6. Any follow up action from the BSurg correspondence will be addressed as required by FSE, BCE, and others as required. This may include further follow up sampling, flushing of water lines, investigation into an alternative water source, boil water advisories, etc. Requirements for flushing of lines should be undertaken as a short term measure, recognizing the MARLANT requirement for water conservation whenever possible. Flushing should be conducted only as required to ensure occupational health and safety issues are met and a cost-benefit analysis should be conducted to determine if the provision of bottled water is more cost effective. Ref J includes direction for routine flushing of the plumbing system including a minimum requirement for all inactive areas of the plumbing system every 6 to 8 weeks.

## DIRECTIVE #E1 – SPILL PREVENTION AND REPORTING

### References

- A. A Guide to Spill Prevention for National Defence - pamphlet 97CS-2398
- B. MARLANTORD 4-13, Reporting of Significant Issues/Incident
- C. ED 4003 directive
- D. Formation Emergency Response Plan (FERP), Annexes E and O
- E. SEMS directive #SE1, Hazardous Materials Management
- F. MARLANTORD 21-1, Boards of Inquiry, Summary Investigations and Technical Investigations.

### Purpose

1. To ensure that all MARLANT Integral and Lodger Units practice spill prevention for fuel, HazMat and HazWaste and report releases of these materials if they occur IAW with regulatory and policy requirements.

### Scope

2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **Fuel:** Includes gasoline, distillate, diesel heating fuel, aviation fuel and bunker

4. **Petroleum, Oil and Lubricants (POL):** Broad term, which includes all petroleum and associated products. For the purposes of this Directive POL includes waste oil, but excludes fuel, and POL spills are considered to be HazMat spills.

5. **Hazardous Materials (HazMat):** Dangerous substances, dangerous goods, hazardous commodities and hazardous products, such as poisons, corrosive agents, flammable substances, or any other material that can endanger human health or well being or the environment if handled improperly.

8. **Hazardous Waste (HazWaste):** Materials which are no longer suitable for their intended use and which are potentially hazardous to human health or the environment. They may be inherently hazardous in themselves, or other HazMat may have contaminated them. These wastes require special disposal techniques to eliminate or reduce the hazard(s) present.

9. **Spill:** Any unplanned or intentional, discharge that has the potential to cause an adverse effect on health or the environment. IAW DND policy, all spills are reportable to the FSEO

## **Responsibilities**

10. Commanding Officers (COs): Commanding Officers are responsible for ensuring a spill prevention program is in place and release reports issued.

11. Formation Safety and Environment Officer (FSEO): The liaison for contact with outside agencies. Receives all spill notifications and coordinates report distribution, and when necessary prepares a draft “Significant Incident Report” (SIR) for the ACOS Mat to issue.

12. Formation Environmental Protection Officer (FEPO): Provides oversight for the maintenance of the SPILLNET release database. Provides technical input on spill prevention techniques and release investigations. Includes a summary of spills in the annual State of the Environment Report.

13. SO Fleet Management Systems (SO Flt Mgmt Sys): Reviews SI/TIs to verify investigation was satisfactory. Where necessary participates in incident/accident investigations. Provides expert advice on cause and effect and how to prevent re-occurrence.

14. SO Hazardous Materials: Provides on-site backup for spill response and cleanup team, on an as required basis, and acts as the liaison between FSEO and on-site response leader.

15. Unit Environment Officers (UEnvOs): Coordinate the unit spill prevention program, assesses the potential impact of any release and provides advice on mitigation. The UEnvO prepares spill reports for the CO’s approval.

16. Unit General Safety Officers (UGSOs): Provide advice on the safety of responders and personnel who are, or could be, effected by a spill of fuel or hazmat.

## **Direction**

### **General**

17. All MARLANT integral and lodger units shall develop and implement a spill prevention program. The development of these programs involves four phases:

- a. Assessment of previous spills;
- b. Planning;
- c. Implementation; and
- d. Monitoring.

18. Guidelines for implementing a spill prevention program and reporting any spills that do occur are provided below.

## **Assessment of Previous Spills**

19. Start by reviewing data on spill history and based on findings identify problem areas and the root cause(s) of previous Fuel, HazMat and POL spills.

20. Confirm the findings by developing an inventory of processes involving fuels, POL, HazMat and HazWaste that could be involved in a spill, and assess the risks associated with these processes and materials to identify high risk/priority areas.

## **Planning**

21. At this stage the most appropriate options to improve performance shall be assessed. These include:

- a. evaluating processes and materials involved in the majority of historical spills, and instituting elimination, substitution and re-engineering solutions;
- b. eliminating the use of potential spill material, substituting for less polluting material; and
- c. improving product storage, training, preparedness and response capability, and documented SOPs.

22. Once appropriate options have been selected, a program implementation plan shall be prepared. OPIs are assigned to the various tasks, budgets are determined and an implementation schedule prepared.

## **Implementation**

23. Successful implementation requires management commitment and leadership. Provide training and education to include:

- a. use of the documented procedures, and importance of reporting spills promptly and accurately;
- b. historical root cause(s) of HazMat and POL spills and how to avoid them;
- c. SDS and collateral targets and the importance of achieving them; and
- d. Emergency preparedness and response.

24. Ensure appropriate equipment and human resources are available for routine inspections and response to Fuel, HazMat and POL spills.

## **Monitoring**

25. Select a base year where the number and volume of spills is known, or can be estimated, and prepare a report that:

- a. compares current performance with the base year;
- b. highlights achievements and identifies any shortcomings;
- c. identifies priorities for the next year including objectives and realistic, measurable targets; and
- d. notes the effectiveness of emergency response drills.

26. This information is analysed to find opportunities for improvement, and progress reports are prepared annually to track improvements in spill prevention.

## **Reporting and Investigating Releases**

### **Marine Releases**

27. All self generated or observed releases regardless of perceived environmental implications are reported to the FSEO using the environmental incident message format provided in the ships' class EMS Manual.

### **Land Releases**

28. Land releases are reported in accordance with the FERP Annexes E and O. Spills and releases must be reported immediately to the FSEO. If this is initially verbal, then a documented report using the FERP Annex O, Appendix 2 - "Hazardous Waste/Dangerous Goods Report", must be sent to the FSEO within five working days, or as directed. Information copies are sent to the unit's chain of command. If all of the information is not available, the report must still be sent and can be updated later.

29. If there is a potential that the spilled material may enter a body of water, then QHM is informed.

### **Significant Incidents**

30. When an incident occurs, the FSEO decides if this is significant based on the examples given in MARLANTORD 4-13. Significant incidents include spills that threaten public safety, or fires involving death, injury, suspected arson, etc. If the incident is deemed significant, the FSEO drafts a Significant Incident Report (SIR) for the ACOS Mat to issue.

31. When a spill or a near miss occurs, and it is thought to be due to a technical problem, then a Technical Investigation (TI) is conducted. If during the investigation the cause is

considered to be from human error, then the investigation changes to a Summary Investigation (SI) IAW reference F.

## **Records**

Spill Reports  
Implementation Plans  
Response Plan, Drills/Test Reports  
Training Records

## **Enquiries**

MARLANT, Formation Safety and Environment:  
Staff Officer Hazardous Materials (SO HazMat): Tel. (902) 721-5492.

**DIRECTIVE #E2 – CONTAMINATED SITES MANAGEMENT****References**

- A. DND Contaminated Sites Management Framework, April 2008
- B. Contaminated Sites Management Working Group A Federal Approach to Contaminated Sites, 1999 <http://publications.gc.ca/collections/Collection/EN40-611-2000E.pdf>
- C. ECONET <http://10.234.16.23/econet/iisstart.asp>
- D. Environment Canada Technical Assistance Bulletins (TABS) on Contaminated Sites [http://www.on.ec.gc.ca/pollution/ecnpd/contaminassist\\_e.html](http://www.on.ec.gc.ca/pollution/ecnpd/contaminassist_e.html)
- E. CCME Canadian Environmental Quality Guidelines, 1999 <http://ceqg-rcqe.ccme.ca/>
- F. CCME Subsurface Assessment Handbook for Contaminated Sites, 1994 [http://www.ccme.ca/assets/pdf/pn\\_1144\\_e.pdf](http://www.ccme.ca/assets/pdf/pn_1144_e.pdf)
- G. CCME National Classification System for Contaminated Sites, 2008 [http://www.ccme.ca/ourwork/soil.html?category\\_id=68](http://www.ccme.ca/ourwork/soil.html?category_id=68)
- H. CCME Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites, Volume I and II, 1993 [http://www.ccme.ca/assets/pdf/pn\\_1101\\_e.pdf](http://www.ccme.ca/assets/pdf/pn_1101_e.pdf), [http://www.ccme.ca/assets/pdf/pn\\_1103\\_e.pdf](http://www.ccme.ca/assets/pdf/pn_1103_e.pdf)
- I. CCME, A Framework for Ecological Risk Assessment: Technical Appendices, 1997 and General Guidance, 1996
- J. Fisheries Act <http://laws-lois.justice.gc.ca/eng/acts/F-14/>
- K. Health Canada Guidelines for Canadian Drinking Water Quality, <http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php>
- L. Health Canada Federal Contaminated Site Risk Assessment in Canada <http://www.hc-sc.gc.ca/ewh-semt/contamsite/docs/index-eng.php>
- M. MOEE Guideline for use at Contaminated Sites in Ontario, 1996
- N. Canadian Environmental Assessment Act <http://laws-lois.justice.gc.ca/eng/acts/C-15.2/>
- O. Treasury Board Policy on Management of Real Property [http://www.tbs-sct.gc.ca/pubs\\_pol/dcgpubs/aas-gasa/index\\_e.asp](http://www.tbs-sct.gc.ca/pubs_pol/dcgpubs/aas-gasa/index_e.asp)
- P. Treasury Board Policy on Accounting for Costs and Liabilities Related to Contaminated Sites [http://www.tbs-sct.gc.ca/fin/sigs/Information\\_Bulletins/allowan\\_e.asp](http://www.tbs-sct.gc.ca/fin/sigs/Information_Bulletins/allowan_e.asp)
- Q. ADM Fin(CS) Interim Policy Document - Environmental Liabilities, April 2005 [http://admfincs.mil.ca/dfpp/pubs/Interim\\_Policy\\_Environmental\\_AnnexA\\_e.doc](http://admfincs.mil.ca/dfpp/pubs/Interim_Policy_Environmental_AnnexA_e.doc)
- R. Protocol for the Contaminated Sites Regulation Under the Environment Act, Protocol No.3 and 11, Yukon Department of Environment, Nov 2007
- S. BCE Unit Instruction G-18, Range Instructions and Erosion Inspection Forms

**Purpose**

1. To provide direction and assign the responsibilities for implementing the MARLANT Contaminated Sites Program and to provide guidance to various MARLANT and DND Formations and Departments when working in areas containing contaminated sites.

**Scope**

2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

## Definitions

3. **Acceptable Risk:** A risk level that is considered by society or regulatory agencies as tolerable. For MARLANT this is defined as:
  - a. Free hydrocarbon product is not present at the site;
  - b. The concentration of the chemical of concern does not exceed either the Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines value for the existing land use, or other more appropriate, applicable and justified screening level guidelines, or site-specific target levels generated using federally approved standards and methods; and
  - c. It can be demonstrated that the adverse effect is localized and does not affect human health, endangered species, or receptors on or off DND property and does not impair DND's sustained use of the site.
4. **Adverse Effect:** An undesirable or harmful effect to an organism, indicated by some result such as mortality, altered food consumption, altered body and organ weights, altered enzyme concentrations or visible pathological changes.
5. **Assessed – No Action Required:** A site where either:
  - a. Hazardous materials are or were used that could potentially impact the environment, but by employing of good management practices, there is no concern of possible adverse effects; or
  - b. A site where intrusive sampling has demonstrated that the concentrations of chemicals of concern are below applicable screening level criteria. If site conditions, land use, or other assumptions used in determining appropriate criteria change, the site must be re-evaluated.
6. **Background Concentration:** The concentration of a chemical substance occurring in media removed from the influence of industrial activity at a specific site and in an area considered to be relatively unaffected by industrial activity.
7. **Clean-up:** The removal of a chemical substance or hazardous material from the environment to prevent, minimize or mitigate damage to public health, safety or welfare, or the environment, that may result from the presence of the chemical substance or hazardous material. The clean-up is carried out to specified criteria.
8. **Concentration:** The amount of chemical or substance in a given environmental medium.
9. **Contaminant:** Any physical, chemical, biological or radiological substance in air, soil or water that has an adverse effect. Any chemical substance whose concentration exceeds background concentrations or which is not naturally occurring in the environment.
10. **Contaminated Site:** A site at which substances occur at concentrations that: (1) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health

or the environment, or (2) exceed the levels specified in policies and regulations.

11. **Contamination:** The introduction into soil, air or water of a chemical, organic or radioactive material or live organism that will adversely affect the quality of that medium.

12. **Deleterious Substance:** Any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water or as defined in Ref J.

13. **Environmental Assessment:** A systematic process to evaluate the environmental effects of a proposal to ensure the consequences are fully considered and addressed early in the decision making process.

14. **Environmental Site Assessment:** A systematic due diligence process that includes studies, services and investigations to plan, manage and direct assessment, and decommissioning and clean-up actions.

15. **Hazard:** The adverse impact on health or property which results from the presence or exposure to a substance. The significance of the adverse effect depends on the nature and severity of the hazard and the degree to which the effect is reversible.

16. **Hazardous Material (HazMat):** HazMat is any material that, if handled improperly, can endanger human health and well-being or the environment or equipment. Some examples of HazMat are poisons, corrosive agents, flammable substances, ammunition and explosives.

17. **Hazardous Waste (HazWaste):** Those wastes which, due to their nature and quantity, are potentially hazardous to human health and/or the environment and which require special disposal techniques to eliminate or reduce the hazard.

18. **Leachate:** A liquid that has percolated through soil, rock or waste and has extracted dissolved or suspended materials.

19. **Legacy Site:** Any property formerly owned or leased by DND; or, a property never owned or leased by DND for which DND has or had an environmental responsibility.

20. **MARLANT Soil Screening Criteria (SSC):** Criteria developed in conjunction with Health Canada that can be used if proper guidance is followed. SSC are to be used for in-situ soil conditions but not for screening metal-impacted soil for construction projects or disturbed soil. In the event that a contaminant has no corresponding health-based soil quality guideline, the contaminant should be included as a chemical of concern for further risk assessment, unless the measured concentrations are consistent with natural or background concentrations.

21. **Media:** The fundamental components of the environment including water, sediment, soil and biota.

22. **Migration:** The movement of contaminants in flowing water or vapour in the subsurface.

23. **Monitoring:** Observing the change in geophysical, hydrogeological or geochemical measurement with time.
24. **Pathway:** The route by which a receptor comes into contact with a contaminant. Exposure pathways include ingestion, dermal absorption and inhalation.
25. **Remediation Action Plan (RAP):** A plan to bring about the restoration or clean-up of a contaminated site.
26. **Receptor:** The person or organism, including plants, subjected to chemical exposure.
27. **Remediation:** Improving a contaminated site to prevent, minimize or mitigate damage to human health or the environment. Remediation involves developing and applying a planned approach that monitors, removes, destroys, contains or otherwise reduced the exposure of contaminants to receptors of concern.
28. **Risk Assessment:** The scientific examination of the nature and magnitude of risk to define the effects on both human and other receptors of the exposure to contaminant(s).
29. **Risk Management:** The selection and implementation of a risk control strategy, followed by monitoring and evaluation of the effectiveness of that strategy. Risk management may include direct remedial actions or other strategies that reduce the probability, intensity, frequency or duration of the exposure to contamination (e.g., land use restrictions).
30. **Risk Managed Site:** A site where contaminants exist at levels to cause adverse effects, a risk assessment has been completed, and risk management applied to control all risks judged to be significant. A risk managed site must be monitored, and if site conditions, land use, or other assumptions used in developing the risk management plan change, the site must be re-evaluated.
31. **Screening Level Guidelines:** Numerical values for the concentrations of chemical substances in soil, air, groundwater and sediments that relate to the suitability of a site, for specific uses and land-use categories. Chemical of concern shall be identified (screened) employing CCME Environmental Quality Guidelines where possible. Where CCME guidelines are not available, the following will be used in order of precedence:
- a. Other applicable Federal Guidelines (e.g., Federal Interim Groundwater Quality Guidelines);
  - b. Provincial guidelines, provided those for non-carcinogens are derived on the basis of 20% of the toxicological reference value (TRV); and
  - c. The US EPA guidelines if no Canadian jurisdiction has established environmental quality guidelines for a particular contaminant. The US EPA guidelines must be adjusted for non-carcinogens to reflect 20% of the US EPA reference dose.
32. **Site Occupant:** Unit, Formation or Organization using MARLANT property for operational needs.

33. **Unacceptable Risk:** A contaminant-related impact or risk that results in an actual or potential adverse effect.

## Responsibilities

34. Assistant Chief of Staff Materiel (ACOS Mat) has overall responsibility for the MARLANT Contaminated Sites Program, which includes the approval of all site disclosure documents and ensuring disclosure requirements are addressed.

35. Base Construction Engineering (BCE), including Formation Development Officer and Manager Real Estate Services, is responsible for:

- a. Managing tanks and other facilities containing hazardous materials or hazardous waste to safeguard the release of hazardous materials or waste to the environment;
- b. Maintaining and operating risk managed site structures, facilities and equipment, which includes, but is not limited to, engineered cap repairs, range erosion control structures, sub-slab vapour ventilation systems and Damage Control School groundwater interceptor trench;
- c. Conducting bi-annual inspections (Spring and Fall) and annual clean out of all sediment retention structures at MARLANT small arms ranges and completing the associated Inspection and Maintenance Log;
- d. Reporting immediately to Formation Safety and Environment (FSE) any contamination suspected of having an adverse impact on or off DND property, or that may have an adverse effect on human health and/or the environment;
- e. Carrying out environmental site assessment and remediation or risk management of sites related to environmental emergencies or spills that occurred after 1 July 2002 and falling under BCE responsibility;
- f. Co-ordinating with and obtaining guidance from FSE for all environmental site assessment and remediation/risk management work to ensure contaminated site projects are following MARLANT Contaminated Sites Program requirements;
- g. Providing copies of all environmental site assessment reports, sample results and remediation/risk management reports to FSE;
- h. Participating in meetings with regulators, site occupants, or the public, as required;
- i. Ensuring all property development decisions and proposed changes in property use include a review of existing contaminated sites data and do not violate any site restrictions;
- j. Ensuring that FSE is informed of any development or land-use changes on contaminated sites (the list of MARLANT Contaminated Sites is provided at [http://halifax.mil.ca/N4MAT/N48/Env\\_Protection/Contaminated\\_Sites/ContaminatedSite\\_e.htm](http://halifax.mil.ca/N4MAT/N48/Env_Protection/Contaminated_Sites/ContaminatedSite_e.htm));

- k. Ascertaining the environmental condition of a property before disposal of real property IAW the requirements at Ref. q, and informing FSE of all property disposals as well as environmental condition of the property and potential liability risk related to legacy contaminated sites;
  - l. Ascertaining the environmental condition of a property before acquiring the real property, as per Ref. q, and determining whether it is, or can be made, environmentally compatible with its intended use. This shall include identifying contaminated site environmental liabilities and contingent liability, as per Ref. r and s, and obtaining concurrence with FSE prior to acquisition due to potential additional costs to the MARLANT Contaminated Site Program;
  - m. Annotating in Standard Operating Procedures (SOPs) the use restrictions associated with pertinent contaminated sites, such as dig permits; and
  - n. Ensuring project managers and BCE OPI for capital projects assess potential contaminated site issues during project initiation and design, contact FSE for guidance if potential contaminated site issues are suspected, and follow the MARLANT Protocol for Handling Impacted Soil (see Annex E2A).
36. Capital Project Directors and Managers are responsible for:
- a. Ensuring all project planning and design decisions, and proposed changes in property use, include a review of existing contaminated sites data and do not violate any site restrictions;
  - b. Contacting FSE for guidance if potential contaminated site issues are suspected, and following the MARLANT Protocol for Handling Impacted Soil (see Annex E2A);
  - c. Coordinating with and obtaining guidance from FSE for all environmental site assessment and remediation/risk management work to ensure contaminated site projects follow MARLANT Contaminated Sites Program requirements;
  - d. Ensuring that FSE is informed of any development or land-use changes on contaminated sites as a results of capital projects (the list of MARLANT Contaminated Sites is provided at [http://halifax.mil.ca/N4MAT/N48/Env\\_Protection/ContaminatedSites/Contaminated\\_Sites\\_Reference\\_List](http://halifax.mil.ca/N4MAT/N48/Env_Protection/ContaminatedSites/Contaminated_Sites_Reference_List) );
  - e. Ascertaining the environmental condition of a property before acquiring the real property as part of a capital project, as per Ref. q, and determining whether it is, or can be made, environmentally compatible with its intended use. This shall include identifying contaminated site environmental liabilities and contingent liability, as per Ref. r and s, and informing the RCN due to potential additional costs to the MARLANT Contaminated Sites Program;

- f. Reporting immediately to FSE any contamination suspected of having an adverse impact on or off DND property, or that may have an adverse effect on human health and/or the environment;
- g. Incorporating a passive sub-slab vapour extraction system into building design if there is any uncertainty regarding soil vapours which have potential to impact the health of building occupants;
- h. Retaining a qualified indoor air quality specialist to develop and complete a detailed indoor air sampling program following applicable Federal and Provincial guidelines / requirements to determine if a building can be occupied, and providing proposed sampling program to FSE for review and input;
- i. Installing an active vapour extraction system or other mitigative measures as part of the project, if required based on the outcome of air quality testing. It is the capital project manager's responsibility to ensure air quality testing is completed and the system is upgraded as required for building commissioning and occupancy in order to provide a building safe for occupancy;
- j. Providing copies of all environmental site assessment reports, sample results and remediation/risk management reports to FSE;
- k. Providing risk management plans, including monitoring and cap inspection plans, to FSE where follow-up monitoring is required; and
- l. Providing the project environment liability and contingent liability to FSE for incorporation into NDHQ databases, as required by DGENS.

37. Site Occupants are responsible for:

- a. Managing HazMat responsibly;
- b. Advising BCE and FSE of any proposed changes in the use of their property;
- c. Advising FSE of any suspect conditions that could indicate a contamination problem, such as stressed vegetation, stained soil, discoloured seeps or strange odours;
- d. Reporting all spills of hazardous materials IAW MARLANT SEMS Directive #E1 – Spill Prevention and Reporting;
- e. Complying with all risk management requirements for their site; and
- f. Carrying out environmental site assessment and remediation or risk management of sites related to environmental emergencies or spills that occurred after 1 July 2002 and falling under the Site Occupant's responsibility. Note: This responsibility is site-specific and will be dependent on discussions with BCE and FSE.

38. FSE is responsible for:

- a. The overall management of the MARLANT Contaminated Sites Program;
- b. Developing a MARLANT Contaminated Sites Program to address all MARLANT contaminated sites that were generated before 1 July 2002;
- c. Carrying out site characterization IAW the DND Contaminated Sites Management Framework and the Federal 10-Step Approach for contaminated sites identified in the MARLANT Contaminated Sites Program;
- d. Preparing and implementing remediation or risk management plans for individual sites, including Environmental Assessments (EAs) if required;
- e. Maintaining a library of contaminated site reports and monitoring data; including maintaining copies of all environmental site assessment reports and sample results conducted by FSE for an indefinite period;
- f. Providing guidance to BCE, Capital Project Directors and Managers and Site Occupants related to contaminated sites;
- g. Providing operational and maintenance requirements to BCE for management of risk at contaminated sites;
- h. Acting as liaison with regulators, Preventative Medicine (PMed), site occupants, and/or the public on contaminated site issues;
- i. Carrying out audits of sites ready for site closure;
- j. Preparing, submitting and maintaining Contaminated Site Disclosure Reports to ACOS Mat for approval;
- k. Updating the Contaminated Sites Management Plan annually to indicate work plan and funding requirements, and preparing the annual Federal Contaminated Site Action Plan (FCSAP) funding submission and associated quarterly reports;
- l. Updating the NDHQ database annually;
- m. Preparing the contaminated sites section of the annual management review;
- n. Participating in the Federal Atlantic Regional Contaminated Site Working Group;
- o. Conducting an annual review of relevant regulations, guidelines and risk assessment methods; and
- p. Formation Safety Officer (F Safe O), upon request, reviews Risk Management Plans and Remediation Action Plans to ensure safety concerns are addressed.

39. PMed is responsible for:

- a. Providing direction to safeguard site occupants.

## Direction

### General

40. To manage MARLANT contaminated sites effectively, while considering environmental stewardship and fiscal responsibility, MARLANT has developed a Contaminated Sites Program. This program incorporates the DND Contaminated Sites Management Framework (CSMF) and the Federal 10-Step Approach, which are tools used to ensure that contaminated sites are managed appropriately.

41. Both tools take a risk-based approach to contaminated sites management and consist of a series of activities designed to define the human health and environmental hazards posed by the contaminated site. These activities determine whether the risk from contaminants is considered acceptable or unacceptable, based on site-specific conditions, and then implement action to reduce or mitigate unacceptable risk. The risk-based approach involves ten steps:

- a. Step 1 – Identify Suspect Sites: Identify potentially contaminated sites based on activities (past or current) on or near the site ;
- b. Step 2 – Historical Review: Assemble and review all historical information pertaining to the site;
- c. Step 3 – Initial Testing Program: Provide a preliminary characterization of contamination and site conditions;
- d. Step 4 – Classify Site Using the CCME National Classification System (NCS): Prioritize the site for future investigations and/or remediation/risk management actions;
- e. Step 5 – Detailed Testing Program: Focus on specific areas of concern identified in Step 3 and provide further in-depth investigations and analysis;
- f. Step 6 – Reclassify the Site Using the CCME NCS: Update the ranking based on the results of the detailed investigation;
- g. Step 7 – Develop Remediation/Risk Management Strategy: Develop a site-specific plan to address contamination issues;
- h. Step 8 – Implement Remediation/Risk Management Strategy: Implement the site-specific plan that addresses contamination issues;
- i. Step 9 – Confirmatory Sampling and Final Reporting: Verify and document the success of the remediation/risk management strategy; and
- j. Step 10 – Long-Term Monitoring: If required, ensure remediation and long-term risk management goals are achieved.

42. The MARLANT Contaminated Site Program incorporates all MARLANT contaminated sites

generated before 1 July 2002. A list of contaminated sites is provided at [http://halifax.mil.ca/N4MAT/N48/Env\\_Protection/ContaminatedSites/Contaminated\\_Sites\\_Reference\\_List.htm](http://halifax.mil.ca/N4MAT/N48/Env_Protection/ContaminatedSites/Contaminated_Sites_Reference_List.htm).

43. Requirements for impacted soil sampling, handling and disposal are provided in Annex E2A. These requirements are to be followed for any work that will require excavation of soil on MARLANT contaminated sites. In addition, there are specific soil handling requirements for all excavation activities at the following properties: Dockyard; Naval Dockyard Annex; RA Park; Stadacona; Shearwater; Willow Park; Bedford Rifle Range; Cambrai Rifle Range, Sydney Rifle Range and Debert Rifle Range.

44. Many of MARLANT contaminated sites are risk managed. Prior to any intrusive work or redevelopment on a MARLANT Contaminated Site (See [http://halifax.mil.ca/N4MAT/N48/Env\\_Protection/ContaminatedSites/ContaminatedSite\\_ByLocation.htm](http://halifax.mil.ca/N4MAT/N48/Env_Protection/ContaminatedSites/ContaminatedSite_ByLocation.htm)), the Staff Officer Environmental Engineering (Tel. 902-722-4929) shall be contacted to confirm land use restrictions and soil handling requirements.

45. It is MARLANT policy that at each contaminated site:

- a. Contamination will be reduced to levels consistent with Canadian Council of Ministers of the Environment (CCME) pathway-specific guidelines, other applicable screening level criteria, as defined in Section 31, or site-specific target levels; or
- b. A risk management strategy will be implemented with the aim of remediating or risk managing the site over the long term.

46. Emphasis shall be placed on regulatory compliance, reducing or eliminating human exposure and mitigating the potential environmental impacts during the remediation process. During risk management, controls shall be put in place to ensure that contaminants do not migrate off-site and a monitoring program shall be developed to measure reductions in contaminant concentrations over time.

47. At each step in the CSMF, information is collected to identify contaminants, receptors, and pathways for contaminants to affect receptors. Following each step, the information is reviewed and a decision made to continue with an additional investigation, conduct a risk assessment, or recommend closeout of the contaminated site, see Figure 1: Federal Approach to Contaminated Sites.

48. The decision to disclose a contaminated site is made when contamination is no longer a concern at the site, or when contamination is being risk managed. The contaminated site disclosure process is used to summarize environmental issues and concerns at each site once the site has been addressed through the DND CSMF. The resulting documentation is used to disclose relevant site information to site stakeholders. As part of the disclosure process FSE will:

- a. Identify the contaminated sites ready for disclosure;
- b. Complete a contaminated site audit for sites ready for the disclosure process;
- c. Prepare and maintain a Contaminated Site Disclosure Report;

- d. Request ACOS Mat approve the Contaminated Site Disclosure Report and associated requirements;
- e. Distribute copies of the Contaminated Site Disclosure Report within DND;
- f. Maintain a copy of the Contaminated Site Disclosure Report indefinitely; and
- g. Update the Contaminated Site Disclosure Report, as required.

## Ranges

49. Lead impacted soil poses a potential risk to the environment if allowed to migrate from bullet catchers and impact mounds. The source of lead at firing ranges is focused on soils impacted by bullets and bullet fragments. Lead can migrate from the backstop areas through several mechanisms. The most common is erosion of the backstop material and subsequent sedimentation within the range's drainage system.

50. As per Ref. s., BCE is responsible to conduct inspections twice per year (Spring and Fall) and following heavy rain events (rainfall amounts greater than 75 mm in a 24-hour period). BCE is responsible to clean out all sediment retention structures once a year as a minimum. This should be scheduled during a dry period during lowest flow conditions (generally late summer).

51. As per Ref s., an Inspection and Maintenance Log is used to evaluate and document:

- a. Areas of site erosion and corrective repair;
- b. Soil accumulation in the retention structures; and
- c. Removal, testing and appropriate disposal of collected soil.

## Water Lots

52. DND owns 14 water lots in Halifax Harbour and Bedford Basin. Based on a four-year marine surface sediment sampling program completed by FSE in March 2011, sediment in the water lots is contaminated with petroleum hydrocarbons, metals, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls.

53. Project OPIs, including BCE and Capital Project Directors and Managers, planning and implementing project activities within the water lots should consider all sediment contaminated and appropriate measures should be taken to protect workers and the surrounding environment. Contact FSE for further direction.

## Sulphide Bearing Material

54. Local rock formations and some soils derived from those rocks within the Halifax region contain pyritic slate, often referred to as sulphide bearing material (SBM). SBM exposed to oxygen can produce acid in the presence of water and air and leach to surface water and groundwater. Environmental effects may consequently occur in two ways:

- a. Acidified groundwater can contaminate potable water supplies; and
- b. Acidified groundwater or surface water can enter an ecosystem causing vegetation destruction, fish kills, lesions on fish and aquatic habitat destruction.

55. Section 36 (3) of the Fisheries Act prohibits the deposit of a deleterious substance to waters frequented by fish. Therefore, it is of utmost importance to ensure that leachate from SBM is not allowed to enter any aquatic habitat (freshwater or marine) without first being tested, or treated, to ensure it does not constitute a deleterious substance.

56. The SBM management requirements and mitigation measures developed for MARLANT projects is to be employed during projects that will involve the exposure of SBM. Contact FSE for direction.

## **Records**

Contaminated Sites Management Plan, including three-year plan and FCSAP Submission

Quarterly Contaminated Sites Status Report (FCSAP)

Off-site contamination notification

Significant Incident Report

Risk Management or Remedial Action Plan Requirements

Monitoring Program Requirements

Contaminated Site Disclosure Report

Contaminated Sites Audit Protocol

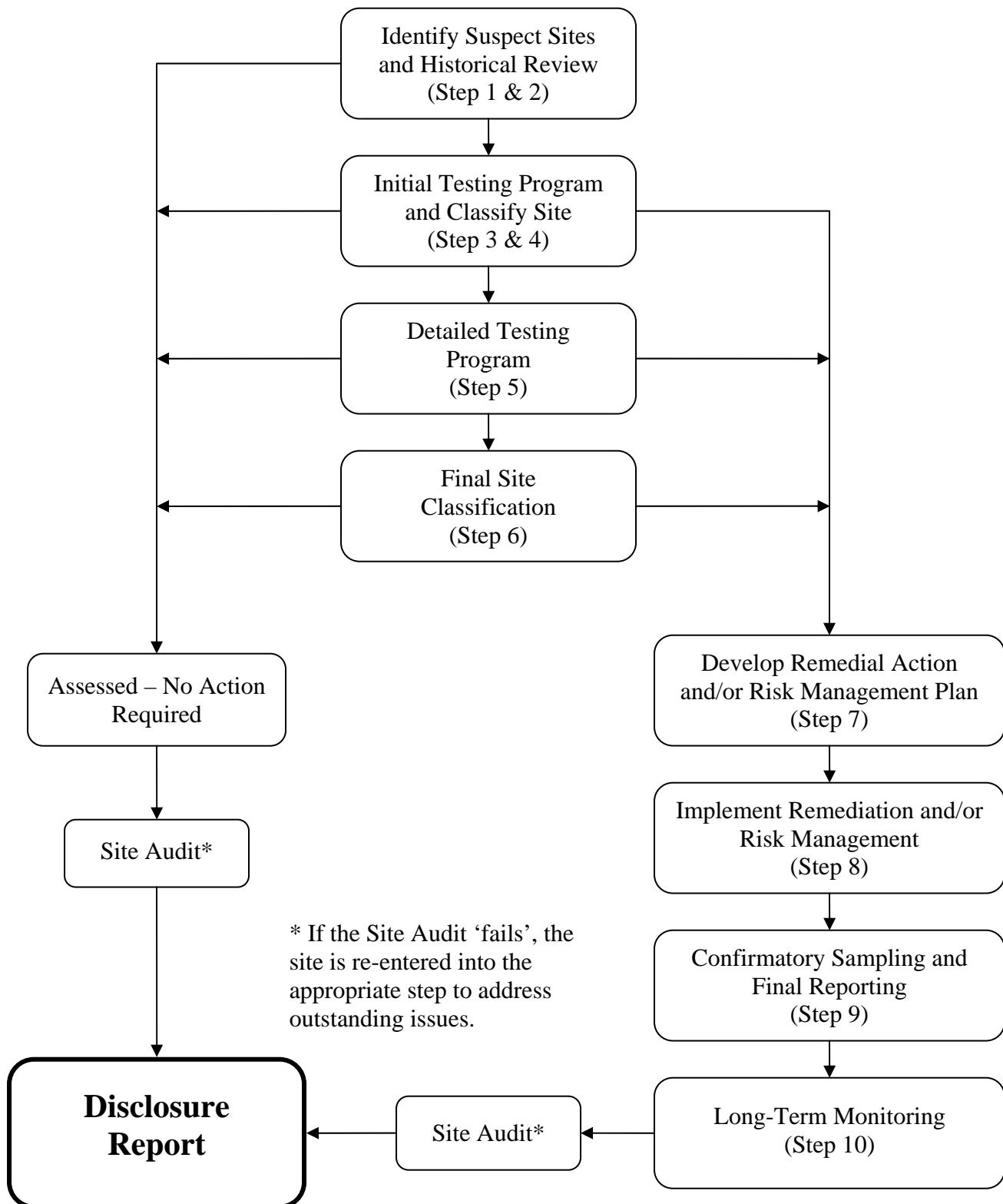
## **Attachments**

Annex E2A: Protocol for Handling Impacted Soil

## **Enquiries**

Formation Safety and Environment:

Staff Officer Environmental Engineering: Tel. 902-722-4929.

**FIGURE 1: FEDERAL APPROACH TO CONTAMINATED SITES**

**ANNEX E2A - PROTOCOL FOR HANDLING IMPACTED SOIL****Purpose**

1. This protocol has been designed to ensure that a standardized and consistent approach to sampling and handling potentially impacted soil on MARLANT property is used during construction projects or other work involving excavation of soil.

**Scope**

2. This protocol applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic, and to all project OPIs, including BCE and Capital Project Directors and Project Managers, conducting soil excavation activities on MARLANT property.

**Guidance****Project Initiation**

3. During project initiation, for projects that may consist of soil excavation and/or movement, the project OPI shall contact the FSE Staff Officer Environmental Engineering for information related to known contaminated sites in the work area. The contaminated site information provided shall be incorporated in the project with regard to soil handling, movement, management and/or disposal.

4. If the project involves excavation of contaminated soil, the project OPI shall plan for off-site disposal of all contaminated soil at a provincially-approved facility as per current Provincial guidance.

5. The properties below have soil management requirements due to potential widespread impacts related to metals, volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). Any surplus soil from these areas for off-site disposal, or on-site relocation, shall be analyzed for metals, VOCs and PAHs. Analytical results shall be used to ensure proper handling and disposal of surplus fill. Analytical results and a site drawing showing soil and sample locations shall be forwarded to the FSE Staff Officer Environmental Engineering.

- a. Dockyard;
- b. Dockyard Annex (NAD);
- c. Shearwater;
- d. RA Park;
- e. Willow Park;
- f. Stadacona; and
- g. Bedford, Cambrai, Sydney and Debert Rifle Range (metals only).

6. If off-site disposal is not a viable option due to project constraints, on-site management options can be proposed by the project OPI. A written description of the on-site management options shall be provided to the FSE Staff Officer Environmental Engineering for review and approval at least two weeks prior to implementation. The written description shall include the following information:

- a. Project name;
- b. Project manager;
- c. Unit responsible for project;
- d. Quantity of contaminated soil;
- e. List of contaminants of concern and chemical concentrations as well as applicable guideline(s);
- f. Description of off-site disposal constraint or beneficial reuse of soil;
- g. Description of on-site management of soil including:
  - i. Location of management area;
  - ii. Human health and/or ecological risk mitigation (e.g., engineered cap, soil vapour extraction system); and
  - iii. Risk management monitoring requirements and associated costs, including long-term monitoring requirements.
- h. Site diagram showing area of impacted soil and proposed management area; and
- i. Available reports or studies related to on-site management incorporated as an annex.

#### Site Characterization During Project Design

7. In order to reduce contract risk, it is recommended that the project OPI fully characterize contaminated soil in their area of project work during the project design stage and incorporate all mitigation and disposal or risk management requirements into the project.

8. In some cases, such as where the environmental site assessment may not have revealed all probable locations of contamination, or where contamination is suspected but never assessed, sampling may be done using a coarse grid with 10 to 50 metre spacing between sample locations. Where grid sampling is used, greater attention should be focused on any probable hot-spots. If enough detail is known related to suspected contaminated soil location(s), then location-specific sampling can be conducted.

9. Samples should be relatively homogenous, representing the dominant type of soil or fill at each location and depth. If surface soil samples are required, samples should be collect from 0.0 to 0.15 metres below the vegetative layer.

10. Sufficient samples should be taken such that each sample represents 10 m<sup>3</sup> to 50 m<sup>3</sup> of soil.

11. Samples should be submitted for analysis based on the suspected or known nature of the contamination and/or findings from previous studies and/or property soil risk management requirements, and compared to applicable guidelines based on disposal or management options.

12. Once areas of contamination have been identified or confirmed, step-out and step-down (i.e. delineation) samples should be taken to better define the extent of contamination. Collection of delineation samples at the project design stage will result in a more accurately defined contaminated area, resulting in lower costs for remediation and/or risk management and lower risk to project funding forecasts.

13. Step-out samples should be taken at the same depth as the original sample. When a sample indicates contamination, the zone of contamination will be presumed to extend to the nearest sample

location and depth found not to be contaminated. If only one step-out sample is taken and it is found not to be contaminated, the contamination will be presumed to exist in a circle centred on the original contaminated sample with a radius equal to the distance between the original sample and the uncontaminated step-out sample. If no step-out samples are collected, the contamination area is assumed to be unlimited in size.

14. Concurrent with the determination of the horizontal extent of contamination, the vertical extent should be delineated using step-down samples. The zone of contamination will be presumed to extend to the depth of the shallowest uncontaminated step-down sample at each sampling location where contamination has been detected.

#### Confirmatory Sampling

15. Following excavation of contaminated material, the floor and walls of the excavation must be sampled and analyzed to confirm that no contaminated material remains at the location in excess of applicable guidelines. A minimum of five (5) samples should be taken from the faces of the excavation: one from each wall and one from the excavation floor. On each excavation face, one sample should be taken for each 10 metres of length and each 3 metres of depth.

16. If contaminated material is to remain in a risk managed state at the site, the concentration levels of contaminant(s) remaining must be forwarded to FSE for follow-up action. The project OPI is responsible for providing FSE with risk management plans, including monitoring plans if applicable, and liabilities associated with the risk management of contaminated material on-site.

#### Ex-Situ Sampling

17. The characterization of soil shall be done in-situ using the procedures outlined above. Material classified by in-situ sampling cannot be classified by subsequent ex-situ sampling unless it can be shown that precautions have been taken against mixing and dilution during excavation, material handling and stockpiling, and that the ex-situ sampling was more rigorous than the in-situ sampling.

18. In the case of soil that has been excavated and stockpiled before being characterized in-situ, the project OPI should consult with FSE before designing a sampling program to ensure that it will be sufficiently rigorous and statistically defensible. A general sampling strategy is given below; however, alternative strategies may be proposed in writing to the SO Environmental Engineering.

19. Ex-situ sampling should be conducted by submitting one representative sample for every 50 m<sup>3</sup> of soil (Note: for residential land use, one representative sample consists of 30 m<sup>3</sup> of soil). Representative samples are collected by combining a number of grab samples from throughout the volume of soil to be represented. Each grab sample should represent 10 m<sup>3</sup> of soil within each volume by collecting and combining a number of still smaller samples from different parts of each 10 m<sup>3</sup> of soil. *Example - Characterization of a 150 m<sup>3</sup> stockpile of potentially contaminated soil: Divide this stockpile into three 50 m<sup>3</sup> cells. Divide each 50 m<sup>3</sup> cell into 10 m<sup>3</sup> sections and take a number of smaller samples from throughout each 10 m<sup>3</sup> section. Combine the smaller samples to represent the 10 m<sup>3</sup> section, and then combine the five 10 m<sup>3</sup> representative samples to form one representative 50 m<sup>3</sup> cell sample. The three representative 50 m<sup>3</sup> cell samples should be sent to the laboratory for analysis.*

20. Off-site treatment facilities should be contacted to determine facility-specific sampling requirements to ensure soil characterization above is appropriate for the receiving facilities.

#### Contaminated Soil Discovered During Project Activities

21. Implement the following procedures in the event contaminated soils are discovered during project activities:

- a. Inform FSE of the confirmed or suspect contaminated soils;
- b. Secure the area containing contaminated soil;
- c. Take all necessary measures to prevent the flow of water to or from the area;
- d. Ensure that any surface water run-off from the area is appropriately contained and disposed of in accordance with federal, provincial and municipal regulations;
- e. Avoid temporary stockpiling of soils as much as possible;
- f. In the event stockpiling is required, cover the contaminated soil with plastic sheeting or tarps and surround with a berm;
- g. Ensure stockpiles are located at least 30 m from a watercourse or storm drain; and
- h. Characterize soil and remove for off-site treatment as soon as possible.

#### General Information

21. FSE Staff Officer Environmental Engineering can be contacted for advice and guidance related to impacted soil.

22. Environmental Assessment: The project OPI shall contact the FSE Staff Officer EA to determine any EA requirements associated with handling, management and disposal of contaminated soil.

23. The project OPI shall forward all analytical results, studies and site drawings related to assessment, disposal and/or management of contaminated soil to the FSE Staff Officer Environmental Engineering.

## DIRECTIVE #E3 - ENVIRONMENTAL ASSESSMENT

### References

- A. Canadian Environmental Assessment Act (CEAA) (1992) and Regulations
- B. DND EA Manual, 2003
- C. Department of National Defence Assessment of Military Training Exercises at the Canadian Forces Maritime Ranges in the Halifax Area and the accompanying Operator's Manual, 1995
- D. Ship's Environmental Baseline Study, 1996
- E. MARLANT Op Management Plan (MOAMP), 2005
- F. Environmental Assessment Guidance Document for Routine Projects on Select MARLANT Properties, 2008
- F. DAOD 4003-2, Environmental Assessment

### Purpose

1. To provide direction to ensure that MARLANT operations comply with the requirements of the Canadian Environmental Assessment Act (CEAA) and DND Policy.

### Scope

2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **Due diligence Environmental Assessment (EA):** A 'due diligence' EA is completed for those activities that do not require an EA under CEAA, but have the potential to have an impact on the environment. The completed EA and evidence that the required mitigation was carried out will assist in the demonstration of due diligence.

4. **Environmental Assessment:** A systematic process to evaluate the environmental effects of a proposal to ensure the consequences are fully considered and addressed early in the decision making process.

5. **Office of Primary Interest (OPI):** The decision making authority who has the responsibility for the conduct of a Project/Activity.

6. **Project/Activity:** In relation to a physical work, any proposed construction, operation, modification, decommissioning, abandonment or other undertaking in relation to that physical work; or:

- a. any proposed physical activity not relating to a physical work that is prescribed or is within a class of physical activities that is prescribed pursuant to the CEAA Inclusion List regulations;
- b. any program, activity or project for which DND is the decision making authority. They may refer to, but are not restricted to, items found on the Inclusion or Comprehensive Lists of the CEAA.

7. **Valued Ecosystem Component (VEC):** VECs are the environmental attributes or elements that are identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic significance or worth.

## Responsibilities

8. COs are the approval authority for any required EAs after they have been reviewed by the UEnvO and FSE. They also ensure operations are conducted in conformance with the mitigations recommended in EAs.

9. UEnvOs are responsible, as the CO's advisor for EAs, to:

- a. participate in project and unit planning activities;
- b. confirm whether an EA has been done by a higher authority;
- c. ensure that any EAs required by the CEAA and any required due diligence EAs are carried out;
- d. review EAs prior to submission to CO;
- e. send draft EAs to FSE;
- f. ensure operations are conducted in conformance with the EAs; and
- g. train unit personnel how to identify activities that require EAs.

10. OPIs are responsible for notifying the UEnvO of any projects or activities in which the Unit/Ship will be involved. The OPI for an activity and/or operation that may require an EA is responsible to:

- a. determine if an activity or operation is routine, or non-routine and whether an EA is required. If unsure if an EA is needed, discuss with the UEnvO whether to seek advice from FSE;
- b. conduct an EA when required;
- c. involve appropriate persons, including but not limited to the UEnvO, Supervisor, HOD, CO and FSE, as required to complete the screening process; and
- d. implement the mitigation measures identified in the EA.

11. The FSEO through the FEPO is responsible for the overall direction and co-ordination of the MARLANT EA process.

12. The SO EA is responsible to:

- a. review EAs for technical accuracy and legislative compliance before sign off by the CO;

- b. advise and assist units in completing EAs;
- c. register EAs with the CEAA;
- d. maintain the MARLANT registry of completed EAs;
- e. audit to verify whether screenings and EAs are conducted when required;
- f. provide environmental assessment (EA) training; and
- g. co-ordinate public consultation when appropriate.

## Direction

13. The Canadian Environment Assessment Act (CEAA) requires that the environmental impact of projects and activities be considered during the early planning stages. Failure to conduct an EA under the CEAA may result in an injunction being placed against the activity or project for non-compliance. Civil penalties may also be imposed if environmental damage results from an activity or project. In the event of an unexpected incident, the EA is vital in demonstrating due diligence. The failure to conduct an EA may result in environmental damages that could have been avoided if they had been identified early in the planning stages.

14. All Units shall determine if an EA is required for any project or activity they undertake. An EA is required for a project or activity if DND:

- a. proposes the project;
- b. grants money or any other financial assistance to the project;
- c. sell, lease, dispose of land, transfers the administration and control of land, or grants an interest in land, for the purpose of enabling a project to be carried out in whole or in part;
- d. exercise a regulatory duty in relation to a project, such as issuing a permit or licence, that is listed in the Law List Regulations;
- e. conducts an activity listed in the Inclusion List Regulations; and
- f. requires a permit from another government agency.

15. For guidance on determining if an EA is required and for conducting an EA, consult with the UEnvO or SO EA, and/or use the DND EA Manual at reference B. The decision on whether an EA is required is the responsibility of the OPI and should be documented.

16. MARLANT Integral and Lodger Units shall conduct due diligence EAs for projects/activities that have the potential to cause an adverse effect on the environment, but are not legally required under the CEAA. This demonstrates that DND has shown consideration for any potential environmental impacts of its projects/activities and addressed them through mitigation.

17. Exercise planners shall involve SO EA in all planning meetings for any exercises involving MARLANT assets to ensure that the actions during the exercises are compliant with Canadian environmental legislation and Departmental policy.

18. MARLANT OpArea managers are to refer to ref C and D when determining if an Exercise Support Request (ESR) requires an EA. If the activity planned for the requested OpArea requires an

assessment or it is not clear, the ship is to be informed and SO EA notified. If the ESR activity is determined in ref C and D to be routine and there is no requirement for an EA, the ship is to be reminded through the OpArea Clearance message to follow the mitigation measures, if any, as outlined at refs C and D. Mitigation measures should be documented in the OOW notebook.

19. The DND Environmental Assessment Checklist form (available on the FSE website), shall be completed to document the decision that a physical work or an activity does not require an EA (either Federal or due diligence). A copy of the form must be placed in the project file and also submitted to SO EA. For activities that occur in the MARLANT OpAreas, semi annual reports and individual substantiation will not be required as the activity will be identified in ref C.

20. If in doubt as to whether an EA is required, then an EA must be completed before any irrevocable project decisions are made. SO EA should be consulted.

21. For projects/activities where EAs are to be conducted (either Federal or due diligence), OPIs are to inform SO EA at the beginning of the EA process which starts at the same time as the initial project planning. In the case of Federal EAs, Part I of the Environmental Assessment Form (available on the FSE website) shall then be filed with FSE within 10 days of initial project planning for registration. On select projects, FSE may be required to correspond with other Federal Departments such as Environment Canada and the Department of Fisheries and Oceans. The OPI must allow a minimum of 45 days in the schedule in order to accommodate this correspondence. The unit must complete the Environment Assessment Form (Part I to IV) having it reviewed by both the UEnvO and SO EA before being sent to the CO for signature.

22. Response from the other Federal Departments must be documented in the EA before it can be finalized. SO EA will assess project/activity EA screening forms for technical accuracy and legislative compliance, and provide advice to the Unit on any issues that arise throughout the EA process. The OPI retains the original signed copy in the unit project file and forwards a copy to SO EA no later than 45 days prior to the physical work or activity commencing. To expedite matters, EA screening forms may be sent to SO EA via e-mail/fax followed up with a paper copy.

## **Records**

Completed Environmental Assessments  
Registration forms  
MARLANT EA Registry  
OOB Notebook

## **Enquiries**

MARLANT - FSEO – (902) 721 - 6881, or cell (902) 483-9757, fax (902) 721-5417.

**DIRECTIVE #E4 - INTEGRATED PEST MANAGEMENT (IPM)****References**

- A. Pest Control Products Act and Regulations
- B. Canadian Environmental Protection Act
- C. Transportation of Dangerous Goods Act
- D. Fisheries Act
- E. Canada Labour Code Part II
- F. Treasury Board Directives 2-13 and 2-15
- G. CFAO 34-23: Occupational Health
- H. CFAO 34-46 Pest Control
- I. DGE Integrated Pest Management Manual
- J. Code of Good Practice for the Handling, Storage, Use and Disposal of Pesticides at Federal Facilities in the Atlantic Region
- K. Nova Scotia Environment Act, Pesticide Regulations
- L. Newfoundland and Labrador, Environment Act, Pesticide regulations
- M. MARLANT Integrated Pest Management Plan (IPMP) 2008
- N. HRM By-law P-800 Respecting the Regulation of Pesticides, Herbicides and Insecticides
- O. Fertilizers Act
- P. National Fire Code

**Purpose**

1. To provide direction to ensure that MARLANT operations comply with legal and policy requirements regarding pesticide use.

**Scope**

2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

**Definitions**

3. **Pesticide:** A product registered and listed under the Pest Control Products Act and its regulations, intended to prevent, destroy or manage a pest; this includes insecticides, fungicides, herbicides and plant growth regulators. This definition also applies to a fertilizer with the meaning of the Fertilizers Act that contains a pesticide.

4. **Pest:** Any undesirable organism, including but not limited to rodents, pigeons, cockroaches, hornets, bees, wasps, ants, silverfish, flies, mold, fungus and weeds.

**Responsibilities**

5. The FSEO is responsible for the direction of the IPM program, while the FSEMSO provides oversight of the program implementation and maintenance.

6. The SO Natural Resources (NR) is responsible for implementation and maintenance of the IPM Program and chairs the IPM Committee. This includes preparing a report on MARLANT's pesticide use for the annual Safety and Environment Report by mid April.

7. FCEO is responsible to approve pest control work outside buildings, while PMed is the authority inside buildings, ships and aircraft and PSP manages pest control at Hartlen Point golf course.

8. FCE, UEnvO is responsible for:

- a. ensuring the receipt of Pest Management Surveys from FCE Property Services Coordinators and FCE Contracts Officer for all pest control events;
- b. maintaining all provincial permits and registration certificates necessary to undertake the work;
- c. maintaining and collating Pest Management Surveys; and
- d. providing pesticide application statistics to SO NR by mid April, to be included in a fiscal year summary on pesticide use for the FSE Safety and Environment Report.

9. FCE, Contracts Officer is responsible for:

- a. coordinating exterior pest management activities that are contracted out to ensure they are conducted in accordance with CFAO 34-46 – Pest Control;
- b. ensuring receipt of a completed Pest Management Survey from the contractor for every pest control service call, by withholding payment for services rendered until submission of a Pest Management Survey;
- c. ensuring that the Standing Offer Agreement with the pest control contractor continues to state clearly that: (1) the contractor must comply with MARLANT's most current version of the IPMP; and (2) payment for services rendered will not be awarded to the contractor until FCE Contracts Officer receives a completed Pest Management Survey for every pest control service call;
- d. ensuring contractor has required permits and certificates; and
- e. submitting Pest Management Surveys to FCE UEnvO after each service call.

10. FCE Property Services Coordinators are responsible for:

- a. coordinating exterior pest management activities (as defined in CFAO 34-36) that are conducted by FCE Property Services;

- b. oversight of feral cat program under FCE responsibilities;
  - c. determining ways to reduce pesticide use in vegetation management practices;
  - d. ensuring that a Pest Management Survey is completed for every exterior pest control activity conducted by FCE Property Services;
  - e. submitting Pest Management Surveys to FCE UEnvO after each pest control activity is conducted;
  - f. ensuring that all MARLANT personnel under their supervision who handle pesticides maintain valid certificates of qualification;
  - g. maintaining and updating the list of certified personnel under their supervision;
  - h. ensuring that all Property Services Inspectors who are exposed to pesticides undergo medical surveillance by Occupational Safety and Health – Health Canada, as required by reference F; and
  - i. providing answers to questions from MARLANT personnel and civilians concerning exterior pest management at MARLANT.
11. Senior Preventative Medicine Technician is responsible for:
- a. coordinating all interior pest management activities as defined by CFAO 34-46;
  - b. determining ways to reduce indoor pests using less harmful products to personnel;
  - c. maintaining all provincial permits and registration certificates necessary to undertake the work;
  - d. ensuring receipt of completed Pest Management Surveys from the contractor for all pest control services by withholding payment for services rendered prior to submission of Pest Management Surveys;
  - e. maintaining and collating Pest Management Surveys;
  - f. transfer information from Pest Management Surveys to SO NR by mid April, to be included in a fiscal year summary on pesticide-use for the FSE Safety and Environment Report;
  - g. estimating the amount of pest management products distributed to MARLANT personnel annually and including this information in quarterly reports; and
  - h. providing answers to questions from MARLANT personnel and civilians concerning interior pest management at MARLANT.

12. Pest Control Contractors are responsible for:

- a. managing pests according to the provisions in ref K;
- b. submitting completed Pest Management Surveys to the appropriate MARLANT personnel for all pest control service calls;
- c. using integrated pest management techniques to the maximum extent possible while operating in a manner that minimizes risk of contamination to the environment and personnel;
- d. maintaining required permits and certificates; and
- e. informing MARLANT personnel of changes in pest management requirements.

13. Employees working on/in MARLANT properties shall:

- a. apply good sanitary practices to prevent pest infestations; and
- b. use non-chemical pest management techniques, where practical and effective, before requesting further assistance from FCE or PMed.

14. It is the responsibility of the FCE Property Services Coordinator and Contracts Officer as well as the Senior Preventative Medicine Technician to ensure that all personnel who apply pesticides at MARLANT must hold a certificate of qualification from the Nova Scotia Department of Environment.

15. The Hartlen Point Manager shall practice non-chemical control as far as possible, and report annual pesticide use to SO NR by mid April.

## **Direction**

16. Recurring objectives in DND's Sustainable Development Strategy (SDS) are to preserve ecosystems' biodiversity and to minimize the introduction of pollutants into the natural environment. Part of MARLANT's efforts, in this regard, is the reduction in the use of pesticides coordinated by the Formation's Integrated Pesticides Management Committee. The strategies to be used, by all relevant personnel, to achieve the objectives include:

- a. increasing naturalized areas;
- b. decreasing materials used to maintain artificial conditions;
- c. using less intensive grooming for roads and lawns; and
- d. conforming to long-term vegetation management plans.

## **Records**

Pesticide use data

Non-conformance and corrective action reports  
Internal and external audit reports  
Copies of contractor Provincial permits and registration certificates

**Enquiries**

MARLANT, Formations Safety and Environment :  
SO NR : Tel. (902) 721-8340 ; Fax (902) 721-5417.

## DIRECTIVE #E5 - SOLID WASTE MANAGEMENT

### References

- A. Nova Scotia Environment Act
- B. Halifax Regional Municipality Bylaw S-600
- C. CBRM Solid Waste Resource Management By-Law S-300
- D. MARLANT Commander's Policy Statement
- E. MARCORD G-18: Shipboard Waste
- F. FSE Webpage  
[http://halifax.mil.ca/N4MAT/N48/Env\\_Protection/WasteManagement/Waste\\_Management\\_e.htm](http://halifax.mil.ca/N4MAT/N48/Env_Protection/WasteManagement/Waste_Management_e.htm)

### Purpose and Scope

1. The purpose of this directive is to describe the actions necessary to ensure MARLANT complies with all applicable solid waste legislative and policy requirements.
2. This directive applies to all integral MARLANT units and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

### Definitions

3. **Garbage:** Any non-hazardous solid waste that cannot be recycled, refunded or composted.
4. **Mixed Paper:** White and coloured bond paper; magazines/glossy brochures, newspaper, sticky notes, receipts, envelopes, egg cartons, phone books, computer paper, beverage trays and shredded paper (all paper must be dry and clean).
5. **Organics/Compost:** Waste such as certain food wastes, non-recyclable paper (i.e. paper towels, wet newspaper, etc.) and boxboard (i.e. cereal boxes, cracker boxes, etc.). Details are given at reference F.
6. **Recyclable:** This depends on locally available handling facilities, but usually includes all plastic containers, plastic bags, glass bottles and jars, steel and aluminum cans, milk cartons and corrugated cardboard. Details are given at reference F.

## DIRECTION

### Responsibilities

7. Formation Safety and Environmental Officer (FSEO): FSEO is responsible for the overall direction of the MARLANT Solid Waste Management Program.

8. Staff Officer Environmental Engineering (SOEE): SOEE provides oversight and coordination of the Solid Waste Management Program and is responsible for:
  - a. Monitoring the Solid Waste Management Program by conducting compliance checks;
  - b. Providing direction on legal and policy requirements; and
  - c. Developing and administering promotional activities.
9. Base Logistics Officer (BLogO): BLogO is responsible for:
  - a. Procuring, distributing and maintaining equipment used for solid waste management;
  - b. Ensure procurement of material and supplies adhere to sustainability and waste reduction requirements (i.e. reduction of packaging materials for ships supplies);
  - c. Developing and managing the solid waste contracts, including budget control;
  - d. Ensuring contracts, equipment and solid waste management procedures meet applicable regulations, guidelines and by-laws;
  - e. Responding to all incidents involving solid waste;
  - f. Training and awareness of solid waste issues;
  - g. Monitoring waste through audits/inspections;
  - h. Advising clients on current procedures;
  - i. Developing and distribution of reference material as an aid to ensure compliance; and
  - j. Maintain equipment/supplies and a list of equipment/supplies for MARLANT events to ensure proper separation.
10. Base Construction Engineering Officer (BCEO): BCEO is responsible for:
  - a. Ensuring contract cleaning/janitorial staff participate in the MARLANT solid waste program;
  - b. Ensuring cleaning contracts are in-line with MARLANT solid waste program objective, targets and initiatives; and

- c. Ensuring BCE building managers support and communicate solid waste program requirements to building occupants.
11. Base Administration Officer (BAdmO): BAdmO is responsible for:
- a. Ensuring food services staff, contract staff and PSP facilities with BLog managed waste disposal contracts participate in the MARLANT solid waste program;
  - b. Ensuring procurement of supplies for galleys and accommodation facilities adhere to sustainability and waste reduction requirements (i.e. reduction of packaging materials);
  - c. Ensuring galleys are properly sorting their waste material, including organics;
  - d. Determining and providing solid waste equipment needs for the mess halls and galleys/kitchens; and
  - e. Monitoring the solid waste equipment and addressing problem areas.
12. Canadian Forces Exchange System (CANEX): CANEX is responsible for ensuring CANEX facilities and food service operations participate in the MARLANT Solid Waste Management program.
13. Unit Environmental Officers (UEnvOs): UEnvOs are responsible for:
- a. Implementing and maintaining their unit's Solid Waste Management program;
  - b. Providing unit personnel with information and training;
  - c. Determining equipment needs for the unit; and
  - d. Monitoring the bins and addressing problem areas.
14. MARLANT Employees: Employees are responsible for
- a. Reducing waste wherever possible and using green office practices whenever possible, such as making double-sided prints and photocopies, keeping electronic files and using re-usable mugs;
  - b. Separating waste into waste streams as noted below in Para 18 to 48;
  - c. Placing waste in the appropriate central sorting station bin or jetty bins for disposal;

- d. Ensuring desk side bins are kept clean and organics are disposed on a daily basis; and
  - e. Ensuring only waste generated at work and as part of MARLANT business and operations are disposed in the appropriate bins. MARLANT staff are not permitted to dispose of their own personal waste (i.e. waste generated at home) in MARLANT bins.
15. Contracted Cleaning Staff: Cleaning staff are responsible for adhering to BCE and BLog contract requirements, including:
- a. Collecting waste from each waste stream twice daily. Generally this will be once mid morning, and once mid afternoon;
  - b. Using clear bags to collect all waste streams for easy identification of materials; and
  - b. Ensuring waste remains separated, is placed in the correct exterior containers, and is not cross-contaminated.

## **General**

16. All MARLANT units shall participate in the MARLANT Solid Waste Program administered by BLog. General waste separation guidelines are given in this directive, and further information can be obtained from BLog Solid Waste Manager or MARL SOEE.

## **Central Sorting Stations**

17. The central sorting stations (CSS) are placed within MARLANT buildings to provide a convenient location for MARLANT staff to empty their own desk-side receptacles. The CSS have four compartments; mixed paper, recyclables, refundables and garbage. Most stations include an organics bin placed beside the 4-in-1 units. Each compartment is labelled with the appropriate waste stream signage. The CSS and signs are not to be moved unless approved by BLog.

## **Mixed Office Paper**

18. All MARLANT employees are to ensure their waste paper is separated from garbage and placed in the mixed paper bin near the central printer/copiers or the mixed paper stream in the CSS. A complete list of acceptable mixed paper is provided at reference F.

19. Janitorial staff are responsible for collecting waste paper in clear plastic bags and removing the bagged waste paper from the bins near the central printer/copiers and CSS twice daily. Waste paper is to be transferred to the exterior blue bins designated for mixed

paper. A list of the equipment used for the collection of mixed paper is also provided at reference F.

### **Shredded Paper**

20. Shredded paper shall be collected from all shredders, regardless of the paper-shred size. Where the service exists, janitorial staff shall remove the bags to the exterior paper bins for recycling.

### **Corrugated Cardboard**

21. Employees shall break-down Corrugated Cardboard (OCC) (wavy layer sandwiched between two smooth outer layers) and place it neatly beside the nearest CSS. All packaging material shall be removed and placed in the appropriate waste stream.

22. Units that accumulate a large quantity of OCC or that do not have janitorial staff shall break-down all of the cardboard and remove it to the exterior bins marked Corrugated Cardboard. Bins that are full are to be reported to the Solid Waste Manager. Contact information can be found at reference F.

23. Janitorial staff shall remove the OCC placed beside CSS to the exterior bins marked Corrugated Cardboard.

### **Refundable and Recyclable Containers**

24. Employees are responsible for separating their refundables from the garbage. All refundable and recyclable containers shall be collected in clear bags in designated bins for "refundable/recyclable". Once containers are placed in these bins they become the property of DND. Refundable beverage containers shall not be removed from these bins.

25. Bags of refundables shall be removed by janitorial staff, where these services exist, to the exterior blue bins designated for recyclables.

26. A list of equipment to be used in the collection of recyclable/refundable containers is located at reference F. Once the equipment is put in place inside of the buildings it shall not be moved, without the approval of the Solid Waste Manager.

### **Organics**

27. BLog shall supply and distribute seven (7) gallon green containers alongside the CSS and in convenient locations such as lunch rooms, hallways and coffee boat areas, for the collection of the organic material generated by MARLANT employees.

28. MARLANT employees shall dispose of desk-side organics on a daily basis to prevent odour and fruit flies.

29. Cleaning/janitorial staff shall empty the seven (7) gallon green containers twice daily. Cleaning/ janitorial staff shall transfer the organics to the exterior green bin for collection. The bag holding the organics shall be separated from the organic material prior to placing the contents in the exterior green carts.

30. All galleys, messes and kitchens will compost all food waste, including waste collected from food preparation and plate scrapings.

31. Galley/kitchen garbage disposal units with direct connections to a drainage system shall not be used as an alternative to collection of organics.

32. Galley/kitchen personnel are responsible for the removal of organics to the exterior green carts.

33. In no case shall plastic bags of any kind be placed in the green bin. All organic contents inside the bag must be removed and the plastic bag placed in the recycling bin.

34. A list of acceptable organic material and equipment to be used is provided at reference F.

### **Wood and Pallets**

35. Scrap wood is collected in bins clearly marked "WOOD ONLY" located throughout MARLANT. Units are responsible to put their scrap wood in these bins. View reference F for a complete list of acceptable wood materials that can be placed in the wood bin.

36. Wood Pallets in good working order shall be reused whenever possible.

### **Tri-Walls**

37. Tri-walls, which have been rendered unusable, shall be collected, broken down and placed in the designated bins for "WOOD ONLY" located throughout the base. Tri-walls in useful condition shall be reused by the Unit or delivered to BLog Supply at D-206.

### **Construction and Demolition (C&D)**

38. Arrangements are to be made with the Solid Waste Manager in advance of any work that requires the use of a C&D waste bin. A bin will be delivered to the site to be used for C&D waste only. The bin will be labelled with a magnetic sign indicating "Special Projects Only". Any Unit that requests a C&D bin will be responsible for the removal of any contaminating materials from the bin prior to disposal.

**Scrap Metal**

39. Scrap metal is separated into four separate streams, and must be certified to be Controlled Technology Access & Transfer (CTAT) free prior to disposal:

- a. Scrap metal bins are located throughout the Formation for the collection of scrap steel only. No other metals are to be placed in these bins;
- b. Scrap steel that is contaminated with components, plastics, etc. (materials are attached to each other through various means, rivets, mold injected, etc.) is to be collected and taken to WL6 for proper disposal;
- c. Scrap metal that is a combination of two or more base metals is to be collected and taken to WL6 for proper disposal; and
- d. Scrap metals such as brass, copper or aluminum is collected and taken to WL6 for disposal.

**Toner Cartridge**

40. Toner cartridges shall be returned to the HazMat facility in D207. Some cartridges purchased on acquisition cards can be returned through local suppliers. Units should ask about cartridge core credit and recycling before purchasing.

**Fat and Cooking Oil**

41. Bins have been made available for the disposal of liquid fat and cooking oil. These bins are located beside most organic bins and are designed to pour fat directly into the bin. Fat that has solidified shall be put in a container with a lid and placed upright next to the fat and cooking oil bin.

**Leaf and Yard Waste**

42. A large roll-off container is permanently located at Willow Park 26 for the collection of yard waste. It is the responsibility of the Unit collecting leaf and yard waste to transport it to this location. Plastic bags shall not be disposed of in the bin.

**Sawdust**

43. Sawdust from wood shops shall be collected in large hoppers located outside of the shops and dumped directly into "SAWDUST ONLY" bins.

## **Surplus Disposal**

44. Units that want to return and remove from their unit SCA used furniture, appliances, mattresses, and used rope must return them through Repair and Overhaul (R&O) in D-206. Used goods may be purchased from Surplus Disposal.

## **Milk**

45. Milk will not be placed into the garbage at any time. Milk will be placed in a tri-wall on a pallet on the Jetty for pick up. Ships will call the Solid Waste Manager prior to placement to ensure timely pick up.

## **White Goods**

46. The customer must make arrangements to transport white goods to the refrigeration shop in D200 to have the halocarbons removed. Once halocarbon free, the refrigeration shop will send the white goods to surplus for disposal. The customer must fill out a 2227 form and have it marked as SPECIAL in the stock-coded area of the form. Surplus disposal (722-4660) can be contacted for any questions.

## **Tires**

47. All MARLANT tires will be returned to TEME, Willow Park, contact number 722-4112.

## **International Garbage**

48. International garbage must be handled according to the Canadian Food Inspection Agency (CFIA) regulations. The Solid Waste Manager and Canadian Border Service Agency (CBSA) must be contacted prior to any removal of international garbage from the vessels. Additional information on international garbage is provided at the attached Annex.

## **Training, Awareness & Promotional Activities**

49. Organizing activities to promote Environment Week and Waste Reduction Week are FSE's responsibility. BLog shall assist with the activities directly related to waste management. Individual units are responsible for promoting waste management within their unit, for example through Routine Orders (ROs), newsletters and posters.

50. Solid Waste Management awareness is included as part of the UEnvO course. BLog shall provide Waste Management training lectures when requested by Units.

51. Unit-level training is the responsibility of the UEnvO with the help of BLog/IWHMO. Waste management shall be included as part of the Environmental Awareness Training package given to all new personnel coming to the unit.

52. Signage and a list of what can be recycled and composted should be posted near the bins for easy reference. The MARLANT Solid Waste Management Program brochure is available by request through the Solid Waste Manager or at reference F.

### **Records**

Solid waste characteristics including recycled, reused, organic, C&D, international waste and garbage sent to landfill

Waste reduction work plans

Solid Waste Contamination Violation Notice

Solid Waste Contractual Agreements

Dockyard Weigh Scale Solid Waste Measurement Transactions

Solid Waste Manager Annual Reports

Solid Waste Request Form

BLog shall ensure they track the quantity of solid waste as specified in the MARLANT SEMS, Annex 6A Appendix 1.

BCE shall ensure they track and maintain records of the quantity and types of construction and demolition waste generated during construction projects. This includes capital projects and amount diverted from landfills and C&D facilities through the use of a 3R program.

### **Attachments**

Annex E5A - International Garbage Protocol.

### **Enquiries**

Formation Safety and Environment:

SO Env Eng – (902) 722-4929

**ANNEX E5A - INTERNATIONAL GARBAGE PROTOCOL****References****A. Health of Animals Regulations****Purpose**

1. This Annex provides specific directions for the collection, transportation and disposal of international garbage (IG).

**Scope**

2. This protocol applies to MARLANT ships, aircrafts, integral and lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

**Arrival Procedures**

3. Vessels from destinations outside of Canada and the USA are to be identified to the Queen's Harbour Master (QHM) by message indicating the date and expected time of arrival in port and possible requirement for the collection and disposal of IG. When a naval vessel clears Canadian Customs, QHM will notify the Base Logistics Solid Waste Manager.

**Responsibilities**

4. QHM Representative: Notify the Base Logistics Solid Waste Manager upon the arrival of a Naval Vessel from destinations outside Canada or the USA.

5. Base Logistics (BLog) Solid Waste Manager:

- a. Ensures that appropriate IG container(s) are available;
- b. Ensures all IG is properly secured;
- c. Ensures the IG from the Naval Vessel (s) is placed into yellow containers marked "International Garbage Only";
- d. Ensures the IG is transported directly to Stericycle, 45 Wright Avenue, Burnside Industrial Park, Dartmouth;
- e. Ensures upon completion of disposal of IG that all containers are disinfected to CFIA specifications by the disposal facility;
- f. Liaises with Canadian Food Inspection Agency and Stericycle on any changes in procedure; and

- g. Monitors the handling procedures of the generators to ensure material does not get into the regular garbage as it is banned from all NS landfills if not sterilized.

### Packaging

6. IG shall be placed into garbage bags and placed into leak proof, yellow metal waste containers. The yellow waste containers must be marked “International Garbage Only” in black lettering with white background on the front of the container as well as the name and phone number of the hauler.

### Transportation

7. Upon receipt of any properly packaged IG, DND will contract the hauler for pick-up. The hauler will proceed directly to Stericycle to unload the IG at the facility.

### Route

8. From HMCS Dockyard, north on Barrington Street across the McKay Bridge, south on highway #111, take exit #3, left onto Burnside Drive and then left onto 45 Wright Avenue to the disposal facility.

9. From Shearwater Jetty NA, left onto the #322 (north), then right onto highway #111 (north), then take exit #3, right onto Burnside Drive and then left onto 45 Wright Avenue to the disposal facility.

### Documentation

10. All Department of National Defence (DND) IG will be weighed at the disposal facility. In case of an emergency or accident contact the Dockyard Firehall at (902) 427-3333 if on MARLANT property, or call 911 and the designate at contact number given in the Manifest, if not on MARLANT property.

### Waste Manifest

11. DND representative will sign the waste manifest.

### Disinfections

12. Upon emptying the containers, the disposal facility will disinfect the containers to CFIA specifications and return immediately.

## **Notification**

13. The driver will notify MARLANT SO HazMat at (902) 721-5492 or (902) 471-3867 if any IG have spilled or leaked due to a vehicle accident. The SO HazMat will record the relevant information and notify the MARLANT Environmental Engineering Officer (Env Eng O) at (902) 721-8576, cell (902) 499-3189, who will relay information to the Formation Safety and Environment Officer (FSEO) at (902) 721-6881, cell (902) 483-9757.

14. The SO HazMat and/or SO Env Eng and/or designate will respond to the accident scene and will notify CFIA or designate at (902) 426-5386.

## **Contingency Plan**

15. Contract waste haulers must have a contingency plan to address the accidental release of IG. The goal of the plan is to ensure the released waste is appropriately segregated and disposed of. The plan shall include decontamination procedures for the effected area of the release.

## **International Waste Contact Numbers**

### **16. Recall Priority List**

- a. FSE – SO HazMat: Tel. (902) 721-5492: Cell (902) 471-3867;
- b. FSE – SO Env Eng: Tel. (902) 722-4929 : Cell (902) 499-3189;
- c. BLog –Integrated Waste and Hazardous Materials Management Officer (IWHMO) Tel. 902 721-4904: Cell. 902 456 6039;
- d. Solid Waste Manager – Tel. (902) 722-4443: Cell: (902) 497-1686;
- e. CFIA: NS CFIA Rep or designate - Tel. (902) 426-2110; and
- f. NS Department of Environment: Tel: 1-800-565-1633.

## **Records**

Certificate of Destruction (when requested)

Waste Manifest

Weight Scale Slips

## **Enquiries**

MARLANT Safety and Environment: SO Env Eng – Tel. (902) 722-4929, Cell (902) 499-3189.

## DIRECTIVE #E6: STORAGE TANK MANAGEMENT

### References

- A. Canadian Environmental Protection Act
- B. Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, SOR 2008-197
- C. ED 4003-2 Management of Storage Systems for Petroleum Products and Applied Petroleum Products
- D. Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Products (CCME, PN1326)
- E. National Fire Code of Canada
- F. CAN/CSA B-139, Installation Code for Gas Burning Appliances and Equipment
- G. MARLANT Storage Tank Management Plan

### Purpose

1. To provide the direction for compliance with the applicable legislation, codes, guidelines and policy, and provide managers with the necessary information to implement life cycle management of storage tank systems.

### Scope

2. This directive applies to all MARLANT integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic. This directive provides direction to SPRs and Unit COs. More specific guidance for positions critical to storage - tank management within MARLANT is provided as part of Ref G and the BCE Unit Work Instructions.

### Definitions

3. **Allied Petroleum Product:** means a product set out in Schedule 1 of the Federal regulation SOR 2008-197; it can be a single hydrocarbon or mixture of hydrocarbons other than a petroleum product. It includes alcohols, glycols, thinners, solvents, organic chemicals and inks.
4. **Approved Person:** a person approved to install petroleum storage tanks in the province in which the system is to be installed.
5. **Cathodic protection or cathodically protected:** A method of preventing or reducing corrosion of a metal surface by making that surface the cathode of an electrochemical cell.
6. **Emergency Response Plan (ERP):** a plan to prevent, prepare for, respond to and recover from any emergency that may cause harm to the environment or danger to human life or health. The plan could include communication procedures for the individuals

responsible to carry out the plan in addition to emergency response equipment and location.

7. **Federally Regulated Storage Tank:** All underground and aboveground storage tanks, in which petroleum product or allied petroleum product is stored, with the exception of aboveground storage tank systems where the aggregate capacity of the tanks is 2,500 Litres or less and the system is connected to a heating appliance or emergency generator, or an aboveground storage tank system located inside a building that provides secondary containment equivalent to a maximum hydraulic conductivity of  $1 \times 10^{-6}$  cm/s on a continuous basis.

8. **Federally Regulated Waste Oil Tank:** A Federally Regulated Storage Tank designed to store Waste Oil or Used Oil in a fixed location in accordance with ULC-S652-2008, "Standard for Tank Assemblies for the Collection, Storage and Removal of Used Oil".

9. **Leak:** Any unintentional loss of petroleum or allied petroleum products because of human error and/or a defect in the storage tank system.

10. **Level 1 Leak Detection:** A device or method that is capable of detecting a leak of 0.38L/h, or more, with a probability of detection of 0.95 and a probability of false alarm of 0.05.

11. **Overfill Protection Device:** A mechanical and/or electrical device that is installed in a storage tank, fill tube, or vent, or a fill procedure system, that helps to prevent a storage tank from being overfilled while product is being delivered to the storage tank.

12. **Petroleum Product:** means, other than and allied petroleum product, a single hydrocarbon or mixture of at least 70% hydrocarbons, refined from crude oil, with or without additives, that is used, or could be used, as a fuel, lubricating oil, fuel oil and engine oil, including used oil; it excludes propane, paint and solvents.

13. **Precision Leak Test:** Means a test capable of detecting a storage tank leak as small as 0.38 L/h with a probability of detection of 0.95 or greater and a probability of false alarm of 0.05 or less, within a period of 24 hours, accounting for variables such as vapour pockets, thermal expansion of product, temperature stratification, groundwater level, evaporation, pressure and end deflection.

14. **Secondary Containment:** Containment that prevents leaks and spills from the primary storage tank system from reaching outside the containment area. It may include double-wall storage tanks and piping and impermeable barriers.

15. **Spill:** A release of a petroleum product or allied petroleum product into the environment from or out of a storage tank system, including loss during product transfer, but not including a release that does not reach outside the secondary containment. The storage tank system could include an approved containment system, structure, aircraft,

vehicle, vessel, process tank, pipeline, or other container that is abnormal in quantity in view of all the circumstances of the release.

16. **Spill Containment Device:** A container fitted to the inlet of a storage tank or to the suction coupling of a used oil storage tank that helps prevent spills from entering the environment.

17. **Storage Tank:** A closed container with a capacity of more than 230 L that is designed to be installed in a fixed location and contains petroleum product or allied petroleum products.

18. **Storage Tank System:** means a tank or commonly connected tanks and all piping, vents, pumps, sumps, diking, overfill protection devices, spill containment devices and oil-water separators. In the case of a system located at an airport, the system ends at the pump discharge.

19. **Tank Operator:** Base Construction Engineering (BCE) is the Tank Operator and is responsible for the overall operation, management, maintenance and inspection of a storage tank or storage tank system as it relates to environmental protection. When referring to a vehicle, the Tank Operator is the driver in charge of the vehicle. In certain cases where the storage tank system is associated with a piece of testing equipment specific to that Unit, then that Unit shall be the Tank Operator.

20. **Unit Storage Tank Representative:** is the person designated within a Unit who is responsible for day-to-day operation and routine inspections of a storage tank or storage tank system. Example: If a Unit is using a building that contains a storage tank, or has operations requiring the use of a storage tank, a person within that Unit shall be designated as the Unit Storage Tank Representative. It is the Unit Environment Officers responsibility to confirm whom the Unit Storage Tank Representative for each unit will be and inform BCE of contact information.

## **Responsibilities**

21. Assistant Chief of Staff Materiel (ACOS Mat): ACOS Mat provides oversight and direction for the Tank Management Program.

22. Formation Safety Environment Officer (FSEO): The FSEO develops policy associated with MARLANT storage tank management, establishes leak and spill reporting procedures, maintains a database of all leak and spill incidents and recommends corrective action when situations warrant. The FSEO is also responsible to conduct a yearly review of the Directive and Ref G. The FSEO verifies that the requirements of the Storage Tank Management Directive are implemented and provides overview training to the UEnvO on the requirements and frequency for completing the tank inspections.

23. Base Construction Engineering Officer (BCEO): The BCEO is responsible for the installation and maintenance of all tank systems in MARLANT and Loger units. The

BCEO will ensure all tank installations meet regulatory compliance and the required inspection and maintenance procedures are carried out for all storage tank systems in MARLANT. The BCEO shall ensure written tank procedures are developed and maintained as required under this MARLANT SEMS Directive and as presented in Ref G. The BCEO is also responsible to maintain and update tank information in DRMIS.

24. Base Logistics Officer (BLogO): The BLogO has overall responsibility to ensure that all storage tank related contracts, motive fuel tanks and waste oil management are conducted as per the requirements of the MARLANT Storage Tank Management Directive. Additionally, the BLogO shall consider MARLANT fuel storage needs and maintain only the minimum amount of storage capacity required to efficiently meet operations requirements.

25. Unit Environment Officer (UEnvO): The UEnvO is responsible to incorporate the MARLANT Storage Tank Management Directive requirements including routine storage tank inspections into their Units Safety and Environmental Management System, and to act as, or assign a designated, Unit Storage Tank Representative for storage tanks used by their Unit unless other arrangements have been made (e.g. building manager to act as Unit Storage Tank Representative). It is the Unit Environment Officers responsibility to confirm who the Unit Storage Tank Representative is for their Unit and inform BCE of contact information.

26. Unit Storage Tank Representative: The Unit Storage Tank Representative is responsible for the day-to-day operation of the fuel storage tank as it relates to environmental protection. Unit Storage Tank Representatives must maintain a contingency plan for emergency response and carry out visual inspections of storage tanks and records unless otherwise stated by BCE. If there is a change in representative of a storage tank system, the departing representative shall transfer the inventory control records and reconciliation data to the incoming representative and inform FSE of the updated contact information.

27. Contractors and Capital Project Managers: All contractors and capital project managers engaged in new installation, modifications, withdrawals, removals, maintenance and petroleum product delivery must be informed of the requirements of Ref G and this Directive.

## **Direction**

### **General**

28. The proper construction, operation, and maintenance of fuel storage tank systems is of great concern to all federal departments. This concern has led to the enactment of various regulations and codes. It is MARLANT policy to meet the requirements of references outlined in this directive. In addition to the responsibilities noted above, this directive is provided to amplify the requirements of the references.

29. All new tank systems shall be aboveground systems, unless approved by the ACOS Mat. If approved, all underground storage tanks installed shall be double walled, with continuous leak detection. No underground storage tank shall be abandoned in place without the approval of the ACOS Mat.

30. Any Units/ /Capital Project Managers purchasing or disposing of tanks shall do so in coordination with BCE to ensure proper tracking and management. BCE shall provide information to the Water, Fuel and Environment Engineer - Directorate Architecture and Engineering Services within 30 days for registration.

31. All units shall conduct inspections and maintain record IAW with this directive.

32. All spills or leaks shall be reported IAW the Base Emergency Response Plan (BERP), Annex O and the SEMS, Directive #E1, Spill Prevention and Reporting.

### **Temporary Use**

33. Temporary use tanks are only permitted if the storage tank system is not Federally Regulated and if the tank is designed and approved for the intended use.

34. Any tanks, which are installed for temporary use, shall be located to prevent damage from collision and the potential release of the tank contents into a sewer or water body. Temporary-use tank systems shall have secondary containment as per Ref. D. All temporary tanks shall be visually inspected for leaks at least once per day.

### **Jetties and Wharfs**

35. Through the product transfer area risk evaluation process, the OPI in charge of the new tank installation shall ensure that petroleum product and allied petroleum product transfer areas are designed to contain spills that occur during the transfer process. As a minimum, storage tanks located on a jetty, pier or wharf shall have secondary containment with monitoring of the interstitial space and be equipped with an overfill protection and spill containment devices. Piping shall be located to prevent its use as a cleat or tie point for watercraft. The tank must be located in a manner to prevent damage from collision.

### **Tank Registration**

36. BCE shall maintain DR MIS and the MARLANT Storage Tank Database for all storage tanks regardless of size. BCE shall complete the DND Storage Tank Registration Form for all storage tanks and forward to the Water, Fuel and Environment Engineer - Directorate Architecture and Engineering Services within 30 days.

37. BCE shall develop a plan to upgrade or replace all non-compliant MARLANT storage tanks so that all storage tanks are compliant and maintain a petroleum storage tank database to track the lifecycle of each tank system. A professional engineer shall certify all new storage tank system designs and tank upgrades.

## Reporting

38. BCE shall prepare an annual report on the status of MARLANT storage tanks for FSEO review. The BCEO shall submit for ACOS Mat approval any requests to abandon underground storage tank systems in place, or to install new underground fuel storage tanks.

39. BCE informs the Water, Fuel and Environment Engineer - Directorate Architecture and Engineering Services regarding changes to tank system configuration, such as new installations, decommissioning, abandoning, equipment upgrades, etc through the DND Storage Tank Registration Form. The Water, Fuel and Environment Engineer - Directorate Architecture and Engineering Services informs Environment Canada regarding these changes.

## Documentation

40. BCE shall maintain the following documents in accordance with the Federal Regulation (MARLANT specific guidance regarding record retention is provided in the Storage Tank Management Plan):

- a. Inventory control and inventory reconciliation;
- b. In-service monitoring and visual storage tank inspections (daily, weekly, monthly);
- c. Cathodic protection monitoring and third party inspections;
- d. Precision or other third party leak detection testing;
- e. Tank maintenance and repairs;
- f. Tank bottom water removal records;
- g. Removal of storage tank;
- h. Monitoring well results;
- i. Details of excavation or nearby construction that could affect the integrity of the storage tank system;
- j. Oil-water separator inspection forms;
- k. Tank installation records including design plans, drawings and specifications, in addition to as-built drawings, that meet the requirements of the Federal Regulation and that are stamped and signed by a professional engineer;

1. Product Transfer Area Risk Evaluation;
- m. DND Storage Tank Registration Form;
- n. Tank Commissioning Form;
- o. Proof that the storage tank system was installed, permanently withdrawn from service, or removed by an Approved Person (with the exception of systems in Newfoundland and Labrador, where the installation, permanent withdrawal, or removal must be supervised by a professional engineer);
- p. Construction, alterations, or upgrades;
- q. Yearly inspections and performance tests;
- r. Record of withdrawal from service, reuse and relocation;
- s. Emergency Response Plan; and
- t. Test and/or inspection documents related to verification of suspected leaks.

### **Cathodic Protection**

41. BCE shall perform tests on all cathodic protection systems IAW Ref G.

### **Leak Testing**

42. BCE shall conduct leak tests of tank systems IAW Ref G and the manufacturer's maintenance requirements.

### **Transferring Product**

43. Persons transferring product shall remain in constant view of the fill pipe, and shall be in constant attendance at the delivery control valve. All contractors or other non-DND personnel transferring fuel on DND property must be made aware of this requirement.

44. In order to reduce the probability and quantity of a spill, certain storage tank systems have specific fuelling requirements. These requirements are identified in the MARLANT storage tank risk evaluation form as per Ref G. Persons transferring product shall be familiar with the risk evaluation and associated emergency response plans prior to fuelling. Unit Storage Tank Representatives and BCE shall ensure proper signage, SOPs and direction is in place to advise fuel delivery drivers of any specific fuelling and emergency response procedures.

## Records

DND Storage Tank Registration Form  
Inventory Reconciliation  
Cathodic protection system checks  
Precision leak detection tests (tank and piping)  
Overfill Alarm Tests  
Monthly Visual Inspection  
Maintenance  
Monitoring Well Results  
Design plans, drawings, and specifications  
As built drawings  
Installation, withdrawal, and removal records  
Annual Inspections/Performance Tests

## Enquiries

Formation Safety and Environment:  
Staff Officer Environmental Engineering: (902) 722-4929

## DIRECTIVE # E7 – HALOCARBON MANAGEMENT

### References

- A. Environmental Directive ED 4003-05, January 2004: Halocarbon Management
- B. Environmental Directive ED 4003-01/2003 Spill Reporting
- C. ADM (IE) Instruction 01/03 Halon Management Policy – 2003
- D. DND Sustainable Development Strategy
- E. MARCORD G-19 Halocarbon Management
- F. MARCORD 21-02 Maritime Command Technical Investigation
- G. MARPACORD 21-1 Boards of Inquiry, Summary Investigations and Technical Investigations
- H. Canadian Environmental Protection Act, 1999 Subsection 332(1) – Federal Halocarbon Regulations 2003
- I. Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems

### Purpose

1. The directive provides direction and assigns responsibility for implementing sound management practices to ensure that MARLANT integral and lodger units comply with policy and legal references.

### Scope

2. This directive applies to all MARLANT integral and lodger units that are owners of halocarbon systems, containers or recovery/recycling cylinders.

### Definitions

3. **Container:** A cylinder, container or device that holds halocarbons.

4. **Global Warming Potential (GWP):** GWP is the ratio of the global warming caused by a substance relative to the global warming caused by a similar mass of carbon dioxide (CO<sub>2</sub>) that is assigned a base value of 1.00. GWP is typically calculated for a time horizon of 100 years.

5. **Ozone Depleting Potential (ODP):** ODP is the ratio of the ozone depletion caused by a substance relative to the ozone depletion caused by a similar mass of chlorofluorocarbon (CFC) 11 that is assigned a base value of 1.00. ODP is calculated over the entire atmospheric lifetime of the ozone-depleting substance during which time it has a potential to deplete stratospheric ozone.

6. **Halocarbons:** Halocarbons are synthetic carbon-based compounds that contain halogen atoms such as fluorine, chlorine, bromine, iodine, and possibly hydrogen that can be released into the atmosphere. Halocarbons typically include chlorofluorocarbons (CFCs), hydro-chlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), and bromofluorocarbons (halons). For a more complete list of regulated halocarbons, refer to Schedule 1 of reference H.

7. **Halocarbon Management System (HMS):** The HMS (reference A) is an intranet database application located on the Defence Information Network (DIN). The database provides DND with a national inventory of halocarbon holdings.

8. **Owner:** Owner means to hold a right in or to have possession, control or custody of, to be responsible for the maintenance, operation or management of, or to have the power to dispose of, a system, container, or recovery/recycling unit.

9. **Specialized Systems:** A specialized system is not included for common uses. For example, a training system would be considered specialized.

10. **SPILLNET:** SPILLNET (reference B) is an intranet database application located on the DIN. The database provides DND with a national inventory of reportable spills. Entering spill data into SPILLNET within one working day of the event meets the requirement of this directive for reporting to DGE and CFFM.

11. **System:** Unless the context requires otherwise, means an air-conditioning system, a fire-extinguishing system, or a refrigeration system.

## **Responsibilities**

12. Formation Safety and Environment Officer (FSEO): FSEO is responsible for directing the MARLANT halocarbon management program, and is the point of contact for external agencies.

13. Staff Officer Environmental Engineer (SO Env Eng): SO Env Eng is responsible for the oversight and coordination of the MARLANT halocarbon management program.

14. Staff Officer Climate Change: SO Climate as the OPI and subject matter expert (SME) is responsible for the implementation and maintenance of the MARLANT halocarbon management program for ship and shore units. This includes:

- a. providing input for local halocarbon management policy;
- b. providing guidance to MARLANT units with regard to halocarbon management;
- c. updating the comprehensive management plan for the halocarbon management program;
- d. preparing the annual submission for the halocarbon management program for the FSE Level 3 Capability Plan;
- e. conducting halocarbon release trend analysis;
- f. maintaining Spillnet;

- g. providing HMS training as required;
- h. providing leak test notices to the units;
- i. consolidating and reporting the annual MARLANT halocarbon inventory;
- j. ensuring halocarbon releases are reported; and
- k. providing associated reports within DND and for external agencies.

15. MARLANT Units: MARLANT units are required to use the Halocarbon Management System (HMS) to inventory all their equipment, containers, and recovery/recycling systems containing halocarbons. Additionally, units must report all releases to the FSEO using the message template at Annex E7A.

16. Units are responsible to keep a list of the contractors and technicians working on systems and to ensure that contractors and technicians working on systems are trade certified. Units are required to keep a copy of technicians' certificate and their HRAI numbers.

17. Base Construction Engineering Officer (BCEO): The BCEO is responsible for all systems, excluding specialized systems, that are part of a building on MARLANT property. This includes fixed systems, regardless of their size, and the systems over 19 kW purchased with public funds. BCE shall maintain their Halocarbon inventory in accordance with the references E and H. BCE shall maintain a halocarbon management plan to phase out banned product in use and to retrofit or use alternate product in equipment containing banned product as per reference H.

18. Fleet Maintenance Facility Cape Scott (FMFCS): The unit is responsible to provide maintenance to the fleet, and to properly dispose of white appliances, as per reference H. FMFCS shall maintain a written report (i.e. FMF 12) detailing the work done to equipment containing halocarbons, and to provide a copy of the written report to the Unit that owns the equipment.

19. Base Logistics (BLog): The unit is responsible to maintain an inventory of halocarbons at the HAZMAT facility and to issue halocarbons and recovery cylinders in accordance with BLog SOPs related to receiving and issuing of Freon, Halon and Recovery Cylinders. The HazMat facility manager is responsible to ensure waste/surplus halocarbon is disposed and recovery cylinders are recertified in accordance with the reference H. BLog shall maintain a SOP to respond to an alarm resulting from a halocarbon release at the Hazmat facility.

20. Canadian Forces Naval Engineering School (CFNES): The unit is responsible to provide Naval Engineering and Damage Control education and training in support of Canadian Naval Operations including Ozone depletion substances (ODS) awareness training. The unit is responsible to maintain their training equipment and halocarbon inventory on site.

## Direction

21. **General:** It is MARLANT's objective to be fully compliant with all applicable legislation and policy pertaining to halocarbon management. This shall be achieved by all units managing halocarbons responsibly. This includes managing the halocarbon inventory, minimizing the halocarbon releases through preventive maintenance program, reporting releases in timely fashion, conducting leak tests as required, recovering and disposing the waste halocarbon in accordance with the Federal Halocarbon Regulations (FHR) and switching to more environmentally friendly alternatives when available.

## Inventories

22. **Halocarbon Management System (HMS):** All MARLANT ship and shore units that own, maintain and provide services to equipment, containers or recovery/recycling systems containing halocarbons and not including white appliances are required to inventory this information and enter it into the HMS. The SO Climate Change consolidates and reports the MARLANT halocarbon inventory. Ships/units shall report their halocarbon inventory from systems, containers and recovery/recycling units, to SO Climate Change annually by 31 January.

## Release Reporting

23. **Halocarbon Releases:** All halocarbon releases, regardless of size, are reported to the FSEO using the message template at Annex E7A; Fleet units use the message template in SOP #3 of their respective class Safety and Environmental Management System.

24. **Fixed halocarbon monitoring system:** In the event of a visual or audible alarm, a leak test using hand held portable leak detector or soap test shall be conducted to pin point the release and recover the refrigerant if a release is confirmed.

25. **Releases in Excess of 100 kg:** Immediately report halocarbon releases in excess of 100 kg through immediate message to the FSEO. The initial report, verbal or written, must include the type of halocarbon, quantity, and the type of system, container or equipment from which it was released. Additionally, within 14 days complete the message template at Annex E7A and forward it to the FSEO.

26. **Halon Releases:** All halon releases, regardless of size are reported to Formation Safety and Environment immediately (references B and C). If details are not initially available, indicate this on the preliminary report message; forward additional information when it becomes available.

27. **Investigations:** In accordance with reference E, an investigation is required for all halocarbon and halon releases in excess of 10 kg. For straightforward equipment failure or documentation deficiency, the CO may use a UCR to report the results and recommendations. Send an email or message of conclusion indicating the corrective measures taken, the UCR date and reference number. However, if the circumstances merit more comprehensive attention with

the expectation of a more complex finding the CO should use either the Technical Investigation (TI) or Summary Investigation (SI), references E and F, procedures as appropriate.

28. **SPILLNET:** FSE enters release information into SPILLNET in accordance with reference B.

## Systems

29. All systems shall be installed and serviced in accordance with reference E.

30. **Recovery Unit and Leak Test Detection Unit:** Recovery units and leak testing equipment are to be maintained and calibrated in accordance with the manufacture and LCMM requirements.

31. **Fixed Halocarbon Monitoring System:** Fixed halocarbon monitoring systems are to be calibrated and maintained as per manufacture's requirements.

32. **Private Systems:** Ensure that a label, indicating ownership, is on any privately owned systems on MARLANT property. In the event that the system malfunctions, the owner is responsible for its repair or removal from MARLANT property.

33. **Purchasing Systems:** Units intent on purchasing systems, with public funds, such as domestic fridges or small air conditioning units, etc., are required to contact the BCEO who will review the request and either authorize or deny the purchase.

34. **Specialized Systems:** MARLANT units that own specialized systems are responsible for their management under this directive.

35. **New Systems:** All new systems containing halocarbons to be installed or used in MARLANT shore units must operate with zero ODP and in accordance with Schedule 1 in reference H.

## Record Keeping

36. **General:** All records, including corresponding records of notices, service logs and reports are to be kept at site for 5 years and be readily available to Environment Canada, if required. Notices of leak testing, dismantling, decommission or disposals are not to be removed unless replaced with a new one.

37. **White Appliance:** Domestic white appliances do not require a certified technician to install the unit as they are self-contained plugging system. Commercial units (i.e., reach in coolers, larger portable A/C) that are designed to be plugged in for operation, are not self-contained and can be serviced are required to be installed by a certified technician and service logs maintained for these systems. Any servicing, maintenance or decommissioning conducted on a white appliances must be in accordance with the reference H, which requires units to maintain service logs and corresponding records of leak tests and decommissioning notices.

38. **Leak Testing:** Conduct leak tests in accordance with reference E. Shore based halocarbon systems equal and greater than 19 kW shall be leak-tested every twelve months and a leak test notice affixed on the system. A leak test shall be conducted on systems regardless of the size following maintenance and the leak test notice is to be replaced with updated information. Ships are required to leak test monthly regardless of the size of the system containing halocarbons. Leak test stickers are to be replaced after regular maintenance or preventative maintenance.

39. **Service Logs:** All units are required to maintain service logs for system/cylinders. Fleet service logs are to be maintained for each cylinder on site when at sea, and leak tests are conducted in accordance with FHR. Preventative maintenance shall be logged in the service log as conducted.

40. **Issuing Refrigerants:** When units require halocarbons, the halocarbons are to be issued by BLog in accordance with the BLog SOPs related to receiving and issuing of Freon and Halon.

41. **Dismantling, Decommission, and Disposal:** Dismantling, decommission and disposal notices are required on systems in accordance with Schedule 2 of the FHR. The notices must be placed on systems that had halocarbon removed, and the notice is not to be removed unless replaced with a new notice or a leak test notice. A dismantling notice is only required on a ship if the system has been dismantled for maintenance for greater than one month. Dismantling notice is only required on shore based equipment if the system has been dismantled for maintenance for greater than three months.

### **Handling And Storage**

42. Handle and store containers in accordance with reference E/Directive #SE1 HazMat Management.

43. To reconcile halocarbon inventory and identify potential releases, the cylinder shall be weighed before and after the transfer of halocarbon.

44. Long Term Storage – Halocarbon stock stored more than twelve months shall be leak tested once every twelve months.

45. BLog is responsible to notify the receiving unit of receipt of halocarbons and the receiving unit is to provide the expected date of pickup. The receiving unit shall inform the BLog HazMat Manager if cylinders have to be stored beyond the expected date. BLog shall re-notify the receiving unit 7 days after the expected date of pick up. If the halocarbon cylinders are still not picked up, and there is no response from the receiving unit, BLog shall assess the situation and return the halocarbons to the distributor.

### **External Contact**

46. All contact with other government departments or external agencies, concerning halocarbon related issues, is through the FSEO.

**Records**

SPILLNET  
Halocarbon Management System (HMS)  
Hardcopy of release messages  
Service logs  
Inventories  
Leak test Notices  
Corresponding Records of Notice

**Attachments**

Annex E7A - Halocarbon Release Report Message Template

**Enquiries**

MARLANT, Formation Safety and Environment:  
Staff Officer Climate Change – (902) 722-4064

**ANNEX E7A - HALOCARBON RELEASE REPORT MESSAGE TEMPLATE**

FROM: (YOUR UNIT)  
ACTION: MARLANTHQ HALIFAX N48  
INFO: (YOUR COMMAND STRUCTURE)  
  
SUBJ: HALOCARBON RELEASE REPORT

DATE AND TIME OF OCCURRENCE / DATE AND TIME OF DISCOVERY  
REPORTED BY (NAME / RANK / PHONE NUMBER / UNIT)  
TECHNICIAN'S NAME AND HRAI CERTIFICATION NUMBER  
TYPE OF HALOCARBON RELEASED  
QUANTITY RELEASED (KG) / QUANTITY RECOVERED (KG)  
RESPONSIBLE UNIT  
CAUSE OF THE RELEASE  
TYPE AND DESCRIPTION OF SYSTEM THAT THE HALOCARBON WAS RELEASED  
FROM  
LOCATION OF RELEASE (NAME OF PLACE, OR LATITUDE AND LONGITUDE OF  
SITE IF A DESCRIPTION IS NOT APPLICABLE)  
CIRCUMSTANCES LEADING TO THE RELEASE  
SHORT DESCRIPTION OF THE INCIDENT  
EVACUATIONS OR CASUALTIES  
CORRECTIVE ACTION AND ACTIONS TO PREVENT SUBSEQUENT RELEASES  
UNITS OR AGENCIES NOTIFIED (INCLUDE DATE / REPORTED BY / PERSON SPOKEN  
TO)  
ADDITIONAL COMMENTS  
UNIT COMMANDER (NAME / RANK / PHONE NUMBER)

If a halocarbon release of 100 kg or greater occurs the FSEO must report it to Environment Canada within 24 hours of the release. Therefore, all units must provide the following minimum information to FSEO, but the most expedient means possible in order to meet the 24-hour deadline:

TYPE OF HALOCARBON  
TYPE OF SYSTEM  
HOW MUCH WAS RELEASED  
DATE AND TIME IT OCCURED

NOTE: Address questions concerning halocarbon release reports to the FSEO at 721-6882/721-6881

## DIRECTIVE #E8– EFFLUENT MANAGEMENT

### References

- A. DAOD 4003-0 Environmental Protection and Stewardship
- B. Federal Sustainable Development Act, 2008
- C. Canadian Environmental Protection Act
- D. Fisheries Act
- E. An Approach for Assessing and Managing Wastewater Effluent Quality for Federal Facilities, 2000
- F. Wastewater Systems Effluent Regulations, 2012
- G. ED 4003-07
- H. ED 4003-1/2003
- I. Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments, 1976
- J. Halifax Regional Water Commission Schedule of Rates, Rules and Regulations for Water, Wastewater and Stormwater Services, 2013
- K. CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life
- L. Newfoundland and Labrador Regulation 65/03, Environment Control Water and Sewage Regulations, 2003
- M. Atlantic Canada Standards and Guidelines Manual for the Collection, Treatment and Disposal of Sanitary Sewage, Environment Canada
- N. Directive #SE1 – Hazmat Management
- O. Directive #E1 – Spill Prevention and Reporting
- P. MARLANT Safety and Environment Management System Manual – Annex 3B – Hazards and Aspects

### Purpose

1. This Directive provides direction and assigns responsibility for implementing source control measures to ensure liquid effluent discharges from MARLANT properties are compliant with applicable discharge criteria.

### Scope

2. This Directive applies to all integral and lodger units and infrastructure under the jurisdiction of the Commander Maritime Forces Atlantic, which produce and discharge wastewater and/or storm water.
3. This Directive further amplifies the direction given to Ships in their relevant Class Manual to address effluent discharges.

### Definitions

4. **Applicable Discharge Criteria.** The federal, provincial and municipal statutes, regulations, relevant standards and/or guidelines that govern and relate to effluent

discharges. More specifically, in accordance with DAOD 4003-0, DND/CF shall meet or exceed the spirit and letter of all federal environmental laws and, where appropriate, be compatible with provincial, territorial, municipal and international standards.

5. **CAEAL:** Canadian Association for Environmental Analytical Laboratories.
6. **Compliance:** Conformity with the law.
7. **Contaminant:** Any chemical substance in an effluent that is reported in a concentration exceeding background concentrations, or that does not naturally occur in the environment.
8. **Deleterious Substance:** Any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water or as defined in Ref D.
9. **Discharge:** To release, permit or cause an effluent to be released into the natural environment.
10. **Effluent:** Any liquid discharge from a sewage treatment plant, sanitary sewage systems, sewage lagoon or storm water system.
11. **Pollution Prevention:** Any action or activity which reduces or eliminates the creation of pollutants or wastes at the source, achieved through activities which promote, encourage or require changes in the conduct of industrial, commercial and institutional generators or individuals.
12. **Receiving Water (or receiving environment):** Surface water that has either treated or untreated wastes discharged to it.
13. **Sanitary Sewer:** Wastewater infrastructure used to convey liquid and water-carried wastes and to which storm, surface or ground water are intentionally not admitted.
14. **Sewage:** The combination of liquid and water-carried wastes from buildings, containing animal, vegetable or mineral matter in suspension or solution.
15. **Source Control:** Control or reduction of liquid effluent at source that may include or contain hazardous wastes or hazardous constituents and have the potential to contaminate groundwater or surface water.
16. **Storm-water:** Water from precipitation which includes water from the melting of snow and ice, groundwater and surface water discharges.
17. **Storm-water system:** Any method or means of carrying storm-water including, but not limited to, ditches, swales, sewers retention ponds, streets or roads.

18. **Waste-water Infrastructure:** Includes pipes, tanks, traps, interceptors or any engineered device, which has been designed to treat or transport wastewater from a unit location and has an liquid effluent discharge to an external wastewater sewer or receiving water for disposal.

## **Responsibilities**

19. Formation Safety and Environment Officer (FSEO): FSEO is responsible for directing the MARLANT effluent management program, and is the point of contact for external agencies.

20. Staff Officer Environmental Engineering Officer (SO Env Eng): SO Env Eng is responsible for the oversight and coordination of the MARLANT effluent management program.

21. Staff Officer Pollution Prevention (SO Poll Prev): SO Poll Prev as the OPI and subject matter expert (SME) is responsible for the implementation and maintenance of the MARLANT effluent management program. This includes:

- a. providing input for local effluent management policy;
- b. managing effluent monitoring studies;
- c. analyzing monitoring results and developing corrective action plans;
- d. assisting units to minimize the environmental impact of their operations regarding liquid discharges;
- e. updating the comprehensive management plan for the effluent management program;
- f. preparing the annual submission for the effluent management program for the FSE Level 3 Capability Plan; and
- g. providing associated reports within DND and for external agencies.

22. Base Construction Engineering Officer (BCEO) is responsible for the operation and maintenance of the wastewater collection, treatment and storm drainage infrastructure on MARLANT properties.

23. Fleet Maintenance Facility Cape Scott (FMF Cape Scott) is responsible for the operation and maintenance of the treatment plant for the purpose of treating waste-water containing metals.

24. Commanding Officers (COs): COs are responsible for ensuring that their unit reduces at source the impact their daily activities and processes, which discharge liquid effluent to the environment. All integral and assigned lodger units are responsible for ensuring the liquid effluent is compliant with all applicable criteria when discharged to a sanitary/storm sewer system or directly to a receiving water.

25. Unit Environmental Officers (UEnvOs): UEnvOs must inform their COs and FSE, SO Pollution Prevention, about reported or identified non compliance issue pertaining to process effluent discharges.

## **Direction**

### **General**

26. MARLANTs objective is to be fully compliant with all applicable discharge criteria. In accordance with Ref A., DND/CF shall meet or exceed the spirit and letter of all federal environmental laws and, where appropriate, be compatible with provincial, territorial, municipal and international standards. This is achieved by managing liquid effluent responsibly including, minimizing the sources that introduce pollutants into the natural environment, ensuring appropriate management of potential pollutants and maximizing pollution prevention opportunities.

27. Units within MARLANT are responsible for key processes which have been identified as having significant liquid effluent discharge to municipal infrastructure or directly to the environment. These include, but are not limited to oily water separators, sewage treatment plants, wash/service bays, galley grease traps/interceptors, central heating plants and airfield activities such as aircraft de-icing and washing.

### **Source Control**

28. Source control allows for the greatest and most effective method to minimize environmental impacts by eliminating or reducing the amount of hazardous or deleterious wastes being generated and consequently entering wastewater infrastructure or the environment.

29. An effective source control program can be achieved by using alternatives to hazardous materials in the process stream, implementing proper disposal practices for hazardous materials, reducing the amount of liquid wastes (including water usage) that enter the waste stream and proper maintenance and monitoring of wastewater infrastructure.

30. Units shall implement source control measures to ensure wastewater generated as part of the daily working activity is compliant with the applicable discharge criteria.

### **Maintenance of Wastewater Infrastructure**

31. All wastewater infrastructure shall be inspected and maintained on a regular cycle to ensure it is kept in a condition of continuous efficient operation. The responsible unit shall keep all records of inspection and maintenance:

- a. Tanks/Oil Water Separators: As part of a unit's SEMS, SOPs shall be developed and implemented to properly address inspection and maintenance

requirements to ensure tanks and oily water separators are operating properly and any spills or leaks are addressed to eliminate contaminates from entering the waste water system IAW the direction provided at MARLANT SEMS Directive #E6;

- b. Grease, Oil or Sand Traps/Interceptors: Shall be maintained in such a way as to ensure no retained or trapped oil, grease, sediment, sand, silt or other matter in any form shall be allowed to pass from the installed trap or interceptor into the wastewater system or the environment. The retained or trapped materials shall be physically removed and disposed of properly;
- c. External Maintenance and Wash Activities: Any unit conducting an activity, such as equipment washing/mechanical maintenance, which produces a wastewater effluent at an external location, such as parking lot, airfield or jetty, shall ensure the activity is completed away from all storm-water systems and the waste-water is properly contained and collected for disposal IAW the direction provided at MARLANT SEMS Directive #SE1;
- d. Process Recovery Units – Shall be maintained such that internal filtration systems are replaced or serviced so that the final effluent is compliant with applicable discharge criteria; and
- e. Sewage Treatment Plants – Shall be properly maintained to ensure final discharges to the environment are compliant with applicable discharge criteria IAW the direction provided at DAOD 4003-7.

### **Required Action**

32. When a non-compliance issue is identified through the unit or Formation monitoring or inspection programs, the issue shall be reported to the UEnvO and FSE and appropriate measures shall be implemented to mitigate the issue. This may involve the temporary shut down of the operation until appropriate measures have been implemented.

33. Should a wastewater system malfunction or become inoperable at anytime, BCE should be notified immediately and all appropriate precautions shall be made to safely mitigate the discharge of non compliant effluent to the environment.

34. In accordance with Ref D, there is a duty to notify with respect to serious harm to fish or the deposit of a deleterious substance. When an issue is identified that results in the duty to notify, the Unit shall notify MARL SE immediately and MARL SE will be the point of contact for the external agency.

### **Monitoring/ Inspection Programs**

35. FSE conducts semi-annual monitoring of MARLANT properties identified as having an significant effluent discharge with the potential to be non-compliant with

applicable discharge criteria. Each monitoring event is reviewed, and reported non-compliance issues are addressed directly through the responsible unit. The quarterly monitoring reports as well as non-compliance issues are reported each year in the Safety and Environment Report.

36. All units which produce a significant wastewater discharge shall monitor their effluent. In addition, prior to discharge, effluent should be periodically sampled and analyzed by a laboratory with CAEAL certification. It is a unit's responsibility to be in compliance with regulatory and policy requirements. The sampling location will depend on the system installed at the unit, however the sample of the effluent being discharged shall be representative of the daily operation of the unit's activities.

37. Laboratory results are kept with other records and logs.

### **Records**

Monitoring Reports

Maintenance and Inspection Records

Spill Reports

Inventory of Monitoring Criteria, Parameters and Locations

### **Enquiries**

MARLANT – Formation Safety and Environment:

SO Pollution Prevention (SO Poll Prev) – Tel. (902) 722-4977/Fax (902) 721-5417

## DIRECTIVE # E10 - CLIMATE CHANGE

### References

- A. A Sustainable Development Strategy for National Defence
- B. Canadian Environmental Protection Act, 1999 Subsection 46(1) -National Pollutant Release Inventory

### Purpose

1. To provide direction and assign responsibilities to ensure that MARLANT implements the climate change management plan to reduce production of greenhouse gases.

### Scope

2. This directive applies to all integral, assigned lodger and personnel support organizations under the jurisdiction of the Commander Maritime Forces Atlantic. This directive does not apply to the operational aspects of the fleet.

### Definitions

3. **Greenhouse Gas (GHG):** Greenhouse gases are generated by human activity such as the combustion of fossil fuels, such as coal and fuel oil etc. They trap the Sun's heat near the Earth's surface causing global warming and/or climate change. Greenhouse gases are mainly water vapour, carbon dioxide, methane, and nitrous oxides. For the purpose of this Directive GHG refers only to carbon dioxide.

4. **Bio-diesel:** Bio-diesel is a replacement fuel for diesel that generates less greenhouse gas emissions than regular diesel fuel. Bio-diesel is a blend of 5%-20% of bio-diesel in petro-diesel.

### Responsibilities

5. The Formation Safety and Environment Officer (FSEO) is responsible for the overall direction of the MARLANT Climate Change Program.

6. The Formation Environmental Protection Officer (FEPO) is responsible for the oversight and coordination of the MARLANT Climate Change Program.

7. The Staff Officer Climate Change (SO Climate Change) is responsible for:

- a. developing and updating this Directive and the comprehensive management plan for the Climate Change Management Program;
- b. overseeing the collection of data relevant to this Directive;
- c. monitoring the changes in the production of greenhouse gases;

- d. providing recommendations on approaches for the reduction of greenhouse gases;
- e. coordinating energy conservation projects such as the installation of wind turbines and sea-water cooling;
- f. preparing the annual submission for the Climate Change Management Program for the FSE Level 3 Capability Plan; and
- g. guiding the education of the Formation on the GHG issue by supporting the annual Energy Awareness Week in November and holding energy awareness information sessions.

8. Formation Construction Engineering Officer (FCEO) is responsible for implementing programs for the maintenance and energy conservation of the infrastructure.

9. Formation Logistics (FLog)/Transport Electrical Mechanical Engineering (TEME) are responsible for implementing programs for the maintenance and energy efficiency of the commercial fleet.

10. COs are responsible to approve any required operational changes that result in the reduction of greenhouse gas.

11. UEnvOs are responsible, as the CO's advisor for:

- a. coordinating education and initiatives relating to energy and greenhouse gas reduction; and
- b. assisting where necessary in the provision of data required for monitoring of greenhouse gas production.

12. OPIs are responsible for providing energy data through SO Climate Change to FSE on a quarterly basis.

## **Direction**

13. As a consequence of the Sustainable Development Strategy at reference A, DND must reduce its GHG emissions by 134.9 kt of CO<sub>2</sub> equivalent. MARLANT shall reduce GHG emissions by:

- a. developing, implementing and enforcing a “No-idling” on base policy and maintaining vehicles to reduce air/greenhouse gas emissions.
- b. researching and implementing initiatives such as energy performance contracts to reduce the energy consumption of existing infrastructure. MARLANT shall also

- provide maintenance and upkeep for existing infrastructure to reduce energy consumption.
- c. educating and communicating on energy conservation and awareness topics to employees through Environment Week, Energy Awareness Week, energy awareness briefings and UEnvO training courses, and
  - d. seeking out and implementing green opportunities, such as bio-diesel, wind energy, solar energy, sea-water cooling and hydrogen cells.

## **Records**

Quarterly energy data from infrastructure and TEME

Water consumption data

Reporting to Environment Canada through the NPRI

Quarterly energy data from ships. Ships are exempted from the federal regulations, however FSE is maintaining records of their energy consumption to verify continued effort to conserve energy on ships.

## **Enquiries**

MARLANT, Formation Safety and Environment:

Staff Officer Climate Change – (902) 721 - 6768

**DIRECTIVE #E11 - NATURAL RESOURCE MANAGEMENT****References**

- A. Fisheries Act
- B. Nova Scotia Environment Act, Pesticide Regulations
- C. Canada Wildlife Act
- D. Canadian Environmental Assessment Act and regulations
- E. Canadian Environmental Protection Act and regulations
- F. Migratory Birds Convention Act
- G. Oceans Act
- H. Species at Risk Act (SARA)
- I. Endangered Species Act (S.N.S. 1998, C.11)
- J. Environment Act (S.N.S. 1995, c.1)
- K. Environmental Assessment Regulations
- L. Fisheries and Coastal Resources Act (S.N.S. 1996, c.25)
- M. Forests Act (R.S.N.S. 1989, c. 179)
- N. Special Places Protection Act (R.S.N.S. 1989, c.444)
- O. Wildlife Act (R.N.S. 1989, c. 504)
- P. Endangered Species Act (S.N.L. 2001, c. E-10.1)
- Q. Environmental Protection Act (S.N.L. 2002, c. E-14.2)
- R. Forest Protection Act, 1991 (R.S.N.L. 1990, c. F-22)
- S. Forestry Act and Regulations (R.S.N.L. 1990, c. F-23)
- T. Wilderness and Ecological Reserves Act (R.S.N.L. 1990, c. W-9)
- U. Canadian Bio-diversity Strategy
- V. Federal Policy for Management of Fish Habitat
- W. Federal Policy on Wetland Conservation
- X. National Forest Strategy
- Y. Sustainable Forests: A Canadian Commitment
- Z. Environmentally Sustainable Defence Activities – A Sustainable Development Strategy for National Defence
- AA. MARLANT Safety and Environmental Management System (SEMS)
- BB. DAOD 4003-0 Environmental Protection and Stewardship

**Purpose**

1. To provide direction and assign responsibility to ensure MARLANT operations and activities comply with legal and policy requirements for sustainable management of terrestrial natural resources on all MARLANT properties.

**Scope**

2. This directive applies to all integral and assigned lodger units under the jurisdiction of the Commander Maritime Forces Atlantic.

## Definitions

3. **Continual improvement:** process of enhancing the management system to achieve improvements in overall safety and environmental performance in line with the organization's safety and environmental policy.
4. **COSEWIC:** Committee on the status of endangered wildlife in Canada.
5. **Critical habitat:** Critical habitat is the habitat necessary for the survival or recovery of a listed endangered, threatened or extirpated species on Schedule 1 of SARA. Critical habitat will be described as part of a recovery strategies or action plans within a few years after the species is listed.
6. **Endangered:** A species facing imminent extirpation or extinction.
7. **Environment:** Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interaction. NOTE - Surroundings in this context extend from within an organization to the global system.
8. **Environmental aspect:** Element of an organization's activities, products or services that can interact with the environment. This may include a discharge or release or consumption of a natural resource.
9. **Environmental impact:** Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.
10. **Extinct:** A species no longer occurs anywhere.
11. **Extirpated:** A species no longer exists in the wild in Canada, but exists elsewhere in the world.
12. **Habitat:** The places where species live that provides all the essentials for survival.
13. **Interested party:** Individual or group concerned with or affected by the safety or environmental performance of an organization.
14. **Office of Primary Interest (OPI):** An assigned point of responsibility for a specific management task, project or program, etc.
15. **Special Concern:** Those species that are particularly sensitive to human activities or natural events but are not endangered or threatened species.
16. **Species at Risk:** A species that has become designated by COSEWIC as Extinct, Extirpated, Endangered, Threatened, or of Special Concern.

17. **Sustainable Development:** Managing a resource for the current use without compromising the potential use of future generations.
18. **Threatened:** A species likely to become endangered if nothing is done to reverse the factors leading to extirpation or extinction.

## **Responsibilities**

19. The FSEO is responsible for providing direction for the Natural Resource (NR) Management Program, and is the contact point for external agencies.
20. The FSEMSO is responsible for overall oversight of the NR Management Program at MARLANT properties.
21. The SO NR is the subject matter expert responsible for implementation and maintenance of the Natural Resource Management Program. This includes:
  - a. providing input for local natural resource management policy;
  - b. managing natural resources inventory and other related studies;
  - c. using study results to develop natural resources management plans and provide input to EAs and the RTAM Program;
  - d. updating the comprehensive management plan for the Natural Resources Management program;
  - e. preparing the annual submission for the Natural Resources Management program for the FSE Level 3 Capability Plan;
  - f. providing associated reports within DND and for external agencies; and
  - g. preparing a report on MARLANT's sensitive habitat and species at risk for the annual Safety and Environment Report by mid April.
22. FCEO is responsible for conducting site work and advising SO Natural Resources of any proposed changes to site use for previously classified sensitive habitats.
23. Unit Environmental Officers (UEnvOs) must inform COs and FSE about reported, or identified sensitive habitat or species that may be affected by site use.
24. Site Occupants are responsible to contact FSE to determine if there are environmental constraints to the use of the property and advise FCE and FSE of any proposed changes in use of their property. Observations made by site occupants pertaining to potential sensitive habitat or other environmental concerns must be recorded and forwarded to FSE.

25. Formation Safety and Environment (FSE), through SO NR is responsible for:
- a. Conducting natural resource inventory surveys for individual sites;
  - b. Maintaining a library of natural resource inventory and survey data, i.e., maintain copies of all site investigation reports and sample results conducted by FSE for an indefinite period;
  - c. Provide direction and oversight to all units, responsible personnel and interested parties regarding natural resources on MARLANT property;
  - d. FSE will assist all units to minimize the environmental impact of their operations, demonstrate due diligence, meet the requirements of relevant policy, regulations and legislation;
  - e. Manage the natural resources present for protection and sustainable use of the property;
  - f. Preparing and implement remediation plans for habitat restoration at individual sites;
  - g. Supply NR information for completion of EAs for projects when required;
  - h. Implementing natural resource management plans for continual improvement of natural processes on MARLANT property;
  - i. Manage MARLANT natural resources to preserve biodiversity, in particular species at risk;
  - j. Updating the MARLANT SEMS Three-year Plan annually to indicate work plan and funding requirements, and prepare the annual submission; and
  - k. Preparing the Natural Resource Management section of the annual Safety and Environment Report (SER).

## **Direction**

26. MARLANT, as a Federal Land Manager, has responsibility to determine if a species at risk is present on its property and to protect that species and associated critical habitat. The Species At Risk Act (SARA) contains a prohibition against destroying any part of critical habitat. Activities such as training, research, resource exploitation, and/or maintenance, carried out on these lands must comply with SARA requirements.

27. In response to this legislation, Department of National Defence has implemented a program for sustainable ecosystem management within the Sustainable Development

Strategy 2006. To properly protect the environment, potential environmental aspects and environmental impacts from training activities must be acknowledged. Therefore, three goals were identified:

- a. use military training areas sustainably;
  - b. plan and conduct military and non-military activities on Defence land and marine training areas such that adverse impacts are minimized and military training can occur without compromising future training; and
  - c. preserve biodiversity, in particular for species at risk.
28. MARLANT shall conduct natural resource inventories to show due diligence in identifying the presence/absence of species at risk and sensitive habitats in order to meet the legislative requirements of a Federal Land Manager and reduce the risk of habitat loss.
29. Collection of natural resource inventory data can preclude harm to the environment and increase the sustainability of the property. Recovery plans can be created from the natural resource inventory data collected. Natural resource inventories must be updated in order to ensure that MARLANT has the most up to date information when making decisions.
30. This information shall be shared with interested parties to provide a transparent and open process of sustainable management. In conjunction with the EA process, natural resource inventory data can be utilized for future property use and planning of sites to ensure sustainable use in the future.

## **Records**

Internal and external audit reports  
Natural Resource Inventory Surveys

## **Enquiries**

MARLANT, Formation Safety and Environment:  
Staff Officer Natural Resource Management (SO NR.): Tel. (902) 721- 8340

## DIRECTIVE #E12 – RANGE AND TRAINING AREA MANAGEMENT

### References

- A. MARLANT Safety and Environmental Management System (SEMS)
- B. B-GL-381-001, Ops Training Safety
- C. B-GL-381-002, Range Construction and Maintenance
- D. B-GL-381-003, Range and Unexploded Ordnance
- E. DAOD 4003-0 Environmental Protection and Stewardship
- F. DAOD 4003-2 Environmental Assessment
- G. MARCORD CS-07-Notices to the Public Land Ranges and Training Area
- H. MARCORD CS-08- Range and Training Areas Ammunition Hazards Statistical Records
- I. DGE SDS 2006
- J. MARCORD 4-35
- K. B-GL-381-002/TS-000
- L. MARCORD 46-3
- M. MARLANTORD 44-4
- N. RTAM Framework Discussion Paper 20 April 2005
- O. RTAM Framework Discussion Paper 28 July 2005
- P. MOAMP 2005
- Q. MARL: 7795-1 (BComd) dated 8 June 2007
- R. MARL 7795-1 (N4913) dated 22 May 2007

### NOTE

**This Directive will be further revised, and sections dealing the organization, TOR of the Working Group and the use of unlicensed DND property, non-DND public property and private property as ranges or training areas are still under review.**

### Purpose

1. To formalize a MARLANT-wide comprehensive functional responsibility matrix for the Formation's Range and Training Area Management (RTAM). It assigns clear areas of responsibility and specifies general range and training area user obligations.
2. To ensure MARLANT's activities and operations have the minimum adverse impact upon the environment while meeting all applicable Federal environmental laws.

### Scope

3. The MARLANT Range and Training Area Management (RTAM) Program applies to all MARLANT land, marine and air range and training areas under the jurisdiction of Commander Maritime Forces Atlantic.

4. In order to meet the legislative requirements of a Federal Land Manager and reduce risk of environmental impacts, all stakeholders have the duty to show due diligence in managing the sustainability of training areas.

## Definitions

5. **Due diligence:** To take every reasonable precaution in the circumstances to avoid loss or harm

6. **Environment:** Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interaction. NOTE - Surroundings in this context extend from within an organization to the global system.

7. **Environmental aspect:** Element of an organization's activities, products or services that can interact with the environment. This may include a discharge or release or consumption of a natural resource.

8. **Environmental impact:** Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

9. **Interested party:** Individual or group concerned with or affected by the safety or environmental performance of an organization.

10. **Marine Operation Area Management Program :** MOAMP

11. **Office of Primary Interest (OPI):** An assigned point of responsibility for a specific management task, project or program, etc.

12. **Range Chief/Warden:** Denotes a CF member vested the responsibility to coordinate range scheduling and to oversee the safe daily operation of their assigned RTA. Range Warden and Range Use Scheduler (RUS) are frequently used interchangeably with Range Chief.

13. **Range Standing Orders:** RSOs

14. **Range and Training Area Management Plan:** RTAMP

15. **Technical expert:** Person who provides specific knowledge or expertise, but when on an environmental audit team does not participate as an auditor.

## Direction

### Background

16. Oversight of range and training areas was historically an adhoc affair with the responsibility devolved to a myriad of CF training establishments and range users. In 2004 in an effort to better coordinate MARLANT range and training area activities, BOpsO was tasked to provide this operational oversight on behalf of BComd CFB Halifax. FSE's role, while always environmentally focussed, was changed with DND's emphasis on the Sustainable Development Strategy (SDS), stemming from an observation in the 2004 OAG audit on Sustainable Management of DND's Range and Training Areas (RTAs). FSE has the safety and environmental oversight mandate for not only RTAs but for all MARLANT property. In this vein, MARLANT's RTAM goal is to establish a functional and collaborative organization that does not alter in any manner the distinct areas of responsibility of the supporting SPRs. Accordingly, for issues related to RTAs, the operational oversight component by BOpsO and CO, CFS St John's, is essentially assimilated with FCE and FSE. All four SPRs play leading roles in RTAM to fulfill their respective obligations.

### Organization

17. The formalization of the pre-existing adhoc RTA management and development process is structured to continually advance the management and maintenance practices of MARLANT RTAs in a long-term sustainable manner. The RTA organization relies on key SPRs within the MARLANT Chain of Command for direction within their specific area of influence, responsibility and expertise pertaining to the development and management of existing resources and those environmental issues that effect local and national interest. The success of the system depends on close cooperation and communication between all parties and the SPRs remaining within their assigned areas of responsibility.

18. This directive delegates responsibility from the BComd to designated SPRs for MARLANT RTAM obligations with the exception that N3 will retain operational oversight for the MARLOAs.

### **THE MARLANT RTAM ORGANIZATION CHART TO BE PROMULGATED LATER.**

19. The RTAM WG is directly responsible for:

- a. the continual refinement of the MARLANT MOAMP as the key MARLANT directive for MARLOAs;
- b. the continual refinement of RSOs and RTAM Plans as the two key directives for MARLANT Land RTAs;

- c. oversight of RTA footprint expansions or reductions, and upgrades to RTA properties;
  - d. reviewing sustainable development indicator results to assess effectiveness of environmental mitigation measures implemented, and to rectify any deficiencies by adjusting usage protocols to assure sustainable use of each property; and
  - e. assessing performance against set objectives and targets and preparing an annual summary detailing the successes and challenges of sustainable use of MARLANT's military training areas.
20. The RTAM's WG consists of a core group representing operations, environment and, for land based property, construction engineering. A minimum of one formal RTAM's WG meeting shall be held annually; additional meetings may be done secretarially.
21. MARLOA and external to MARLOA ship operations will continue to be led operationally by N3 with environmental input and oversight assigned to N48, (see ref. N). Accordingly, the RTAM WG for marine ranges will entail one designated representative from N3 and N48, while fleet representation could be an additional resource. Deliberations for RTAM WG on marine ranges will normally be administered secretarially, the results of which will be summarized at the annual FltSEMC.
22. For terrestrial based RTAs, a designated representative from each of the N43, N48 and N49 SPRs; the range chiefs/wardens of their respective RTA(s) will also be permanent members of the WG. The appropriate chair for the WG has not been determined, however, an N48 representative will be the secretary. On an ad hoc basis, other contributors to the RTAMS WG are anticipated to provide input on issues within their area of responsibility.
23. An annual formal RTAMS WG meeting for land-based properties shall be scheduled to follow soon after the promulgation of the site specific annual RTA Inspection Reports, to ensure action items falling out of the report can be addressed by the key stakeholders, to offer the forum to provide updates on any particular projects, and to provide an overview of any significant updates to policy or legislation.
24. On occasions when a resolution is needed such as when an impasse is reached between any members of the RTAM WG, the issue shall first be brought to the SPR level in the respective organizations, and if still unresolved, shall be raised to the ACOS level (ie N3 for marine interests and BComd for terrestrial issues).
25. The MOAMP and MARLANTORDs 44-3, 44-4, 45-1 are complementary references that govern the use of MARLOAs . On the terrestrial side, site specific RSOs and RTAM Plans describe MARLANT direction. Land Forces (LF) RTA directives

remain a key input to MARLANT RTAM. Additional guidance can be found in Service Level Agreements between LFAA and MARLANT.

26. **RSOs** shall conform with current LF RTA policy and include Safety firing templates, an EA that encompasses approved RTA activities, maps representing sensitive and/or out of bound areas, and procedures to be followed for normal range upkeep and maintenance. To retain the simplicity of the publications, no additional content is envisioned in RSO.

27. The Range Operational Authority shall promulgate RSOs.

28. RTAM Plans shall be developed from a sustainable management perspective by FSE, shall stress collaboration and communication amongst RTAM WG members, and shall include a comprehensive organization chart to delineate key areas of responsibility. RTAMPs shall elaborate on the information included in RSOs, specifically to assist RTAM WG members in the development and execution of long-term property plans and to assist in determining what new training requirements could be supported. Lastly, they shall contain Performance Indicators and performance measurement obligations tied to the SDS objectives and the sustainable management goal. RTAMPs shall follow a formalized template yet include site-specific guidance of operational and environmental importance.

## Operations

29. **Marine** - The MARLANT N3 organization schedules and assigns fleet units to the MARLOAs in accordance with reference K; any training activities that potentially have a MARLOA impact (above, on, or beneath the water) must be staffed as per reference K. N3 staff coordinate air related components to RACE and J7 staff. These approaches are also consistent with reference L.

30. During the conduct of routine naval operations and in the development of Maritime exercises, environmental planning tools such as the MARLANT MOAMP shall be consulted and appropriate mitigation measures adopted. When considering larger scale or new activities, N48 staff shall be engaged early in the staffing process for environmental support and to assist in ascertaining what additional environmental requirements are needed. Furthermore, for activities such as amphibious landings that obviously have an ocean and land component, N3 /CCFL will retain the lead for the overall plan, engaging N48 for environmental guidance and support, and N49 for land-based operational support as required.

31. **Land** – N49/Base Operations is responsible for implementing existing CF RTA directives, **except as modified by this directive**, and establishing the necessary local protocols and site-specific Range Standing Orders (RSOs) to ensure the safe and efficient operation of land ranges (indoor and outdoor) and training areas. The BOps RTA SO is assigned this staff role within the N49 organization.

32. CFS St John's – Notwithstanding the N49 and {BOps RTA SO} responsibilities noted above, the Commanding Officer CFS St John's fulfills the responsibilities for the oversight of the safe and efficient operation of Cambrai Rifle Range, Parkers Pond, and Emerald Vale training areas as promulgated at reference "O" within the constraints noted at reference "P". Accordingly, RSO's for the MARLANT RTA properties in Nfld will be published on the authority of the CO CFS St John's.

33. The Range Chief is the eye on the ground for land ranges; they will have a minimum of two reporting chains and could have up to three. Notwithstanding, first and foremost they shall report issues of routine and current operational matters to the assigned Range Authority; in most cases this is the {BOps RTA SO} except in Newfoundland where the Range Warden shall report directly to Commanding Officer CFS St John's. The second chain is to the RTAM WG in a manner that will be specified in RSOs and RTAMPs and includes operational input into long-term plans. Lastly, the Range Chief may also have an administrative reporting chain; for instance in a location such as the Bedford Rifle Range, the Commandant CFNOS.

34. Notwithstanding specific CFS St John's exceptions noted in the preceding 2 paragraphs, the {BOps RTA SO} terms of reference shall include responsibility for the operational aspect of RSOs, operational oversight of MARLANT land-ranges, coordination of LFAA annual RTA inspections on MARLANT properties, referring non-RSO/non-operational queries to the RTAM WG, and lastly to be the principle contact for the day-to-day queries by the Range Chiefs who effectively schedule and operate the ranges.

35. The Range Chiefs/Wardens are vested the authority on behalf of N4 Mat through N49 to execute their mandate within the RSOs without any additional input. Range Chiefs are responsible to submit CE work-orders for routine range maintenance directly to their CE liaison and to contact their RSO designated operational authority for issues related to the day-to-day operations of their training area. Observations made by site occupants pertaining to potential sensitive habitat or other environmental concerns must be recorded and forwarded to FSE. For all other issues including any proposed changes in use of their property, the Range Chief shall consult the RTAMS WG.

### **FSE SO Range and Training Area Management**

36. N48 is responsible to implement, coordinate, manage and maintain the MOAMP and RTAMPs. This includes leading an annual management review of the RTAM program at the RTAM WG and assessing it against set objectives and targets, and preparing a report on MARLANT sustainable use of military training areas for the annual Safety and Environment Report in the prescribed format by 31 March.

37. N48/FSE is charged as the sole office to provide environmental oversight, represent MARLANT on all environmental matters, and provide advice on use and constraints of environmentally sensitive areas.

38. N48 shall staff the SO RTAM terms of reference to include lead responsibility for RTAM Plans, RTAM's WG secretary duties, to act as the principle contact for FSE related issues, and referring non-environmental queries as applicable to other RTAM WG members.

### **Formation Construction Engineering (FCE)**

39. FCE's role in the effective functioning of RTAMS WG is critical and is fully complementary to N48/N49 roles described above. The FCE mandate covers three specific areas of support to:

- a. RTAMs WG for project management obligations,
- b. Range Chief/Warden to rectify range maintenance/upkeep obligations, and
- c. MARLANT for all changes to geographic footprint (property/realty) issues, including obtaining permission for CF activities on leased property.

40. MARLANT FCE projects within Atlantic Canada may have primary sponsors outside the MARLANT chain of command, such as CF, LAAA or AF. While FCE will remain as MARLANT project manager for these projects, they must ensure that N48 and on occasion Public Affairs staff, are sufficiently aware of the project to best coordinate the scheduling of public notifications and the provision of advice and information to appropriate government regulators and applicable local associations and committees.

### **Range User/Customer**

41. A user of the range is expected to show due diligence, adhere to their unit's EMS safety and environmental protocols, and to remain within the RSO prescribed activity limitations. Any deviations from RSO guidance should be directed to the Range Chief who will consult, as needed, with applicable RTAM WG members.

### **Records**

Internal and external audit reports

Training Area Management Plan (TAMP) – Terrestrial and site specific

Range Standing Orders (RSOs) – Terrestrial and site specific

Marine Operation Area Management Plan (MOAMP) - Marine

### **Enquiries**

Formation Safety and Environment: FSE RTA SO - Tel. (902) 721-8610.

Base Operations: BOps RTA SO – Tel (902) 427-4569

Formation Construction Engineering: FCE – Tel. (902) 722-4955

## **PART III - EMERGENCY PREPAREDNESS & RESPONSE**

**PART III - EMERGENCY PREPAREDNESS AND RESPONSE - MARLANT**

1. The FSEO is responsible for providing technical assistance regarding safety and environmental issues caused by emergency situations. The FSEO also provides guidance to the development of response plans, with respect to the requirements of CSA Z1000 and ISO 14001 concerning emergency preparedness and response. MARLANT has five Emergency Response Plans (ERPs):

- a. Base Emergency Response Plan (BERP);
- b. QHM Marine Pollution Contingency Plan;
- c. Military Police Emergency Response Plan;
- d. 12 Wing Shearwater Air Salvage Plan; and
- e. DCD Propane Emergency Response Plan.

2. These ERPs identify the potential accident and emergency situations for the Formation, and outline the response plan for each potential contingency. The ERPs include methods for preventing and mitigating the environmental impacts associated with potential accident and emergency situations, and contains a list of the identified potential hazards and emergency situations and generic response procedures to address them. These documents are reviewed and tested as detailed in the respective plans.

3. The responsibilities for the plans are outlined below, and the telephone numbers for key contact personnel are listed in the table below. For additional information consult the relevant plan or the OPI as indicated below.

4. The Base Operations Officer (BOpsO) is responsible for:

- a. developing, implementing and maintaining the BERP. This includes co-ordination of Response Plan tests and revision of the plan from lessons learned. The Plan considers - fire, nuclear emergency response related to nuclear powered vessels visiting Halifax, security, fuel and HazMat spills on land and natural disasters; and
- b. through the Fire Chief, is responsible for responding to all land based spills and 911 calls, and making the spill site safe.

5. The Queens Harbour Master (QHM) is responsible for establishing, co-ordinating implementing and maintaining the QHM Marine Pollution Contingency Plan for spills of fuel and HazMat into water.

6. The BCEO is responsible for establishing, implementing and maintaining the second-level spill response plan for all spills on land. The BCEO is also responsible for the

Water Fuel and Environment (WFE) Technicians who respond to second-level responses on land, assist with spill identification and carry out spill cleanup activities.

7. The Military Police are responsible for the Military Police Emergency Response Plan and co-ordinates its implementation.

8. The 12 Wing Shearwater/Air Maintenance Squadron, Air Salvage Officer is responsible for the Air Salvage Plan and co-ordinates its implementation.

9. CFNES is responsible for the DCD Propane Emergency Response Plan and co-ordinates its implementation.

10. Commanding Officers are responsible for ensuring that the organization under their command has a documented Level 1 response plan for their most likely emergency situations, and reports safety and environmental incidents IAW Command and Formation procedures. Situations that are beyond the response capabilities of the unit are addressed by the ERPs.

11. FSE personnel provide technical expertise and recommendations for Formation-wide spill response training, drills and reporting.

Table 1: Contact Numbers

<b>POINT OF CONTACT</b>	<b>TELEPHONE NO.</b>
Base Ops O	427- 0355
Fire Chief	427- 3501
Military Police	427- 4444/4445
QHM	427- 3199
12 Wing Duty Officer	720-1304
BCEO	427 - 2933
FSEO	721 - 6881
FSEO cell	483 - 9757
SO HazMat	721 - 5492
SO HazMat cell	471 - 3867
Marine Environmental Emergency Response Officer (MEERO)	427-5830
Marine Environmental Emergency Response Officer (MEERO) cell	499 - 4961