

Public Consultation - Proposed Draft *Occupational Health and Safety Regulations*

Background

The Safety Advisory Committee (SAC) is a committee established by the Ministers responsible for the Workers' Safety and Compensation Commission (WSCC) under the *Safety Acts* of the Northwest Territories and in Nunavut. There is equal representation on the SAC by persons representing employers and workers and by persons from each of the two territories. The *Safety Acts* empower the SAC to make recommendations to the Minister(s) on amendments to the *Acts* and any regulations made under it. The WSCC Chief Safety Officer chairs the SAC.

Review of Existing Regulatory Framework

Over the last few years the WSCC, the Government of the Northwest Territories (GNWT), and the Government of Nunavut (GN) studied the current regulatory framework under the *Safety Acts*. The current regulatory framework is fragmented, outdated, unclear, and difficult to enforce. The SAC worked over the two years to develop a draft set of new *Occupational Health and Safety (OH&S) Regulations* that it plans to recommend to the Ministers. The draft *OH&S Regulations* will replace all current regulations under the *Safety Acts*.

Highlights of Draft Regulations

The draft *OH&S Regulations* represent a significant change over the current regulatory framework. Although terminology is currently oriented towards the NWT, it will be adjusted for NU as parallel drafts are finalized. Highlights of the changes include provisions to:

- Integrate all existing *Safety Act* regulations (*Asbestos Safety Regulations; Environmental Tobacco Smoke Worksite Regulations; General Safety Regulations; Safety Forms Regulations; Silica and Sandblasting Safety Regulations; and Work Site Hazardous Materials Information System Regulations*) into one single set of regulations.¹
- Adopt an organizational structure similar to most western Canadian provinces (Manitoba, Saskatchewan, and British Columbia).¹ The *Safety Act* and its regulations do not apply to mining or oil and gas operations.

- Recognize and facilitate the partnership between employers and workers for occupational health and safety at the work site.
- Enhance the role for Joint Worksite Health and Safety Committees.
- Have less intervention by the Chief Safety Officer, and safety officers, in non-serious matters that employers and workers can resolve.
- Facilitate the use of Codes of Practice (Guidelines, Standards) and an on-going role for employers, workers, and other stakeholders in their development.
- Have a greater role for preventive measures (e.g., hazard assessments, programs, plans, etc.).
- Enhance the role for supervisors in high risk work (Supervisor's Certificate).
- Update requirements for Personal Protective Equipment, including fall arrest systems.
- Address the unique occupational health issues for workers in the North (e.g., cold weather work, cessation of routine work below -45°C, risk of frostbite, altered properties of materials, permafrost).
- Deal with harassment and violence at the work site.
- Include new requirements for noise control and hearing conservation.
- Revise the Workplace Hazardous Materials Information System (WHMIS) to bring the NWT and NU into harmony with national legislation.
- Provide for radiation safety, including protection of pregnant workers.
- Bring provisions concerning asbestos up to the same standards as in western Canada.
- New provisions concerning forestry and mill operations.
- Establish additional protections for electrical workers, health care workers, and firefighters.
- Ensure all provisions throughout the draft regulations are set up to facilitate enforcement to clearly identify non-criminal regulatory offences where they are contravened.

How to Provide Comments to the SAC

To provide comments to the SAC, please send them to: safetyregs@wsc.nw.ca.

Report on the Draft *Occupational Health and Safety Regulations*

Volume 3

Nunavut

Final Revisions to the proposed *Occupational Health and Safety Regulations*

Prepared by the Safety Advisory Committee

Northwest Territories and Nunavut

January 2012

Disclaimer

The contents of this volume do not reflect the views of the Workers' Safety and Compensation Commission or the Governments of the Northwest Territories and Nunavut. They are the views of the Safety Advisory Committee. One should not construe anything in this volume as legal advice, a legal opinion or an authoritative interpretation of any enactment or prospective enactment. Its intention is to report to stakeholders on the consultation on the proposed *Occupational Health and Safety Regulations*.

Abstract

From September 2010 to March 2011 the Safety Advisory Committee carried out a public consultation on the proposed *Occupational Health and Safety Regulations*. This volume is the third and final volume of a series of three volumes reporting on the consultation. Volume 1 was issued in September 2011. Volume 2 was issued in December 2011. Forty-eight stakeholders provided approximately seven hundred and fifty comments. This third volume includes the final revision by the Safety Advisory Committee of the proposed Occupational Health and Safety Regulations following the Committee's review of the comments by the stakeholders.

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PART ONE

I. Introduction

This is the third volume in a series of three, which make up the report of the Safety Advisory Committee of the Northwest Territories and Nunavut on the public consultation on the proposed *Occupational Health and Safety Regulations*. It includes a summary of the drafting project, a table of concordance, the final proposed *Occupational Health and Safety Regulations* and a table of concordance with earlier drafts.

The first volume was a digest that summarized comments from and responses to stakeholders by the Safety Advisory Committee in respect of the most commented sections of the draft regulations. Revisions were made to the draft based on the Committee's analysis of the comments. The first volume also provided information on the development of the proposed regulations, the consultation process, the legislative framework and the theoretical model used by the Committee.

The second volume presented the Committee's analysis and response to comments made by the stakeholders and proposed revisions to the draft regulations. It also included an outline and discussion of common overall themes identified in the stakeholders' comments.

This third volume is organized into three parts:

- Part One:** An overview of the drafting project undertaken by the Safety Advisory Committee and its methodology.
- Part Two:** A table of concordance between the final draft, the draft presented in Volume 2 and the original consultation draft of 2010. The first two columns of this table are effectively the table of contents for the final draft.
- Part Three:** The final draft *Occupational Health and Safety Regulations*. Schedules are included. This final draft is what the Committee adopts following the consultation. It will be substantially similar to what is recommended for adoption to the Ministers.

II. Roles and Responsibilities

The Ministers responsible for the Workers' Safety and Compensation Commission (WSCC) are responsible for the administration of the *Safety Act* in each of their respective jurisdictions. The Ministers, under section 26 of each *Safety Act* are required to establish the Safety Advisory Committee. This Committee comprises the following:

- The Chief Safety Officer as chairperson of the Safety Advisory Committee;
- Three members, whom the Ministers consider as representing the interests of workers;
- Three members, whom the Ministers consider as representing the interests of employers;
- Other members, as the Ministers consider it advisable to appoint.

The role of the Safety Advisory Committee is to make recommendations to the Ministers respecting amendments to the *Safety Act* and the regulations.

The current Safety Advisory Committee includes members from the Northwest Territories and Nunavut and represents the interests of workers and employers, ranging from small business, construction, and industry through to health care, organized labour, government, and emergency services.

The Safety Advisory Committee is composed as follows:

Chairperson: **Judy Kainz**, Chief Safety Officer

Members:

Imo Adla, Manager, Department of Human Resources, Government of Nunavut (NU)

Sonja Boucher, RN, Stanton Territorial Health Authority (NT)

Mary Lou Cherwaty, President, Northern Territories Federation of Labour (NT/NU)

Adam Chubbs, Senior Electrical Technologist, Qulliq Energy Corporation (NU)

Stephen Moss, Fire Marshall, Department of Municipal and Community (NT)

Jack Rowe, President, Rowe's Construction (NT)

Clarence Synard, Construction Manager, NCC Development Ltd. (NU)

Additional Support and Advisors:

Bruce Graney, Senior Safety Officer, WSCC

Ann McIntosh, Legislative Counsel, Department of Justice (NU)

Ian Rennie, Legislative Counsel, Department of Justice (NT)

Charlotte van Schalkwyk, Codes of Practice Advisor, WSCC

The WSCC provides support services to the Safety Advisory Committee. Administrative and technical support is provided through clerical assistance and access to technical and program resources.

III. Stakeholders

Table 1 - List of Stakeholders who Provided Feedback During the Consultation

Stakeholder	Stakeholder
Arctic Co-operatives Limited	North Country Gold Corp
Arctic Sunwest Charters	Northern Air Transport Association (NATA)
Baffinland Iron Mines Corporation	Northern Property REIT & NPR Commercial Property
Buffalo Air Express	Northland Utilities
Buffalo Airways Ltd.	Northwest Territories and Nunavut Construction Association
Canadian Autoworkers Union	Northwest Territories Power Corporation (NTPC)
Canadian Federation of Independent Business	Nuna Group of Companies
City of Yellowknife	NWT Chamber of Commerce
City of Yellowknife Fire Division	Polar Developments Ltd.
Consulting Engineers of the NWT	Polar Painting Ltd.
Enbridge Pipelines (NW) Inc.	Public Service Alliance of Canada North Region and the Union of Northern Workers (NWT-NU)
Fire Prevention Services Ltd.	Qikiqtaaluk Corporation
GNWT (Department of Human Resources and on behalf of other Departments)	Qulliq Energy Corporation
Government of Nunavut (Department of Health and Social Services)	Reliable Group of Companies
Government of Nunavut (Department of Human Resources and on behalf of other Departments)	Ron's Auto Service Ltd.
High Engineering Corp.	RTL Robinson Enterprises Ltd.
Hope Bay Mining Ltd. (Newmont North America)	St. John Ambulance NWT MB NU
Imperial Oil Resources/Exxon Mobil	Starfield Resources Inc.
Kingland Ford Sales Ltd.	Stornoway Diamond Corporation
Malcolm and Associates (David G. Malcolm, Ph.D., P.Eng., CMC)	Torque'm Right Mechanical
Manitoba Regional Council of Carpenters, Lathers, Millwrights and Allied workers	Tundra Transfer Ltd.
Mid Arctic Transportation Co. Ltd. (MATCO)	United Steelworkers
Nasittuq Corporation	Workers Safety and Compensation Commission
New Nadina Explorations Limited	Workers Safety and Compensation Commission (Mine Health and Safety)

Stakeholders who provided comments are listed in Table 1 above.

IV. Standards and Codes of Practice

The proposed OHS regulations have limited references to standards and codes. Standards and codes are quasi-legislative, representing industry best practices that typically exceed the minimum requirements set out in the regulations. Standards and codes are not part of the regulations.

The effect of standards and codes of practice is identified in section 22.1 of the Act. If approved and issued pursuant to section 18 of the Act, codes of practice may be admissible as evidence in the course of a prosecution. Generally a court considers a code or standard approved by the Chief Safety Officer, to determine if a decision-maker took into account relevant factors in reaching a decision. Conformity to a code may also be accepted as evidence of safe practices by an employer or worker.

Currently the NWT and NU have no approved codes of practice. Many codes were suggested through the consultation process. The WSCC is in the process of development and adoption of codes of practice. Engaging stakeholders in the development of codes of practice is a significant aspect of the regulatory partnership model and the internal responsibility system.

For more information on Codes of Practice, please contact us at: safetyregs@wscn.nt.ca

V. Methodology

Consultation on the proposed *Occupational Health and Safety Regulations* took place from September 2010 to March 2011. Comments were provided by stakeholders and ranged in nature from general to highly technical. All comments were recorded, reviewed and analysed by the Safety Advisory Committee after March 2011. The review was carried out in face-to-face meetings, by telephone and by teleconference. Decisions to modify the draft were made by consensus.

The Committee was guided in its review of stakeholder comments and its preparation of the final draft of the proposed regulations presented in this volume by the following principles:

- The Internal Responsibility System (IRS) is central to OHS at a work site
- Avoid interfering with subject matter governed by legislation other than the *Safety Act*
- Where appropriate, consider compatibility with legislation of other Canadian jurisdictions
- Effective OHS programs should require minimal intervention by the Chief Safety Officer

NWT and Nunavut Drafting: This project concerns two jurisdictions, the Northwest Territories and Nunavut. The project originated in the NWT and the draft regulations to date have referred primarily to the Northwest Territories. However, in its initial drafting and subsequent reviews the Committee always considered the fact that the final regulations must be equally applicable in Nunavut. Now that the substantive text is finalised, a separate draft has been prepared with the necessary changes to refer to Nunavut. The two versions are substantively the same; differences result from differences in other legislation referred to in the proposed regulations.

The Committee recognises that the final regulations made by the regulation making authorities in the two jurisdictions may vary somewhat from the draft proposed. Editing and translation processes may result in minor changes.

VI. Conclusion

The Safety Advisory Committee reviewed all stakeholder comments received from September 2010 to March 2011. The responses and review were set out in Volumes 1 and 2. The review and consideration of comments resulted in the revised version of the proposed regulations presented in this Volume 3.

The final draft in this volume has been edited from the revised draft in Volume 2, primarily to change all the section numbers and cross-references affected by the addition to or deletion of sections from the earlier drafts, but also to correct minor errors noted in that process. The two drafts are substantially the same.

Pursuant to subsection 26(4) of each *Safety Act* (for the Northwest Territories and Nunavut), the Safety Advisory Committee will be recommending to the Ministers that the revised proposed regulations contained in this volume be considered as a new set of regulations called the *Occupational Health and Safety Regulations*. This includes the repeal of all existing regulations made under each *Safety Act*.

PART TWO

Table of Concordance

This table may be used to identify corresponding sections in the consultation draft and Volume 2 and Volume 3. The first two columns are effectively the table of contents for the draft set out in Part Three.

Final Draft Headings 31-Jan-11	Sections			2010 Consultation Draft Headings 23-Jun-11
	Final Vol. 3 31-Jan-11	Vol. 2 7-Dec-11	Consultation Draft 23-Jun-11	
INTERPRETATION	1	1	1	INTERPRETATION
APPLICATION	2	2	2	APPLICATION
PART 1				PART 1
Preliminary Matters				Preliminary Matters
Giving notice to Chief Safety Officer	3	3	3	Giving notice to Chief Safety Officer
Generality of duties not limited	4	4	4	Generality of duties not limited
Codes of Practice	5	5	5	Codes of Practice
Certification by Professional Engineer	6	6	6	Certification by Professional Engineer
PART 2				PART 2
Hazard Assessment, Elimination and Control				Hazard Assessment, Elimination and Control
New Operations	7	7	7	New Operations
Accidents Causing Serious Bodily Injury	8	8	8	Accidents Causing Serious Bodily Injury
Dangerous Occurrences	9	9	9	Dangerous Occurrences
Medical Information	10	10	10	Medical Information
Report of Injuries	11	11	11	Report of Injuries
PART 3				PART 3
General Duties				General Duties

Final Draft Headings 31-Jan-11	Sections			2010 Consultation Draft Headings 23-Jun-11
	Final Vol. 3 31-Jan-11	Vol. 2 7-Dec-11	Consultation Draft 23-Jun-11	
General Duties of Employers	12	12	12	General Duties of Employers
General Duties of Workers	13	13	13	General Duties of Workers
Employment of Young Persons	14	14	14	Employment of Young Persons
-	-	15	15	Duty to Provide Information
-	-	16	16	Exemption
-	-	17	17	Duty of Employer to Provide Information
Duty of Employer to Inform	15	18	18	Duty of Employer to Inform
Supervision of Work	16	19	19	Supervision of Work
-	-	20	20	Supervisor's Certificate
-	-	21	21	Suspension or Cancellation of Supervisor's Certificate
Duty to Inform Workers	17	22	22	Duty to Inform Workers
-	-	23	23	Informal Meetings to be Documented
Training of Workers	18	24	24	Training of Workers
Workers' Contacts with Safety Officers	19	25	25	Workers' Contacts with Safety Officers
Biological Monitoring	20	26	26	Biological Monitoring
Occupational Health and Safety Program	21	27	27	Duty to Provide Occupational Health and Safety Program
-	-	28	28	Occupational Health and Safety Program
Examination of Plant	22	29	29	Examination of Plant
Identifying Mark of Approved Equipment	23	30	30	Identifying Mark of Approved Equipment
Maintenance and Repair of Equipment	24	31	31	Maintenance and Repair of Equipment
Boilers and Pressure Vessels	25	32	32	Boilers and Pressure Vessels
Prohibited Use of Compressed Air	26	33	33	Prohibited Use of Compressed Air
Inspection of Work Sites	27	34	34	Inspection of Work Sites
Investigation of Accidents Causing Serious Bodily	28	35	35	Investigation of Certain Accidents

Final Draft Headings 31-Jan-11	Sections			2010 Consultation Draft Headings 23-Jun-11
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Injury				
Preserving Scene of Accident Causing Death	29	36	36	Preserving Scene of Accident
Investigation of Dangerous Occurrences	-	37	37	Investigation of Dangerous Occurrences
Injuries Requiring Medical Treatment	30	38	38	Injuries Requiring Medical Treatment
Work Where Visibility Restricted	31	39	39	Work Where Visibility Restricted
Work on Ice Over Water	32	40	40	Work on Ice Over Water
-	-	41	41	Cold Weather Work
Working Alone or at Isolated Work Site	33	42	42	Working Alone or at Isolated Work Site
Harassment	34	43	43	Harassment
Violence	35	44	44	Violence
PART 4				PART 4
Committees and Representatives				Committees and Representatives
Establishment of Committees	36	45	45	Establishment of Committees
Composition of Committee	37	45.1		
Designation of Representative	38	46	46	Designation of Occupational Health and Safety Representative
Duty to Post Names	39	47	47	Duty to Post Names
Quorum and Certain Votes	40	48	48	Quorum
Frequency of Meetings	41	49	49	Frequency of Meetings
Minutes	42	50	50	Minutes
Co-chairpersons	43	51	51	Co-chairpersons
Special Meetings	44	51.1		
Meetings of Employers and Representatives	45	52	52	Meetings
Opportunity for Necessary Activities	46	53	53	Opportunity for Necessary Activities
Meetings Called by Safety Officer	47	54	54	Meetings Called by Safety Officer
-	-	55	55	Attendance of Safety Officer

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Duty to Inspect Work Site	48	56	56	Duty to Inspect Work Site
Representation During Inspection or Investigation	49	57	57	Representation During Inspection or Investigation
Training of Members and Representatives	50	58	58	Training of Members and Representatives
Replies by Employer	51	59	59	Replies by Employer
Communication by Safety Officer	52	60	60	Communication by Safety Officer
PART 5				PART 5
First Aid				First Aid
Interpretation	53	61	61	Interpretation
Application	54	62	62	Application
Provision of First Aid	55	63	63	Provision of First Aid
Multiple Employers	56	64	64	Multiple Employers
First Aid Attendants	57	65	65	First Aid Personnel
Certificates	58	66	66	Certificates of Qualification
First Aid Station	59	67	67	First Aid Station
First Aid Room	60	68	68	First Aid Room
First Aid Register	61	69	69	First Aid Register
Workers Being Transported	62	70	70	Workers Being Transported
First Aid Supplies and Equipment	63	71	71	First Aid Supplies and Equipment
Transportation of Injured Workers	64	72	72	Transportation of Injured Workers
Asphyxiation and Poisoning	65	73	73	Asphyxiation and Poisoning
Additional Provisions	66	74	74	Additional Provisions
PART 6				PART 6
General Health Requirements				General Health Requirements
Sanitation	67	75	75	Sanitation
Ventilation and Air Supply	68	76	76	Ventilation and Air Supply

Final Draft Headings 31-Jan-11	Sections			2010 Consultation Draft Headings 23-Jun-11
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Mechanical Ventilation	69	77	77	Mechanical Ventilation
Cleaning and Maintaining Ventilation Systems	70	78	78	Cleaning and Maintaining Ventilation Systems
Space	71	79	79	Space
Lighting	72	80	80	Lighting
Thermal Conditions	73	81	81	Thermal Conditions
Toilet Facilities	74	82	82	Toilet Facilities
Personal Washing	75	83	83	Personal Washing
Clothing	76	84	84	Clothing
Change and Shower Facilities	77	85	85	Change and Shower Facilities
Eating Areas	78	86	86	Eating Areas
Drinking Water	79	87	87	Drinking Water
Smoking	80	88	88	Smoking
Lifting and Handling Loads	81	89	89	Lifting and Handling Loads
Standing	82	90	90	Standing
Sitting	83	91	91	Sitting
Musculoskeletal Injury	84	92	92	Musculoskeletal Injury
Shift Work and Constant Effort and Exertion	85	93	93	Shift Work and Constant Effort and Exertion
Visually Demanding Tasks	86	94	94	Visually Demanding Tasks
Exposure Control Plan	87	95	95	Exposure Control Plan
PART 7				PART 7
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Suitable and Adequate Equipment	88	96	96	Suitable and Adequate Equipment
General Responsibilities	89	97	97	General Responsibilities
Respiratory Protective Devices	90	98	98	Respiratory Protective Devices
Inspection of Respiratory Protective Devices	91	99	99	Inspection of Respiratory Protective Devices

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Working in Dangerous Atmospheres	92	100	100	Working in Dangerous Atmospheres
Head Protection	93	101	101	Head Protection
Workers Using All-terrain Vehicles	94	102	102	Workers Using All-terrain Vehicles
Workers Using Bicycles	95	103	103	Workers Using Bicycles
Eye and Face Protectors	96	104	104	Eye and Face Protectors
Skin Protection	97	105	105	Skin Protection
Lower Body Protection	98	106	106	Lower Body Protection
Footwear	99	107	107	Footwear
Hand and Arm Protection	100	108	108	Hand and Arm Protection
Exposure to Hazardous Substances	101	109	109	Exposure to Hazardous Substances
Lifelines	102	110	110	Lifelines
Personal Fall Arrest System	103	111	111	Personal Fall Arrest System
Full Body Harness	104	112	112	Full Body Harness
Snap Hooks on Personal Fall Arrest System	105	113	113	Snap Hooks on Personal Fall Arrest System
Lanyards	106	114	114	Lanyards
Workers' Responsibilities	107	115	115	Workers' Responsibilities
Inspections	108	116	116	Inspections
Protection Against Drowning	109	117	117	Protection Against Drowning
PART 8				PART 8
Noise Control and Hearing Conservation				Noise Control and Hearing Conservation
Interpretation	110	118	118	Interpretation
General Duty	111	119	119	General Duty
Noise Reduction through Design and Construction of Buildings	112	120	120	Noise Reduction through Design and Construction of Buildings
Measurement of Noise Levels	113	121	121	Measurement of Noise Levels
-	-	-	122	Exposure to Noise

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Daily Exposure Between 80 dBA Lex and 85 dBA Lex	114	123	123	Daily Exposure Between 80 dBA Lex and 85 dBA Lex
Daily Exposure Greater than 85 dBA Lex	115	124	124	Daily Exposure Greater than 85 dBA Lex
-	-	-	125	Audiometric Testing
Hearing Conservation Plan	116	126	126	Hearing Conservation Plan
PART 9				PART 9
Safeguards, Storage, Warning Signs and Signals				Safeguards, Storage, Warning Signs and Signals
Interpretation	117	127	127	Interpretation
Protection Against Falling	118	128	128	Protection Against Falling
Fall Protection Plan	119	129	129	Fall Protection Plan
Control Zone	120	130	130	Control Zone
Anchor Points and Anchor Plates	121	131	131	Anchor Points and Anchor Plates
Elevated Conveyors	122	132	132	Elevated Conveyors
Wire Mesh	123	133	133	Wire Mesh
Protection Against Falling Objects	124	134	134	Protection Against Falling Objects
Protection from Objects Falling from Scaffolds	125	135	135	Protection from Objects Falling from Scaffolds
Handrails	126	136	136	Handrails
Guardrails	127	137	137	Guardrails
Toeboards	128	138	138	Toeboards
Openings in Floors and Roofs	129	139	139	Openings in Floors and Roofs
Building Shafts	130	140	140	Building Shafts
Safety Nets	131	141	141	Safety Nets
Storage Tanks	132	142	142	Storage Tanks
Mounting of Tires	133	143	143	Mounting of Tires
Storage of Materials	134	144	144	Storage of Materials
Pallets and Storage Racks	135	145	145	Pallets and Storage Racks

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Designated Signallers	137	147	147	Designated Signallers
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-	-	-	149	Traffic Control
-	-	-	150	Clear View for Powered Mobile Equipment
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Operation by Worker	141	152	152	Operation by Worker
Operating Controls	142	153	153	Operating Controls
Unattended and Suspended Machines	143	154	154	Unattended and Suspended Machines
Safeguards	144	155	155	Safeguards
Warning Systems	145	156	156	Warning Systems
Locking Out	146	157	157	Locking Out
Cleaning or Maintaining Machine in Motion	147	158	158	Cleaning or Maintaining Machine in Motion
Belts	148	159	159	Belts
Air-actuated Fastening Tools	149	160	160	Air-actuated Fastening Tools
Explosive-actuated Fastening Tools	150	161	161	Explosive-actuated Fastening Tools
Airless Spray Units	151	162	162	Airless Spray Units
Grinding Machines	152	163	163	Grinding Machines
Chainsaws	153	164	164	Chainsaws
Circular Saws	154	165	165	Circular Saws
Power Fed Circular Saws	155	166	166	Power Fed Circular Saws
Band Saws	156	167	167	Band Saws

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Push Blocks and Push Sticks	158	169	169	Push Blocks and Push Sticks
Hand-fed Planers and Joiners	159	170	170	Hand-fed Planers and Joiners
PART 11				PART 11
Powered Mobile Equipment				Powered Mobile Equipment
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Operation by Competent Workers	161	172	172	Operation by Competent Workers
Visual Inspection	162	173	173	Visual Inspection
Inspection and Maintenance	163	174	174	Inspection and Maintenance
Requirements for Powered Mobile Equipment	164	175	175	Requirements for Powered Mobile Equipment
Maintenance of Powered Mobile Equipment	165	176	176	Maintenance of Powered Mobile Equipment
Use of Seat Belt or Restraint by Operator	166	177	177	Use of Seat Belt or Restraint by Operator
Protection Against Shifting of Load	167	178	178	Protection Against Shifting of Load
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Minimum Requirements for Level 1 First Aid Qualification	E	D	D	Minimum Requirements for Level 1 First Aid Qualification
First Aid Services Authorized by a Level 1 Qualification	F	D.1	-	
Minimum Requirements for Level 2 First Aid Qualification	G	E	E	Minimum Requirements for Level 2 First Aid Qualification
First Aid Services Authorized by a Level 2 Qualification	H	E.1	-	
-	-	-	F	Minimum Requirements for Level 3 First Aid Qualification
Required Contents of First Aid Box	I	G	G	Required Contents of a First Aid Box
Additional Supplies and Equipment - Level 1 Qualification	J	H	H	Additional Supplies and Equipment - Level 1 Qualification
Additional Supplies and Equipment - Level 2 Qualification	K	I	I	Additional Supplies and Equipment - Level 2 Qualification
-	-	-	J	Additional Supplies and Equipment - Level 3 Qualification
Minimum Number of Toilets	L	K	K	Minimum Number of Toilets
-	-	-	L	Minimum Training Requirements for Competent Operator of Power Mobile Equipment (PME)
Minimum Dimensions of Members of Light Duty Wooden Scaffolds (Height Less than 6 Metres)	M	M	M	Minimum Dimensions of Members of Light Duty Wooden Scaffolds (Height Less than 6 Metres)
Minimum Training Requirements for Competent Operator of a Crane	N	N	N	Minimum Training Requirements for Competent Operator of a Crane
Excavation and Trench Shoring	O	O	O	Excavation and Trench Shoring

Final Draft Headings 31-Jan-11	Sections			2010 Consultation Draft Headings 23-Jun-11
	Final Vol. 3 31-Jan-11	Vol. 2 7-Dec-11	Consultation Draft 23-Jun-11	
Hours of Work and Rest Periods for Work in Compressed or Rarefied Air	P	P	P	Hours of Work and Rest Periods for Work in Compressed Air
Notifiable Chemical and Biological Substances	Q	Q	Q	Notifiable Chemical and Biological Substances
Designated Chemical and Biological Substances	R	R	R	Designated Chemical Substances
Contamination Limits	S	S	S	Contamination Limits
Organ or Tissue Weighting Factors	T	S.1	-	
Effective Dose Limit	U	S.2	-	
Specific Equivalent Doses	V	S.3	-	
Radiation Warning Symbol	W	S.4	-	
Minimum Distances from Exposed Energized High Voltage Electrical Conductors	X	T	T	Minimum Distances from Exposed Energized High Voltage Electrical Conductors

PART THREE

Final Draft of Proposed Regulations

SAFETY ACT

OCCUPATIONAL HEALTH AND SAFETY REGULATIONS

The Commissioner, on the recommendation of the Minister, under section 25 of the *Safety Act* and every enabling power, makes the *Occupational Health and Safety Regulations*.

INTERPRETATION

1. In these regulations,

"accident causing serious bodily injury" means an accident at a work site that

- (a) causes or may cause the death of a person, or
- (b) will require a person to be admitted to a hospital as an in-patient for a period of 24 hours or more;

"air-purifying respirator" means a respirator that removes airborne contaminants from the air inhaled by a worker;

"approved" means

- (a) approved by an agency acceptable to the Chief Safety Officer for use under the conditions specified by the agency, or
- (b) approved conditionally or otherwise by a certificate of the Chief Safety Officer;

"atmosphere-supplying respirator" means a respirator that delivers clean breathing air to a worker from a compressor or a cylinder, an SCBA, whether closed or open circuit, or a combination of SCBA and supplied air;

"borehole" means a mechanically drilled hole in the ground;

"building shaft" means a continuous vertical space substantially enclosed on all sides that extends for two or more floors, and includes an elevator shaft, a ventilation shaft, a stairwell and a service shaft;

"competent" means possessing knowledge, experience and training to perform a specific duty;

"competent worker", with respect to a particular task or duty, includes a worker who is being trained to perform that task or carry out that duty and who is under close supervision during that training;

"conductor" includes a wire, cable or other metal component installed for the purpose of conveying electric current from one piece of equipment to another or to ground;

"confined space" means an enclosed or partially enclosed space that is not designed or intended for continuous human occupancy with a restricted means of entry or exit;

"connecting linkage" means a lanyard, safety hook, cable or connector inserted between a personal fall arrest system and the D-ring on a worker's full-body harness;

"construction" means an erection, alteration, renovation, repair, dismantlement, demolition, structural maintenance or painting of a structure, and includes land clearing, earthmoving, grading, excavating, trenching, digging, boring, drilling, blasting and concreting.

"controlled product" means any product, material or substance specified by the regulations made under paragraph 15(1)(a) of the *Hazardous Products Act* (Canada) to be included in any of the classes listed in Schedule II of that Act;

"container" means a bag, barrel, bottle, box, can, cylinder, drum, storage tank or similar package or receptacle;

"contaminant" means chemical, biological or radiological material in a concentration that will likely endanger the health and safety of a worker if it is inhaled, ingested or absorbed;

"dangerous occurrence" means an occurrence that does not result in, but could have resulted in, an accident causing serious bodily injury, and includes

- (a) the structural failure or collapse of
 - (i) a structure, scaffold, temporary falsework or concrete formwork, or
 - (ii) an excavated shaft, tunnel, caisson, coffer dam, trench or excavation,
- (b) the failure of a crane or hoist or the overturning of a crane or powered mobile equipment,
- (c) the accidental contact of an energized electrical conductor,
- (d) the bursting of a grinding wheel,
- (e) the uncontrolled spill or escape of a toxic, corrosive or explosive substance,
- (f) the premature detonation or accidental detonation of explosives,
- (g) the failure of an elevated or suspended platform, or
- (h) the failure of an atmosphere-supplying respirator;

"dBA" means the sound pressure level in decibels measured on the A scale of a sound level meter;

"designated signaller" means a worker designated pursuant to paragraph 147(1)(a) to give signals;

"emergency medical technician" or "EMT" means a person who

- (a) holds at least a valid Level 2 qualification,
- (b) has completed an approved course of emergency medical technologist training,
- (c) possesses an approved amount of experience as an emergency medical technician, and
- (d) is licensed by an approved agency;

"equipment" means any mechanical or non-mechanical article or device, and includes any machine, tool, appliance, apparatus, implement, service or utility, but does not include the personal property owned by an individual unless that property is used in the carrying on of any work;

"escape respirator" means an atmosphere-supplying respirator or an air-purifying respirator that is designed to be used by a worker for escape purposes only;

"excavated shaft" means a passage dug out into the ground, the longest dimension of which exceeds 1.5 m and of which the acute angle between the axis of the longest dimension and the vertical is less than 45°;

"excavation" means any dug-out area of ground other than a trench, tunnel or excavated shaft;

"first aid" means immediate assistance given in case of injury until medical aid has been obtained;

"first aid attendant" means a holder of a valid

- (a) first aid qualification,
- (b) licence or approval as an emergency medical technician, or
- (c) licence, certificate or other qualification that, in the opinion of the Chief Safety Officer, is equivalent to or superior to a qualification set out in paragraphs (a) to (b);

"first aid qualification" means a qualification in first aid issued by an approved agency to a person who has followed a course of instruction set out in

- (a) Schedule E for a Level 1 qualification, or
- (b) Schedule G for a Level 2 qualification;

"forklift" means a self-propelled machine that has a power operated upright, angled or telescoping lifting device that can raise and lower a load for the purpose of transporting or stacking;

"full-body harness" means a safety device that is capable of suspending a worker without causing the worker to bend at the waist, and consists of straps that pass over the worker's shoulders and around the worker's legs, an upper dorsal suspension assembly and all integral hardware;

"hand tool" means hand-held equipment that depends on the energy of the worker for its direct effect and it does not have a pneumatic, hydraulic, electrical or chemical energy source for its operation;

"harmful" means known to cause harm or injury;

"hazardous" means likely to cause harm or injury in certain circumstances;

"hazardous substance" means a controlled product or any other product, material or substance that is hazardous;

"HEPA filter" means a high-efficiency particulate aerosol filter that is at least 99.97% efficient in collecting a 0.3 µm aerosol;

"high hazard work" means work activity described in Schedule A;

"highway" means a highway as defined in the *Motor Vehicles Act*;

"hoist" means a machine that consists of a raising and lowering mechanism;

"injury" includes any disease and any impairment of the physical or mental condition of a person;

"instruct" means to give information and direction to a worker with respect to a particular subject-matter;

"isolated work site" means a work site

- (a) that is more than 2 hours' travel time from a hospital or medical facility under normal travel conditions using available means of surface transportation, or
- (b) for which transport by aircraft is the normal mode of transport;

"Level 1 qualification" means a certificate or certificates that

- (a) are issued by an agency, as defined in section 53, with respect to the successful completion of a first aid training course and a cardiopulmonary resuscitation training course that meet the minimum requirements for course duration and content set out in Schedule E, and
- (b) qualify the holder to perform the services set out in Schedule F;

"Level 2 qualification" means a certificate or certificates that

- (a) are issued by an agency, as defined in section 53, with respect to the successful completion of a first aid training course and a cardiopulmonary resuscitation training course that meet the minimum requirements for course duration and content set out in Schedule G, and
- (b) qualify the holder to perform the services set out in Schedule H;

"lifeline" means a length of rope or strap that is attached to a safe point of anchorage at one end or, in the case of a horizontal lifeline, at both ends to provide support and a guide for a personal fall arrest system or personnel lowering device;

"locked out" means to have isolated all energy sources from equipment, to have dissipated any residual energy in a system and to have secured the isolation by a device that is operated by a key or other process;

"low hazard work" means work of an administrative, professional or clerical nature that does not require substantial physical exertion or exposure to potentially hazardous conditions, work processes or substances;

"machine" means any combination of mechanical parts that transmits from one part to another or otherwise modifies force, motion or energy;

"maintained" means kept in an efficient and safe functioning condition by a system of regular examination, testing and servicing or repair;

"manufacturer's specifications" means

- (a) the written specifications, instructions or recommendations provided by the manufacturer of equipment or supplies that describe how the equipment or supplies are to be constructed, erected, installed, assembled, examined, inspected, started, operated, used, handled, stored, stopped, calibrated, adjusted, maintained, repaired or dismantled, or
- (b) an instruction, maintenance and operating manual, including any diagrams, for equipment or supplies;

"medical professional" means a person who practises any of the healing arts pursuant to an enactment;

"personal fall arrest system" means personal protective equipment that provides a means of safely arresting the fall of a worker and that, subsequent to the arrest of the fall, does not by itself permit the further release or lowering of the worker;

"personal protective equipment" means any clothing, device or other article that is intended to be worn or used by a worker to prevent injury or to facilitate rescue;

"personnel lowering device" means a device that provides a means of lowering a worker from a height at a controlled rate of descent;

"powered mobile equipment" means a self-propelled machine or a combination of machines, including a prime mover, that is designed to manipulate or move materials or to provide a work platform for workers;

"professional engineer" means a professional engineer as defined in subsection 1(1) of the *Engineers and Geoscientists Act*;

"qualified" means possessing a recognized degree, a recognized certificate or recognized professional standing and demonstrating, by knowledge, training and experience, an ability to deal with problems related to a particular subject-matter, work or project;

"representative" means the occupational health and safety representative designated under section 38;

"respiratory protective device" means a device that is designed to protect a wearer from inhaling a hazardous atmosphere, and includes an atmosphere-supplying respirator, an air-purifying respirator and an escape respirator;

"safeguard" means a guard, shield, wire mesh, guardrail, gate, barrier, safety net, handrail or other similar equipment that is designed to protect the safety of workers, but does not include personal protective equipment;

"SCBA" means self-contained breathing apparatus;

"specifications" other than manufacturer's specifications, includes written or printed instructions, procedures, drawings or other documents of a professional engineer or employer relating to equipment, supplies, a work process or an operation;

"supervisor" means an individual who is authorized by an employer to oversee or direct workers;

"train" means to give information and explanation to a worker with respect to a particular subject-matter and require a practical demonstration that the worker has acquired knowledge or skill related to the subject-matter;

"trench" means an elongated dug-out area of land where its depth exceeds its width at the bottom;

"tunnel" means an underground passage that has an incline of not more than 45° from the horizontal;

"vehicle" means a machine in, on or by which a person or thing may be transported and includes a unit of powered mobile equipment;

"work" and "at work" means

- (a) the time during which a worker is engaged in work for an employer, or
- (b) the time that a self-employed person devotes to work as a self-employed person;

APPLICATION

2. These regulations do not apply to any activity carried on in a mine, as defined in section 1 of the *Mine Health and Safety Act*.

PART 1

PRELIMINARY MATTERS

Giving Notice to Chief Safety Officer

3. (1) Subject to subsection (3), where these regulations require a notice to be given to the Chief Safety Officer, the notice must be in a form approved by the Chief Safety Officer.

(2) Notice is deemed not to have been given pursuant to subsection (1) until the notice is actually received by the Chief Safety Officer.

(3) In the case of a notice required by subsections 7(1) or (2), an employer shall first give notice by telephoning a safety officer and, in addition, give notice in the manner set out in subsection (1).

Generality of Duties Not Limited

4. (1) A specific duty imposed by these regulations does not limit the generality of any other duty imposed by the Act or other regulations made pursuant to the Act.

(2) A provision of these regulations that prohibits a worker from carrying out a specified action applies, with any necessary modification, to an employer.

(3) A provision of these regulations that requires an employer to ensure that a worker carries out or refrains from carrying out a specified action is deemed to require an employer to carry out or refrain from carrying out that action .

(4) Where a provision of these regulations imposes a duty or requirement on more than one person, the duty or requirement is meant to be imposed primarily on the person with the greatest degree of control over the matters that are the subject of the duty or requirement.

(5) Despite subsection (4) but subject to subsection (7), if the person with the greatest degree of control fails to comply with a provision described in subsection (4), the other persons are not relieved of the obligation to comply with the provision if it is possible for them to comply, and they shall comply with the provision.

(6) If the person with the greatest degree of control complies with a provision described in subsection (4), the other persons are relieved of the obligation to comply with the provision

- (a) only for the time in which the person with the greatest degree of control is in compliance with the provision;

- (b) only if simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense; and
- (c) only if the health and safety of workers is not put at risk by compliance by only one person.

(7) If the person with the greatest degree of control fails to comply with a provision described in subsection (4) but one of the other persons complies with the provision, the other persons, if any, to whom the provision applies, are relieved of the obligation to comply with the provision in the circumstances set out in paragraphs (6)(1)(a) to (c), with any necessary modification.

(8) If a provision of these regulations imposes a duty or requirement on a person to ensure that another person carries out or refrains from carrying out a specified action, the person on whom the duty or requirement is placed has complied with the provision if that person establishes that he or she took all reasonable steps to ensure that the second person carried out or refrained from carrying out the specified act.

Codes of Practice

5. The Chief Safety Officer may consult with industry and others prior to approving and issuing a code of practice under subsection 18(3) of the Act.

Certification by Professional Engineer

6. If a provision in these regulations is required to be certified by a professional engineer, the certification must be in writing and must bear the official stamp or seal of the engineer.

PART 2

REPORTING

New Operations

7. (1) As soon as is reasonably possible, an employer shall give notice to the Chief Safety Officer of an intention to

- (a) begin work at a construction site, manufacturing or processing plant where 20 or more workers are to be employed for six months or more;
- (b) dig an excavation, a trench or an excavated shaft
 - (i) that is more than five metres deep, and
 - (ii) that a worker will be required or permitted to enter; or
- (c) dig a tunnel that a worker will be required or permitted to enter.

(2) An employer shall, before commencing any asbestos process listed in Schedule B, give notice to the Chief Safety Officer at least 30 days before the process commences.

(3) A notice required by subsection (1) or (2) must include

- (a) the legal name and business name of the employer;
- (b) the location of the intended site, work site, process or work site;
- (c) the mailing address of the employer;
- (d) the nature of the activity to be undertaken;
- (e) the number of workers to be employed;
- (f) the telephone number and fax number of the employer; and
- (g) the estimated starting date and expected duration of the activity .

(4) Where an employer cannot give the notice required under subsection (2) in the time required, the employer shall, as soon as is practicable,

- (a) give notice to the Chief Safety Officer of the work or process; and
- (b) provide an explanation why it was not given.

Accidents Causing Serious Bodily Injury

8. (1) An employer shall, as soon as is reasonably possible, give notice to the Chief Safety Officer of any accident causing serious bodily injury.

(2) The notice given pursuant to subsection (1) must include the following:

- (a) the name of each injured or deceased person;
- (b) the name of the employer of each injured or deceased worker;
- (c) the date, time and location of the accident;
- (d) the circumstances of the accident;
- (e) the apparent injuries;
- (f) the name, telephone number and fax number of the employer or a person designated by the employer to be contacted for additional information.

(3) An employer shall provide a copy of the notice required by subsection (1), without the name of the injured or deceased workers, to the Committee or representative.

Dangerous Occurrences

9. (1) An employer shall, as soon as is reasonably possible, give notice to the Chief Safety Officer of any dangerous occurrence that takes place at a work site, whether or not a worker sustains injury.

(2) The notice given pursuant to subsection (1) must include

- (a) the name of each employer, principal contractor and owner at the work site;
- (b) the date, time and location of the dangerous occurrence;
- (c) the circumstances related to the dangerous occurrence; and
- (d) the name, telephone number and fax number of the employer or a person designated by the employer to be contacted for additional information.

(3) An employer shall provide a copy of the notice required by subsection (1) to the Committee or representative.

Medical Information

10. (1) Subject to subsection 20(2), no person who acquires information of a personal medical nature with respect to a worker pursuant to these regulations shall disclose that information except

- (a) to the worker;
- (b) to a safety officer;
- (c) with the informed consent of the worker, to another person; or
- (d) where otherwise required by law.

(2) A medical professional who attends or treats a worker who is suffering from or believed to be suffering from a medical condition that is related to the present or past employment of the worker and is listed in Schedule C shall, without undue delay, inform the Chief Safety Officer of

- (a) the medical condition from which the worker is believed to be suffering; and
- (b) the name and address of the most recent work site where exposure related to the medical condition is believed to have occurred.

Annual Statistical Report

11. An employer shall provide to the Chief Safety Officer, or to any other agency that he or she may designate, a report setting out details of all person hours worked and all work-related injuries during the preceding year.

PART 3

GENERAL DUTIES

General Duties of Employers

12. The duties of an employer at a work site include
- (a) provision and maintenance of work site, systems of work and working environments that ensure, as far as is reasonably practicable, the health and safety of workers;
 - (b) arrangements for the use, handling, storage and transport of articles and substances in a manner that protects the health and safety of workers;
 - (c) provision of any information, instruction, training and supervision that is necessary to protect the health and safety of workers; and
 - (d) provision and maintenance of a safe means of entrance to and exit from the work site.

General Duties of Workers

13. A worker shall
- (a) use safeguards, safety appliances and personal protective equipment required by these regulations and any other regulations made pursuant to the Act; and
 - (b) follow safe work practices and procedures required by or developed pursuant to these regulations and the Act.

Employment of Young Persons

14. (1) An employer shall ensure that no person under the age of 16 years is employed or permitted to work
- (a) on a construction site;
 - (b) in a production process at a pulp mill, sawmill or woodworking establishment;
 - (c) in a production process at a smelter, foundry, refinery or metal processing or fabricating operation;
 - (d) in a confined space;
 - (e) in a forestry or logging operation;
 - (f) as an operator of powered mobile equipment, a crane or a hoist;
 - (g) where exposure to a chemical or biological substance is likely to endanger the health or safety of the person; or
 - (h) in power line construction or maintenance.
- (2) An employer shall ensure that no person under the age of 18 years is employed
- (a) as an occupational worker as defined in section 340;
 - (b) in an asbestos process as defined in section 365;
 - (c) in a silica process as defined in section 381; or
 - (d) in any activity for which these regulations or any other regulations made pursuant to the Act require the use of an atmosphere-supplying respirator.

Duty of Principal Contractor to Inform

15. (1) The principal contractor or, if there is no principal contractor, an employer shall give notice in writing to each other employer and worker at the work site, setting out
- (a) the name of the person who is supervising the work on behalf of the principal contractor or employer;
 - (b) any emergency facilities available for use by the workers; and
 - (c) the existence of the Committee at the work site and the means to contact the Committee.
- (2) Subsection (1) applies only where a Committee is established under section 36.

Supervision of Work

16. (1) An employer shall ensure that, at a work site,
- (a) all work is sufficiently and competently supervised;
 - (b) supervisors have sufficient knowledge of the following:
 - (i) any occupational health and safety program at the work site,
 - (ii) the safe handling, use, storage, production and disposal of hazardous substances,
 - (iii) the need for, and safe use of, personal protective equipment,
 - (iv) emergency procedures required by these regulations,
 - (v) any other matters that are necessary to ensure the health and safety of workers;
 - (c) all supervisors have completed an approved regulatory familiarization program; and
 - (d) supervisors comply with the Act and any regulations made pursuant to the Act that apply to the work site .
- (2) A supervisor shall ensure that workers comply with the Act and any regulations made pursuant to the Act that apply to the work site.

Duty to Inform Workers

17. An employer shall ensure that each worker
- (a) is informed of the provisions of the Act and any regulations pursuant to the Act that apply to the worker's work at the work site; and
 - (b) complies with the Act and those regulations.

Training of Workers

18. (1) An employer shall ensure that a worker is trained in those matters that are necessary to protect the health and safety of the worker at a work site when the worker
- (a) begins work at the work site; or
 - (b) is moved from one work activity or work site to another that differs with respect to hazards, facilities or procedures.
- (2) The training required by subsection (1) must include
- (a) procedures to be taken in the event of a fire or other emergency;
 - (b) the location of first aid facilities;
 - (c) identification of prohibited or restricted areas;
 - (d) precautions to be taken for the protection of the worker from hazardous substances;
 - (e) any procedures, plans, policies and programs that the employer is required to develop under the Act or any regulations made pursuant to the Act that apply to work at the work site; and
 - (f) any other matters that are necessary to ensure the health and safety of the worker at the work site.
- (3) An employer shall ensure that the time spent by a worker in the training required by subsection (1) is credited to the worker as time at work, and that the worker does not lose pay or benefits with respect to that time.
- (4) An employer shall ensure that no worker is permitted to work unless he or she is a competent worker.

Workers' Contacts with Safety Officers

19. (1) During an inspection or inquiry by a safety officer at a work site, an employer shall allow any of the following to accompany the safety officer:
- (a) a member of the Committee representing workers under section 37 or, in that member's absence, any other worker that the Committee may designate to represent workers;

- (b) the representative or, in the representative's absence, any other worker that the representative may designate to represent workers;
- (c) if there is no Committee, a worker designated by the trade union representing workers;
- (d) if there is no trade union representing workers, a worker designated by a safety officer.

(2) An employer shall permit any worker or group of workers to consult with a safety officer during an inspection or inquiry at a work site.

(3) An employer shall ensure that any time a worker consults with, assists or accompanies a safety officer during an inspection or inquiry, that time is credited to the worker and he or she does not lose pay or benefits.

Biological Monitoring

20. (1) In this section, "biological monitoring" means measuring a worker's total exposure to a hazardous substance that is present at a work site through the assessment of biological specimens collected from the worker.

- (2) If a worker is the subject of biological monitoring, an employer shall ensure that
 - (a) the worker is informed of the purposes and the results of the biological monitoring;
 - (b) at the worker's request, the detailed results of the biological monitoring are made available to a medical professional designated by the worker; and
 - (c) the aggregate results of the biological monitoring are given to the Committee or representative.

(3) The results of any biological monitoring carried out under these regulations are deemed to be medical information under section 10.

Occupational Health and Safety Program

- 21. (1) An employer shall provide an occupational health and safety program under this section if
 - (a) there are 20 or more workers employed at the work site; or
 - (b) the employer is so directed by the Chief Safety Officer.
- (2) An occupational health and safety program for a work site must include
 - (a) a statement of the employer's policy with respect to the protection and maintenance of the health and safety of the workers;
 - (b) an identification of existing and potential risks to the health or safety of workers at the work site, through a hazard recognition program, and measures, including procedures to respond to an emergency, that will be taken to reduce, eliminate and control those risks;
 - (c) an identification of internal and external resources, including personnel and equipment, that may be required to respond to an emergency;
 - (d) a statement of the responsibilities of the employer, the supervisors and the workers;
 - (e) a schedule for the regular inspection of the work site and of work processes and procedures;
 - (f) a plan for the control of any hazardous substance handled, used, stored, produced or disposed of at the work site and, where appropriate, the monitoring of the work environment;
 - (g) a plan for training workers and supervisors in safe work practices and procedures, including any procedures, plans, policies or programs that the employer is required to develop pursuant to the Act or any regulations made pursuant to the Act;
 - (h) a procedure for the investigation of accidents, dangerous occurrences and refusals to work pursuant to section 13 of the Act;
 - (i) a strategy for worker participation in occupational health and safety activities, including audit inspections and investigations of accidents, dangerous occurrences and refusals to work pursuant to section 13 of the Act; and
 - (j) a procedure to review and, where necessary, revise the occupational health and safety program at

specified intervals that are not greater than three years or whenever there is a change of circumstances that may affect the health or safety of workers.

- (3) An occupational health and safety program must be established and designed in consultation with
 - (a) the Committee or representative; and
 - (b) the workers.
- (4) An occupational health and safety program must be in writing and be made available to the workers.

Examination of Work site

- 22. An employer shall
 - (a) arrange for the regular examination of a work site under the control of the employer or owner to ensure, to the extent that is practicable, that the work site is capable of
 - (i) withstanding stress likely to be imposed on the work site, and
 - (ii) safely performing the functions for which the work site is used; and
 - (b) as soon as is practicable, correct an unsafe condition found in the work site and take steps to protect the health and safety of a worker who may be at risk until the unsafe condition is corrected.

Identifying Mark of Approved Equipment

- 23. An employer or supplier shall ensure any equipment and personal protective equipment that is required by these regulations to be approved by a named agency, has the seal, stamp, logo or similar identifying mark of the agency indicating its approval and is affixed to
 - (a) the equipment or personal protective equipment; or
 - (b) the packaging accompanying the equipment or personal protective equipment.

Maintenance and Repair of Equipment

- 24. (1) An employer shall ensure that all equipment is maintained at intervals that are sufficient to ensure the safe functioning of the equipment.
- (2) Where a defect is found in equipment, an employer shall ensure that, as soon as is practicable,
 - (a) steps are taken to protect the health and safety of any worker who may be at risk until the defect is corrected; and
 - (b) the defect is corrected by a competent worker or the equipment is replaced .
- (3) A worker who knows or has reason to believe that equipment under his or her control is not in a safe condition shall, as soon as is practicable,
 - (a) report the condition of the equipment to the employer; and
 - (b) repair the equipment, if the worker is authorized and competent to do so, replace the equipment or remove the equipment from service.

Boilers and Pressure Vessels

- 25. An employer shall ensure that any boiler or pressure vessel used at a work site is properly constructed and maintained even if there is no requirement to inspect or register it pursuant to the *Boilers and Pressure Vessels Act*.

Prohibited Use of Compressed Air

- 26. No employer shall require or permit compressed air to be directed towards a worker for
 - (a) the purpose of cleaning clothing or personal protective equipment used by that worker; or
 - (b) any other purpose if the use of compressed air may cause dispersion into the air of contaminants that may be harmful to workers.

Inspection of Work Sites

27. (1) An employer shall enable members of the Committee or the representative to inspect a work site at reasonable intervals determined by the Committee or representative and employer.

(2) On written notice by the Committee or representative of an unsafe condition or a contravention of the Act or any regulations made pursuant to the Act, the employer shall, as soon as is practicable,

- (a) take steps to protect the health and safety of any worker who may be at risk until the unsafe condition is corrected or the contravention is remedied;
- (b) take suitable action to correct the unsafe condition or remedy the contravention; and
- (c) inform the Committee or representative in writing
 - (i) of the steps and action the employer has taken or will take pursuant to paragraphs (a) and (b), or
 - (ii) if the employer has not taken steps and action pursuant to paragraphs (a) and (b), the reasons for not taking the steps or action.

Investigation of Certain Accidents

28. (1) Subject to section 29, an employer shall ensure that every accident causing serious bodily injury or dangerous occurrence is investigated as soon as is reasonably possible by

- (a) the Committee or representative and the employer ; or
- (b) where there is no Committee or representative available, the employer.

(2) After the investigation of an accident causing serious bodily injury or dangerous occurrence, an employer shall, in consultation with the Committee or representative or, where there is no Committee or representative available, the workers, prepare a written report that includes

- (a) a description of the accident or dangerous occurrence;
- (b) any graphics, photographs or other evidence that may assist in determining the causes of the accident or dangerous occurrence;
- (c) identification of any unsafe conditions, acts or procedures which contributed in any manner to the accident or dangerous occurrence;
- (d) an explanation of the causes of the accident or dangerous occurrence;
- (e) the immediate corrective action taken; and
- (f) any long-term corrective action that will be taken to prevent the occurrence of a similar accident or dangerous occurrence or the reasons for not taking action.

Preserving Scene of Accident Causing Death

29. (1) Unless expressly authorized by statute or by subsection (2), no person shall, except for the purpose of saving life or relieving human suffering, interfere with, destroy, carry away or alter the position of any wreckage, article, document or thing at the scene of or connected with an accident causing a death until a safety officer has completed an investigation of the circumstances surrounding the accident.

(2) Where an accident causing a death occurs and a safety officer is not able to complete an investigation of the circumstances surrounding the accident, the safety officer may, unless prohibited by statute, grant permission to move any wreckage, articles or other things at the scene or connected with the accident, to any extent that may be necessary to allow work to proceed, if he or she is satisfied that

- (a) graphics, photographs or other evidence showing details at the scene of the accident are made before the safety officer grants permission; and
- (b) the Committee or representative, if available, has inspected the site of the accident and agreed that things may be moved.

Injuries Requiring Medical Treatment

30. An employer shall

- (a) report to the Committee or representative or, where there is no Committee or representative available, the workers, any lost time injury at the work site that results in a worker receiving medical treatment; and
- (b) allow the Committee members or representative or, where there is no Committee or representative available, the workers, a reasonable opportunity to review the lost time injury report during normal working hours and without loss of pay or benefits.

Work Where Visibility Restricted

31. Where visibility in an area at a work site is restricted by smoke, steam or any other substance to the extent that a worker is at risk of injury, an employer shall not require or permit the worker to work in that area unless the employer provides the worker with an effective means of communication with another worker who is readily available to provide assistance in an emergency.

Work on Ice Over Water

32. (1) This section does not apply to

- (a) highways, as defined in section 1 of the *Motor Vehicles Act*, built and maintained by the Department of Economic Development and Transportation; or
- (b) roads that are built and maintained to an approved standard.

(2) Before a worker is required or permitted to work or travel on ice that is over water or over other material into which a worker could sink more than one metre, an employer shall have the ice tested to ensure that the ice will support the load that the work or travel will place on the ice.

- (3) The requirement of subsection (2) may be waived by the Chief Safety Officer if an employer or worker
 - (a) needs to work or travel over ice that is over water or over other materials more than one metre in depth; and
 - (b) satisfies the Chief Safety Officer that other measures have been taken to mitigate the risk to the worker should the ice fail to support the load.

Working Alone or at Isolated Work Site

33. (1) In this section, "work alone" means to work at a work site as the only worker at that work site, in circumstances where assistance is not readily available in the event of injury, ill health or emergency.

(2) Where a worker is required to work alone or at an isolated work site, an employer, in consultation with the Committee or representative or, where there is no Committee or representative available, the workers, shall identify the risks arising from the conditions and circumstances of the work at the work site.

(3) An employer shall take all reasonable measures to eliminate or reduce the risks identified under subsection (2), including the establishment of an effective communication system that consists of

- (a) radio communication;
- (b) phone or cellular phone communication; or
- (c) any other means that provides effective communication considering the risks involved.

Harassment

34. (1) In this section, "harassment" means, subject to subsections (4) and (5), a course of vexatious comment or conduct that is known or ought reasonably to be known to be unwelcome, and that constitutes a threat to the health or safety of a worker at a work site.

(2) An employer, in consultation with the Committee or representative and workers, shall develop and implement a policy statement to prevent and deal with harassment that includes the following:

- (a) a definition of harassment that is consistent with subsection (1).
- (b) a statement that every worker is entitled to employment free of harassment;
- (c) a commitment that the employer will make every reasonably practicable effort to ensure that no worker is subjected to harassment;
- (d) a commitment that the employer will take corrective action respecting any person under the employer's direction who subjects any worker to harassment;
- (e) an explanation of how harassment complaints may be brought to the attention of the employer;
- (f) a statement that the employer will not disclose the name of a complainant or an alleged harasser or the circumstances relating to the complaint to any person except where disclosure is
 - (i) necessary for the purposes of investigating the complaint or taking corrective action with respect to the complaint, or
 - (ii) required by law;
- (g) a description of the procedure that the employer will follow to inform a complainant and alleged harasser of the results of an investigation;
- (h) a statement that the employer's harassment policy is not intended to discourage or prevent a complainant from exercising any other legal rights pursuant to any other law.

(3) An employer shall make readily available for reference by workers a copy of the policy statement required by subsection (2).

(4) To constitute harassment for the purposes of subsection (1),

- (a) repeated conduct, comments, displays, actions or gestures must be established; or
- (b) a single, serious occurrence of conduct, or a single, serious comment, display, action or gesture, that has a lasting, harmful effect on the worker must be established.

(5) For the purpose of subsection (1), harassment does not include any reasonable action that is taken by an employer, or a manager or supervisor employed or engaged by an employer, relating to the management and direction of the employer's workers or the work site.

Violence

35. (1) In this section, "violence" means attempted, threatened or actual conduct of a person that causes or is likely to cause injury, and includes any threatening statement or behaviour that gives a worker reasonable cause to believe that he or she is at risk of injury.

(2) Work sites where a violent situation may reasonably be expected to occur include the following:

- (a) services provided by health care facilities as defined in section 464;
- (b) pharmaceutical dispensing services;
- (c) education services;
- (d) police services;
- (e) corrections services;
- (f) other law enforcement services;
- (g) security services;
- (h) crisis intervention and counselling services;
- (i) retail sales in establishments that are open between the hours of 11:00 p.m. and 6:00 a.m.;
- (j) financial services;
- (k) the sale of alcoholic beverages or the provision of premises for the consumption of alcoholic beverages;
- (l) taxi services;
- (m) transit services.

(3) An employer at a work site shall, where a violent situation has occurred or may reasonably be expected to occur, develop and implement a policy statement to deal with potentially violent situations after consultation with the Committee or representative or, where there is no Committee and no representative available, the workers.

(4) The policy statement required by subsection (3) must be in writing and must include

- (a) the employer's commitment to minimize or eliminate the risk;
- (b) the identification of the work site or work sites where violent situations have occurred or may reasonably be expected to occur;
- (c) the identification of any staff positions at the work site that have been, or may reasonably be expected to be, exposed to violent situations;
- (d) the procedure to be followed by the employer to inform workers of the nature and extent of risk from violence, including, except where the disclosure is prohibited by law, any information in the employer's possession related to the risk of violence from persons who have a history of violent behaviour and whom workers are likely to encounter in the course of their work;
- (e) the actions the employer will take to minimize or eliminate the risk, including the use of personal protective equipment, administrative arrangements and engineering controls;
- (f) the procedure to be followed by a worker who has been exposed to a violent incident to report the incident to the employer;
- (g) the procedure the employer will follow to document and investigate a violent incident reported under paragraph (f);
- (h) a recommendation that any worker who has been exposed to a violent incident consult the worker's medical professional for treatment or referral for post-incident counselling;
- (i) the employer's commitment to provide a training program for workers that includes
 - (i) the means to recognize potentially violent situations,
 - (ii) procedures, work practices, administrative arrangements and engineering controls that have been developed to minimize or eliminate the risk to workers,
 - (iii) the appropriate responses of workers to incidents of violence, including how to obtain assistance, and
 - (iv) procedures for reporting violent incidents.

(5) If a worker receives treatment or counselling from the worker's medical professional referred to in paragraph (4)(h) or attends a training program referred to in paragraph (4)(i), the employer shall ensure that the time spent receiving treatment and counselling is credited to the worker as time at work, and that the worker does not lose pay or benefits with respect to that time.

(6) An employer shall make readily available for reference by workers a copy of the policy statement required by subsection (3).

(7) An employer shall ensure that the policy statement required by subsection (3) is reviewed and, where necessary, revised every three years or whenever there is a change of circumstances that may affect the health or safety of workers.

PART 4

COMMITTEES AND REPRESENTATIVES

Establishment of Committees

36. An employer shall establish a Committee

- (a) at a work site at which 20 or more workers work or are likely to work for more than 90 days; or
- (b) if so directed by a safety officer.

Composition of Committee

37. An employer who is required to establish a Committee shall ensure that the Committee is composed as required under subsection 7(3) of the Act.

(2) An employer who is required to establish a Committee shall ensure that the Committee is composed as required under subsection (1).

Designation of Representative

38. (1) Where fewer than 20 workers work at a work site or there is no Committee, the employer shall designate at least one worker as the occupational health and safety representative for these workers.

(2) An occupational health and safety representative shall act in place of a Committee for the purposes of the Act and these regulations.

Duty to Post Names

39. An employer shall ensure that the name of each member of the Committee or of the representative is readily accessible to workers at the work site.

Quorum and Certain Votes

40. (1) A quorum consists of one-half of the members of a Committee, where

- (a) representatives of both employers and workers are present; and
- (b) at least one-half of the members present represent workers.

(2) Any business of a Committee that is transacted where a quorum is not present is not validly transacted, and any meeting of a Committee that is held where a quorum is not present is not a valid meeting of the Committee.

(3) Decisions of a Committee with respect to refusals to work pursuant to section 13 of the Act must be by unanimous vote of members of the committee who are present.

Frequency of Meetings

41. (1) Subject to subsection (2), a Committee shall

- (a) hold its first meeting within 14 days after being established;
- (b) hold three subsequent meetings at intervals not exceeding one month; and
- (c) after the third subsequent meeting in paragraph (b), holds regular meetings at intervals not exceeding three months.

(2) The Chief Safety Officer may require the Committee to meet more frequently than required under subsection (1) due to any of the following factors at the work site:

- (a) the existence of particular hazards or circumstances;
- (b) the complexity of the work carried out; or
- (c) the number of workers.

Minutes

42. A Committee shall

- (a) record minutes of each meeting and keep the minutes on file;
- (b) send a copy of the minutes to the Chief Safety Officer, if required by the Chief Safety Officer; and
- (c) post a copy of the minutes at a location that is readily accessible to workers at the work site.

Co-chairpersons

43. (1) At the first meeting of the Committee,

- (a) members of the Committee representing workers shall elect a worker co-chairperson from among their number; and
- (b) the employer shall appoint an employer co-chairperson from the members of the Committee representing the employer.

(2) An employer co-chairperson shall keep the employer informed of the activities, concerns and recommendations of the Committee and of any information addressed to the Committee.

(3) A worker co-chairperson shall keep the workers informed of the activities, concerns and recommendations of the Committee and of any information addressed to the Committee.

(4) An employer shall facilitate the discharge of the worker co-chairperson's duties during normal work hours by permitting meetings of workers or by other means that are appropriate in the circumstances.

Special Meetings

44. Either co-chairperson may call a special meeting of a Committee to deal with urgent concerns, imminent dangers to health or safety, investigations of accidents causing serious bodily injury or dangerous occurrences or refusals to work pursuant to section 13 of the Act.

Meetings of Employers and Representatives

45. (1) Where a representative is designated, an employer shall meet with the representative regularly to discuss health and safety matters.

(2) A representative may call a special meeting with an employer to deal with urgent concerns, imminent dangers to health or safety or investigations of accidents causing serious bodily injury or dangerous occurrences.

Opportunity for Necessary Activities

46. (1) An employer shall ensure that

- (a) the members of the Committee or the representative are allowed to examine any log book, inspection report or other record that the employer is required to keep at the work site pursuant to the Act or any regulations made pursuant to the Act;
- (b) the members of the Committee or the representative have reasonable opportunity, during normal working hours and without loss of pay or other benefits, to receive and investigate concerns, to inform workers of the provisions of the Act or any regulations made pursuant to the Act or to conduct other business necessary to the functioning of the Committee or the representative;
- (c) the members of the Committee have reasonable opportunity to hold a special meeting pursuant to section 44 at any time; and
- (d) the representative has reasonable opportunity to hold a special meeting pursuant to section 45 at any time.

(2) An employer shall ensure that a worker who participates in a regular meeting held pursuant to section 41, 44, 45 or 47 does not lose any pay or other benefits as a result of that participation.

Meetings Called by Safety Officer

47. A safety officer may call a meeting of a Committee, of several Committees jointly, of the co-chairpersons of committees or with a representative for the purpose of

- (a) ensuring the necessary functioning of the Committee, Committees or representative;
- (b) provide information to the Committee, Committees or representative; or
- (c) provide education concerning occupational health or safety at work to the Committee, Committees, co-chairpersons or representative.

Duty to Inspect Work Site

48. An employer shall ensure that the Committee or representative
- (a) performs at least one inspection of the work site every three months; and
 - (b) submits a written report of each inspection to the employer.

Representation During Inspection or Investigation

49. Where a safety officer inspects a work site or investigates an accident at a work site, he or she may require a Committee member or the representative to be present at the inspection or investigation.

Training of Members and Representatives

50. (1) Where a Committee is established at a work site, the employer shall ensure that the co-chairpersons of the Committee receive training respecting the duties and functions of the Committee.

(2) Where a representative is designated at a work site, the employer shall ensure that the representative receives training respecting the duties and functions of a representative.

(3) Where a member of a Committee or representative attends a training program, seminar or course of instruction on health and safety matters conducted or provided by the Commission or by an approved training agency, an employer shall credit the member's or representative's attendance as time at work and ensure that the member or representative loses no pay or other benefits.

Replies by Employer

51. The employer shall reply, in writing, to all recommendations made by the Committee or representative within a reasonable time after receipt of the recommendation.

Communication by Safety Officer

52. (1) In this section, "communication" includes any direction, notice or report.

(2) Where an employer receives a written communication from a safety officer, the employer shall make that communication available to the workers for at least 30 days after the date of receipt.

(3) Where a safety officer issues a written communication to an employer relating to the health and safety of workers, the employer shall ensure that a copy of the communication is sent to the Committee or representative.

PART 5

FIRST AID

Interpretation

53. In this Part,

"agency" means a body, person, association, society or other organization that is approved by the Chief Safety Officer and provides instruction by one or more competent instructors in first aid and cardiopulmonary resuscitation;

"close", in relation to a work site, means a work site that is not more than 30 minutes' travel time from a hospital or medical facility under normal travel conditions using available means of transportation;

"distant", in relation to a work site, means a work site that is more than 30 minutes' but not more than 2 hours' travel time from a hospital or medical facility under normal travel conditions using available means of transportation;

"instructor" means a person who holds a current certification as a first aid instructor that is issued by an approved agency;

"medical facility" means a medical clinic or office where a medical professional is always readily available.

Application

54. This Part does not apply to

- (a) a hospital, medical clinic, medical professional's office, nursing home or other health care facility as defined in section 464, where a medical professional is always readily available; or
- (b) a close work site at which the work performed is entirely low hazard work.

Provision of First Aid

55. Subject to section 56, an employer shall

- (a) provide the first aid attendants, supplies, equipment, facilities and transportation required by this Part to render prompt and appropriate first aid to workers at a work site;
- (b) in consultation with the Committee, representative or, where there is no Committee or representative available, with the workers, review the provisions of this Part;
- (c) if the provisions of this Part are not adequate to meet any specific hazard at a work site, provide additional first aid attendants, supplies, equipment and facilities that are appropriate for the hazard; and
- (d) ensure that, where a worker may be entrapped or incapacitated in a situation that may be dangerous to a person involved in the rescue operation,
 - (i) an effective written procedure for the rescue of that worker is developed, and
 - (ii) suitable first aid attendants and rescue equipment are provided.

Multiple Employers

56. (1) Where more than one employer has workers at a common work site

- (a) the employers may agree in writing to provide collectively the first aid attendants, supplies, equipment, facilities and transportation for injured workers required by this Part; or
- (b) a safety officer may, by notice in writing, require the employers to provide collectively the first aid attendants, supplies, equipment, facilities and transportation for injured workers required by this Part.

(2) Where subsection (1) applies, the total number of workers of all employers at the work site is deemed to be the number of workers at the work site.

First Aid Attendants

57. (1) An employer shall provide the first aid attendants and supplies set out in Schedule D for

- (a) the type of work carried out at the work site;
- (b) the distance of the work site from the nearest medical facility; and
- (c) the number of workers at the work site at any one time.

(2) An employer shall ensure that the first aid attendants required pursuant to subsection (1) have the qualifications set out in Schedule E or G, as the case may require.

(3) Where rescue personnel are required by these regulations to be provided at a work site, an employer shall ensure that at least one first aid attendant with a Level 1 qualification is readily available during working hours, in addition to what is required under subsection (1).

(4) Where an employer provides lodging for workers at or near a distant or isolated work site, the employer shall provide first aid attendants, supplies, equipment and facilities required as set out in Schedules D, I, J, and K based on the total number of workers at or near the work site, whether or not the workers are all working at any one time.

(5) An employer shall

- (a) allow a first aid attendant and any other worker that the first aid attendant needs for assistance to provide prompt and adequate first aid to a worker who has been injured or taken ill;
- (b) ensure that the first aid attendant and any worker assisting the first aid attendant have adequate time, with no loss of pay or other benefits, to provide first aid.

Certificates

58. (1) No certificate issued by an agency is valid for the purposes of this Part unless the certificate specifies the level of the qualification for which it is issued and the expiry date of the certificate.

- (2) A certificate that issued by an agency under this section is valid for a period not exceeding three years.

First Aid Station

59. (1) An employer shall provide and maintain for each work site a readily accessible first aid station that contains

- (a) a first aid box containing the supplies and equipment set out in Schedule I;
 - (b) a suitable first aid manual; and
 - (c) any other supplies and equipment required by these regulations.
- (2) An employer shall ensure that
- (a) the location of a first aid station is clearly and conspicuously identified; and
 - (b) at each first aid station, an appropriate emergency procedure is prominently displayed that includes
 - (i) an emergency telephone number list and other instructions for reaching the nearest fire, police, ambulance, hospital or other appropriate service, and
 - (ii) any written rescue procedure required by subparagraph 55(d)(i).

First Aid Room

60. Where there are likely to be 100 or more workers work at a distant or isolated work site at any one time, an employer shall provide a first aid room that

- (a) is of adequate size and cleanliness;
- (b) is provided with adequate lighting, ventilation and heating;
- (c) is equipped with
 - (i) a permanently installed sink, with hot and cold water,
 - (ii) the first aid supplies, documents and equipment required under this Part, and
 - (iii) a cot or bed with pillows;
- (d) is under the charge of a first aid attendant as required under this Part, and who is readily available to provide first aid; and
- (e) is used exclusively for the purposes of administering first aid.

First Aid Register

61. An employer shall ensure that

- (a) each first aid station and first aid room is provided with a first aid register;
- (b) the particulars of every first aid treatment administered or case referred to medical attention are recorded in the first aid register;
- (c) the first aid register is readily available for inspection by the Committee or representative; and
- (d) every first aid register no longer in use is retained for a period of not less than three years from the day on which the register ceased to be used.

Workers Being Transported

62. Where workers are being transported by an employer to a first aid station, medical clinic, medical

professional's office, hospital or other health care facility as defined in section 464, that is not close, the employer shall provide a first aid box that contains at least the supplies and equipment listed in Schedule I and that is readily available to the workers being transported.

First Aid Supplies and Equipment

63. (1) An employer shall ensure that
- (a) all first aid supplies and equipment are protected and kept in a clean and dry state; and
 - (b) no supplies, equipment or materials other than supplies and equipment for first aid are kept in the first aid box.
- (2) An employer shall, at a work site where a first aid attendant is required pursuant to section 57, provide the additional first aid supplies and equipment set out
- (a) in Schedule J where a first aid attendant with a Level 1 qualification is required; and
 - (b) in Schedule K where a first aid attendant with a Level 2 qualification is required.

Transportation of Injured Workers

64. (1) An employer shall ensure that a means of transportation for injured workers to a medical facility or hospital is available.
- (2) The following meet the requirements of subsection (1):
- (a) an ambulance service that is within 30 minutes' travel time from the ambulance base to the work site under normal travel conditions;
 - (b) a suitable means of transportation, having regard to the distance to be travelled and the risks to which workers are exposed, that affords protection against the weather and is equipped, where reasonably practicable, with a means of communication that permits contact with the medical facility or hospital to which the injured worker is being transported and with the work site.
- (3) If a stretcher is required to be provided pursuant to this Part, an employer shall ensure that the means of transportation provided pursuant to paragraph (2)(b) is capable of accommodating and securing an occupied stretcher.
- (4) An employer shall provide a means of communication to summon the transportation required by subsection (1).
- (5) Where a worker is seriously injured or, in the opinion of a first aid attendant, needs to be accompanied during transportation, an employer shall ensure that the worker is accompanied by a first aid attendant during transportation.

Asphyxiation and Poisoning

65. Where a worker is at risk of asphyxiation or poisoning, an employer shall ensure that all practicable emergency arrangements are made, prior to commencement of the work, for the rescue of the worker and for the prompt provision of antidotes, supportive measures, first aid, medical attention and any other arrangements that are appropriate to mitigate the risk of asphyxiation or poisoning to the health and safety of the worker.

Additional Provisions

66. A safety officer may, by notice in writing, require an employer to take additional measures beyond what is required in this Part to make first aid and emergency arrangements at a work site adequate if, in the opinion of the safety officer, first aid and emergency arrangements at a work site are inadequate.

PART 6 GENERAL HEALTH REQUIREMENTS

Sanitation

67. (1) An employer shall, to the extent that is reasonably practicable, ensure that a work site is sanitary and kept clean.

(2) Where a worker may be exposed to refuse, spills or waste materials that may pose a risk to a worker's health or safety, an employer shall ensure that the refuse, spill or waste material is removed by a suitable method from the work site as soon as is practicable.

Ventilation and Air Supply

68. An employer shall

- (a) ensure the adequate ventilation of a work site; and
- (b) to the extent that is reasonably practicable, render harmless, and prevent the accumulation of, any contaminants or impurities in the air by providing an adequate supply of clean and wholesome air and maintaining its circulation throughout the work site.

Mechanical Ventilation

69. (1) An employer shall

- (a) provide a mechanical ventilation system at a work site that is sufficient and suitable to protect the workers against inhalation of a contaminant and to prevent accumulation of the contaminant; and
- (b) ensure that the mechanical ventilation system is maintained and properly used, where any work, activity or process at the work site gives off
 - (i) a dust, fume, gas, mist, aerosol or vapour or other contaminant of a kind and quantity that is likely to be hazardous to workers, or
 - (ii) substantial quantities of contaminants of any kind.

(2) An employer who provides a mechanical ventilation system at a work site, whether required by subsection (1) or not, shall ensure that the system provides sufficient fresh and tempered air to replace the air exhausted by ventilation.

(3) An employer shall, where practicable, ensure that a mechanical ventilation system required by subsection (1)

- (a) includes local exhaust ventilation that is installed and maintained at or near the point of origin of the contaminant so as to effectively prevent the contaminant from entering the air of the work site; and
- (b) is equipped with a device that will provide a warning to workers when the system is not working effectively.

(4) An employer shall ensure that contaminants removed by a mechanical ventilation system required by subsection (1) are

- (a) exhausted clear of the work site; and
- (b) where reasonably practicable, prevented from entering any work site.

(5) An employer shall ensure that effective provision is made for the immediate protection of workers in the event of failure of a mechanical ventilation system required by subsection (1).

(6) Where an air cleaning system is used to clean recirculated air, an employer shall ensure that the air cleaning system is designed, installed and maintained to remove particulate and gaseous contaminants at a rate that is sufficient to protect the health and safety of workers.

Cleaning and Maintaining Ventilation Systems

70. (1) An employer shall ensure that
- (a) a mechanical ventilation system, including any humidifying equipment, is constructed and maintained to minimize the growth and dissemination of micro-organisms, insects and mites through the ventilation system; and
 - (b) where reasonably practicable, the components of a mechanical ventilation system are readily accessible for cleaning and inspection.
- (2) An employer shall ensure that a competent person inspects and maintains all parts of a mechanical ventilation system, cleans all louvers and replaces or adequately cleans all filters at intervals sufficient to ensure the efficient operation of the system.
- (3) An employer shall keep all ventilation openings free of any obstruction or source of contamination.
- (4) An employer shall ensure that a record of all inspections, maintenance and cleaning of a mechanical ventilation system required by this section
- (a) is made by the competent person who performs the work; and
 - (b) is readily available for examination by the Committee, representative or, where there is no Committee or representative available, the workers.

Space

71. An employer shall ensure that no part of a work site is overcrowded to a degree that may cause risk of injury to workers.

Lighting

72. (1) While workers are present at a work site, an employer shall provide lighting that is sufficient to protect the health and safety of workers and suitable for the work to be done at the work site.
- (2) An employer shall ensure that the illuminance of all parts of a work site where workers pass, is at least 50 lux.
- (3) Where failure of the regular lighting system is likely to create conditions dangerous to the health or safety of workers, an employer shall provide appropriate emergency lighting of at least 50 lux for a work site and exit routes from the work site.
- (4) An employer shall ensure that
- (a) light fixtures, windows and skylights providing light for work are, where practicable, kept clean and free from any obstruction, except for special treatment of light fixtures, windows or skylights to reduce heat or glare; and
 - (b) artificial light sources and reflective surfaces are positioned, screened or provided with a shade, where practicable, to prevent glare or the formation of shadows that cause discomfort or a risk of accident to a worker.

Thermal Conditions

73. (1) Subject to subsection (3), at an indoor work site, an employer shall provide and maintain thermal conditions, including air temperature, radiant temperature, humidity and air movement, that
- (a) are appropriate to the nature of the work performed;
 - (b) provide effective protection for the health and safety of workers; and
 - (c) provide reasonable thermal comfort for workers.
- (2) At an indoor work site where the thermal environment is likely to be a health or safety concern to the workers, an employer shall provide and maintain an appropriate and suitably located instrument for measuring the thermal conditions.

(3) Where it is not reasonably practicable to control thermal conditions or where work is being performed outdoors, an employer shall provide and maintain measures for

- (a) the effective protection of the health and safety of workers; and
- (b) the reasonable thermal comfort of workers.

(4) Where a worker is required to work in thermal conditions that are different from those associated with the worker's normal duties, an employer shall provide, and require the worker to use, suitable clothing or other personal protective equipment necessary to protect the health and safety of the worker.

Toilet Facilities

74. (1) An employer shall, to the extent that is reasonably practicable, ensure that suitable and readily accessible toilet facilities for workers

- (a) are provided at a work site, maintained and kept clean;
- (b) are sufficient in number for the number of workers at the work site at any one time; and
- (c) have adequate provision for privacy, heat, light and ventilation.

(2) Subject to subsections (3) to (5), the minimum number of toilet facilities required pursuant to subsection (1) is set out in Schedule L.

(3) Where toilet facilities are likely to be used by persons other than workers, an employer shall provide additional toilets that is proportionate to the number set out in Schedule L and, where use by those other persons is substantial and frequent, the employer shall provide separate toilet facilities for those other persons.

(4) Where there are more than ten workers and both male and female persons are employed at any time, an employer shall provide separate toilet facilities for workers of each sex in numbers that are proportionate to the numbers of male and female persons employed.

(5) Where more than 100 male persons work or are likely to work on any shift and the Chief Safety Officer is satisfied that sufficient urinal accommodations are provided, the minimum number of toilet facilities under subsection (2) may be reduced at the direction of the Chief Safety Officer.

(6) An employer shall ensure that each toilet facility required by this section

- (a) is used exclusively for the purposes for which the facility is designed;
- (b) is free from any obstacle or obstruction that could prevent the facility from being used;
- (c) is kept free of vermin;
- (d) is supplied with toilet tissue at all times and with easily cleanable, covered receptacles for waste materials; and
- (e) except in the case of a urinal, is equipped with an individual compartment and a door that can be locked from the inside.

Personal Washing

75. (1) An employer shall provide and maintain for the use of workers suitable facilities for personal washing that

- (a) are located near each toilet at a work site;
- (b) have a supply of clean hot and cold water or warm water, soap and clean towels or other suitable means of cleaning and drying;
- (c) have an easily cleanable, covered receptacle for waste materials;
- (d) are adequately heated, ventilated and lighted; and
- (e) are kept in a clean and neat condition.

(2) Water used in personal washing under subsection (1) must be potable.

Clothing

76. (1) Subject to subsection (2), an employer shall provide at a work site and maintain for the use of workers clean, appropriately located and suitable accommodation for street clothing that is not worn at work and for clothing worn at work.

(2) Where street clothing not worn at work is likely to become wet, dirty or contaminated from being kept in the same accommodation as clothing worn at work, the accommodation for street clothing must be separate from the accommodation provided for clothing worn at work.

(3) Where a worker's work clothing or skin is likely to be contaminated by hazardous substances, an employer shall

- (a) provide protective clothing and head cover appropriate to the work and hazard;
- (b) provide a suitable changing area; and
- (c) ensure that the protective clothing and head cover are handled and cleaned or disposed of in a manner that will prevent worker exposure to the hazardous substances.

(4) This section does not apply to work sites that were constructed prior to the coming into force of these regulations.

(5) This section and subsection (4) are repealed five years after the coming into force of these regulations.

Change and Shower Facilities

77. Where a worker's skin is likely to be contaminated by harmful substances as part of a regular work process at a work site, an employer shall

- (a) where reasonably practicable, provide and maintain suitable, adequate and clean change and shower facilities; and
- (b) allow sufficient time, during normal working hours without loss of pay or benefits, for the worker to use the change and shower facilities.

Eating Areas

78. (1) An employer shall provide sufficient, suitable areas that are kept clean, dry, thermally comfortable and reasonably quiet for workers to eat and drink during work breaks.

(2) At a work site where the substances used in the work or the work processes are dusty, dirty or otherwise likely to contaminate a worker's person, clothing or food, the employer shall provide an eating area that is separate from the work site and close to washing facilities.

Drinking Water

79. (1) An employer shall provide, at suitable points that are readily accessible to all workers, an adequate supply of clean and safe drinking water.

(2) Where the supply of drinking water at a work site is not piped, an employer shall

- (a) provide drinking water in suitable covered containers;
- (b) protect the drinking water from contamination; and
- (c) change the drinking water as often as is necessary to ensure that it is clean and safe to drink.

(3) Except where drinking water is supplied in an upward jet, an employer shall provide an adequate supply of clean cups near each supply of drinking water.

(4) Where it is necessary to identify a supply of drinking water, an employer shall clearly indicate the supply of drinking water with a sign that says "Drinking Water" or by another visual means.

(5) Where there is a supply of water at a work site that is unfit for drinking, an employer shall clearly indicate the supply of water with a permanently fixed, durable sign that says "Unfit for Drinking" or by another visual means.

Smoking

80. (1) An employer shall, where reasonably practicable, control the exposure of workers to environmental tobacco smoke at an enclosed work site.

(2) Subject to this section, an employer shall

- (a) prohibit smoking in an enclosed work site; and
- (b) prohibit smoking outside the enclosed work site within an area inside a 3 m radius of any entrance to or exit from the enclosed work site, if that area is under the control of the employer.

(3) Subject to this section, a worker employed at an enclosed work site shall not smoke in any area other than where expressly permitted by an employer.

(4) An employer may permit smoking in a designated smoking structure outside an enclosed work site, within an area inside a 3 m radius of an entrance to or exit from the enclosed work site, if smoke from the structure does not come into contact with workers entering or leaving the enclosed work site.

(5) If persons, other than workers employed at an enclosed work site, smoke and reside at the work site on a temporary or permanent basis, an employer shall not permit workers to work at the work site unless there is a designated smoking area that

- (a) is structurally separated from other areas of the enclosed work site;
- (b) is constructed so that smoke does not enter other areas of the enclosed work site; and
- (c) is clearly identified by signs or other effective means.

(6) If workers smoke and reside at an enclosed work site on a temporary or permanent basis, an employer shall designate a smoking area that

- (a) is structurally separated from other areas of the enclosed work site, including other break areas;
- (b) is constructed so that smoke does not enter other areas of the enclosed work site; and
- (c) is clearly identified by signs or other effective means.

(7) An employer shall not require a worker to enter a designated smoking structure or a designated smoking area unless

- (a) entrance into the designated smoking area is required to respond to an emergency that may endanger life, health or property;
- (b) entrance into the designated smoking area is required to investigate for illegal activity; or
- (c) smoke is effectively removed from the designated smoking area before the worker enters it.

Lifting and Handling Loads

81. (1) An employer shall ensure, where reasonably practicable, that suitable equipment is provided and used for the handling of heavy or awkward loads.

(2) Where the use of equipment is not reasonably practicable, an employer shall take all practicable means to adapt heavy or awkward loads to facilitate lifting, holding or transporting by workers or to otherwise minimize the manual handling required.

(3) An employer shall ensure that no worker engages in the manual lifting, holding or transporting of a load that, by reason of its weight, size or shape, or by any combination of these or by reason of the frequency, speed or manner in which the load is lifted, held or transported, is likely to be injurious to the worker's health or safety.

(4) An employer shall ensure that a worker who engages in the lifting, holding or transporting of loads receives appropriate training in safe methods of lifting, holding and carrying of those loads.

Standing

82. (1) Where workers are required to stand for long periods in the course of their work, an employer shall provide adequate anti-fatigue mats, footrests or other suitable devices to give relief to workers.

(2) Where wet processes are used, an employer shall ensure that reasonable drainage is maintained and that false floors, platforms, mats or other dry standing places are provided, maintained and kept clean.

Sitting

83. (1) Where a worker has reasonable opportunity for sitting without substantial detriment to his or her work, an employer shall provide and maintain appropriate seating to enable the worker to sit.

(2) An employer shall, where a substantial portion of any work can properly be done by a worker sitting, provide and maintain

- (a) a seat that is suitably designed, constructed, dimensioned and supported for the worker to do the work; and
- (b) where needed, a footrest that can readily and comfortably support the worker's feet.

Musculoskeletal Injury

84. (1) In this section, "musculoskeletal injury" means an injury or disorder of the muscles, tendons, ligaments, nerves, joints, bones or supporting vasculature that may be caused or aggravated by any of the following:

- (a) repetitive movement;
- (b) forceful exertion;
- (c) vibration;
- (d) mechanical compression;
- (e) sustained or awkward posture;
- (f) limitation on motion or action;
- (g) other ergonomic stressors.

(2) An employer shall regularly review the activities at the work site that may cause or aggravate musculoskeletal injuries, in consultation with the Committee, representative or, where there is no Committee or representative available, the workers.

(3) Where a risk of musculoskeletal injury is identified, an employer shall

- (a) inform each worker who may be at risk of developing musculoskeletal injury of that risk and of the signs and common symptoms of any musculoskeletal injury associated with that worker's work; and
- (b) provide effective protection for each worker who may be at risk, which may include
 - (i) providing equipment that is designed, constructed, positioned and maintained to reduce the harmful effects of an activity,
 - (ii) implementing appropriate work practices and procedures to reduce the harmful effects of an activity, and
 - (iii) implementing work schedules that incorporate rest and recovery periods, changes in workload or other arrangements for alternating work to reduce the harmful effects of an activity.

(4) An employer shall ensure that a worker who may be at risk of developing musculoskeletal injury is instructed in the safe performance of his or her work, including the use of appropriate work practices and procedures, equipment and personal protective equipment.

(5) Where a worker has symptoms of musculoskeletal injury, an employer shall

- (a) advise the worker to consult a medical professional who is registered or licensed pursuant to an Act to practise any of the healing arts; and
- (b) promptly review the activities of that worker and of other workers doing similar tasks to identify any cause of the symptoms and to take corrective measures to avoid further injury.

Shift Work and Constant Effort and Exertion

85. Where a worker works shifts or a worker's work demands constant and uninterrupted mental effort or constant and uninterrupted physical exertion, an employer, in consultation with the Committee, representative or, where there is no Committee or representative available, the workers, shall

- (a) assess the risks to the worker's health and safety caused by the worker's work; and
- (b) inform the worker of the nature and extent of the risks referred to in paragraph (a) and the ways to eliminate or reduce those risks.

Visually Demanding Tasks

86. (1) An employer shall identify any tasks that involve a potentially harmful visual demand on a worker, in consultation with the Committee or representative or, where there is no Committee or representative available, the workers.

(2) An employer shall

- (a) take all practicable steps to reduce harmful visual demands on a worker;
- (b) inform the worker of the risk of performing those tasks;
- (c) advise the worker to consult a medical professional or an optometrist if any persistent vision impairment, disability or visual strain results from performing the tasks;
- (d) permit the worker to attend the consultation referred to in paragraph (c) during normal working hours without loss of pay or benefits, where a worker cannot attend the consultation during the worker's time off work; and
- (e) reimburse the worker for reasonable costs of the consultation referred to in paragraph (c), where a worker cannot recover the costs of the consultation.

Exposure Control Plan

87. (1) In this section,

"engineering controls" means physical controls or barriers that isolate or remove an infectious disease hazard and include

- (a) medical devices approved by Health Canada that have engineered sharps injury protections,
- (b) sharps disposal containers,
- (c) needleless systems and needles with engineered sharps injury protections as defined under subsection 472(1), and
- (d) other devices that isolate or remove sharps hazards;

"expose" means harmful contact with an infectious material or organism from inhalation, ingestion, absorption or injection;

"exposure control plan" means an exposure control plan required pursuant to subsection (2);

"infectious material or organism" means an infectious material or organism that has been identified in an approved manner as an infectious disease hazard that poses a significantly increased exposure risk to a worker or self-employed person.

(2) If workers are required to handle, use or produce or be exposed to an infectious material or organism at a work site, an employer shall develop and implement an exposure control plan to eliminate or minimize worker exposure, in consultation with the Committee or representative or, where there is no Committee or representative, the workers.

(3) An exposure control plan must

- (a) be in writing;
- (b) identify any workers at the work site who may be exposed;

- (c) identify categories of tasks and procedures that may put workers at risk of exposure;
- (d) describe the ways in which an infectious material or organism can enter the body of a worker and the risks associated with that entry;
- (e) describe the signs and symptoms of any disease that may arise for a worker exposed at the work site;
- (f) describe infection control measures to be used, including
 - (i) vaccination,
 - (ii) engineering controls,
 - (iii) personal protective equipment,
 - (iv) safe work practices and procedures, and
 - (v) standard practices that incorporate universal precautions;
- (g) identify the limitations of the infection control measures described pursuant to paragraph (f);
- (h) set out procedures to be followed
 - (i) if there has been a spill or leak of an infectious material or organism,
 - (ii) if a worker has been exposed, or
 - (iii) if a worker believes that he or she has been exposed;
- (i) set out the methods of cleaning, disinfecting or disposing of clothing, personal protective equipment or other equipment contaminated with an infectious material or organism that must be followed and indicate who is responsible for carrying out those activities;
- (j) describe the training to be provided to workers who may be exposed and the means by which this training will be provided;
- (k) require the investigation and documentation, in a manner that protects the confidentiality of the exposed worker, of any work-related exposure incident, including the route of exposure and the circumstances in which the exposure occurred; and
- (l) require the investigation of any occurrence of an occupationally transmitted infection or infectious disease to identify the route of exposure and implement measures to prevent further infection.

(4) No employer shall allow a worker to undertake any tasks or procedures referred to in paragraph (3)(c) unless the worker has been trained with respect to the exposure control plan and the use of control measures appropriate for the task or procedure undertaken.

- (5) An employer shall review the adequacy of the exposure control plan and amend the plan if necessary,
- (a) at least every two years or as necessary to reflect advances in infection control measures, including engineering controls; and
 - (b) in consultation with the Committee or representative or, where there is no Committee or representative, the workers.

(6) An employer shall make a copy of the exposure control plan and any amendments to that plan readily available to every worker who may be exposed.

(7) An employer shall

- (a) inform workers who are required to handle, use or produce an infectious material or organism or who may be exposed at a work site
 - (i) of any vaccine recommended for workers with respect to that risk in the *Canadian Immunization Guide, Seventh Edition - 2006*, published by the Public Health Agency of Canada, as amended from time to time, and recommended by
 - (A) the Chief Medical Health Officer or a medical health officer appointed under the *Public Health Act*, or
 - (B) a medical professional with expertise in immunization or the control of communicable diseases, and

- (ii) of the risks associated with taking a vaccine referred to in subparagraph (i);
- (b) with the worker's consent, arrange for the worker to receive any vaccination recommended pursuant to subparagraph (a)(i) during the worker's normal working hours and reimburse the worker for any costs associated with receiving the vaccination; and
- (c) if a worker cannot receive a vaccination referred to in subparagraph (a)(i) during the worker's normal working hours, credit the worker's attendance for the vaccination as time at work and ensure that the worker does not lose any pay or benefits.

(8) If a worker has been exposed to blood or potentially infectious bodily fluids at a work site, an employer shall, with the consent of the worker and during the worker's normal working hours, arrange for immediate medical evaluation and intervention by a qualified person in an approved manner and for confidential post-exposure counselling.

(9) If a worker cannot receive medical evaluation, medical intervention or post-exposure counselling during the worker's normal working hours, an employer shall credit the worker's attendance for evaluation, intervention or counselling as time at work and shall ensure that the worker does not lose any pay or benefits.

(10) Nothing in these regulations prohibits an employer from purchasing supplies in bulk together with another employer but each employer is responsible for ensuring his or her compliance with these regulations.

PART 7

PERSONAL PROTECTIVE EQUIPMENT

Suitable and Adequate Equipment

88. (1) Where it is not reasonably practicable to protect the health and safety of workers by design of the work site and work processes, suitable work practices or administrative controls, an employer shall ensure that every worker wears or uses suitable and adequate personal protective equipment.

(2) Where personal protective equipment will not effectively protect a worker, an employer shall, where reasonably practicable, provide alternative work arrangements for the worker.

General Responsibilities

89. (1) Where an employer is required by these regulations or any other regulations made pursuant to the Act to provide personal protective equipment to workers, the employer shall

- (a) supply approved personal protective equipment at no cost to the workers;
- (b) ensure that the personal protective equipment is used by the workers;
- (c) ensure that the personal protective equipment is at the work site before work begins;
- (d) ensure that the personal protective equipment is stored in a clean, secure location that is readily accessible to workers;
- (e) ensure that each worker is aware of the location of the personal protective equipment and trained in its use;
- (f) inform the workers of the reasons why the personal protective equipment is required to be used and of the limitations of its protection; and
- (g) ensure that personal protective equipment provided to a worker
 - (i) is suitable and adequate and a proper fit for that worker,
 - (ii) is maintained and kept in a sanitary condition, and
 - (iii) is removed from use or service when damaged.

(2) Where an employer requires a worker to clean and maintain personal protective equipment, the employer shall ensure that the worker has adequate time during normal working hours without loss of pay or other benefits for this purpose.

(3) Where reasonably practicable, an employer shall make appropriate adjustments to the work procedures and the rate of work to eliminate or reduce the danger or discomfort to the worker that may arise from the worker's use of personal protective equipment.

(4) A worker who is provided with personal protective equipment by an employer shall

- (a) use the personal protective equipment; and
- (b) take reasonable steps to prevent damage to the personal protective equipment.

(5) Where personal protective equipment provided to a worker becomes defective or otherwise fails to provide the protection it is intended for, the worker shall

- (a) return the personal protective equipment to the employer; and
- (b) inform the employer of the defect or other reason why the personal protective equipment does not provide the protection that it was intended to provide.

(6) An employer shall immediately repair or replace any personal protective equipment returned to the employer pursuant to paragraph (5)(a).

Respiratory Protective Devices

90. (1) Where a worker is likely to be exposed to dust, fumes, gas, mist, aerosol or vapour or any airborne contaminant that may be present in any amounts that are harmful or offensive to the worker, an employer shall

- (a) provide an approved respiratory protective device, for use by the worker, that
 - (i) gives suitable and adequate protection to the worker from one or more airborne contaminants,
 - (ii) is the proper size for the worker's face,
 - (iii) where a tight fit is essential to the proper functioning of the respiratory protective device, makes an effective seal to the facial skin of the worker, and
 - (iv) where a tight fit is essential to ensure the worker is not exposed to one or more airborne contaminants that may pose a risk of significant harm to the worker, has been fit-tested by a competent person in an approved manner;
- (b) ensure that the respiratory protective device is regularly cleaned and maintained in an approved manner; and
- (c) ensure that the respiratory protective device is kept, when not in use, in a convenient and sanitary location in which the respiratory protective device is not exposed to extremes of temperature or to any contaminant that may inactivate the respiratory protective device.

(2) If a respiratory protective device as required by subsection (1) is provided to a worker, the employer shall ensure that the worker

- (a) has been trained by a competent person in the proper testing, maintenance, use and cleaning of the respiratory protective device and in its limitations;
- (b) can demonstrate that he or she
 - (i) understands the training provided pursuant to paragraph (a),
 - (ii) can test, maintain and clean the respiratory protective device, and
 - (iii) can use the respiratory protective device safely;
- (c) tests the respiratory protective device before each use;
- (d) is assessed according to an approved standard as being capable of wearing a respiratory protective device; and
- (e) is adequately informed respecting the reasons for the assessment required pursuant to paragraph (d).

(3) An employer shall ensure that the training required by paragraph (2)(a) includes practical experience by the worker in an uncontaminated environment.

(4) Where respiratory protective devices are used only for emergency purposes, an employer shall ensure that a worker who may be required to use a respiratory protective device is given semi-annual refresher training in its safe use.

(5) An employer shall ensure that the following records are kept as long as the worker is employed by the employer and made readily available for inspection and examination by the committee or the representative, as the case may be:

- (a) records respecting fit-testing for each worker that is completed pursuant to subparagraph (1)(a)(iv);
- (b) records respecting the results of assessments for each worker that are completed pursuant to paragraph (2)(d);
- (c) records respecting training completed by each worker pursuant to subsections (2) and (3).

(6) An employer shall ensure that records respecting the maintenance of atmosphere supplying respirators are kept and made readily available for inspection and examination by the committee or the representative as long as that worker is employed by the employer.

(7) A worker may, at any time, inspect and examine any records kept pursuant to subsection (5) or (6) that relate to the worker.

Inspection of Respiratory Protective Devices

91. An employer shall ensure that

- (a) any respiratory protective device for emergency use is thoroughly inspected by a competent person at least once a month and after each use;
- (b) the date of every inspection made pursuant to paragraph (a) and the name of the person who made the inspection are recorded and conspicuously displayed at the location where the respiratory protective device is stored; and
- (c) any defects identified during the inspection carried out pursuant to paragraph (a) are corrected immediately by a competent person or the respiratory protective device is taken out of service.

Working in Dangerous Atmospheres

92. (1) In this section, "immediately dangerous to life or health" means a condition in which a hazardous atmosphere exists to such an extent that a worker who is not using an approved respiratory protective device will suffer escape-impairing or irreversible health effects.

(2) Where a worker is required to enter an atmosphere that is immediately dangerous to life or health, an employer shall ensure that the worker is provided with and uses an approved atmosphere-supplying respirator that is

- (a) an open circuit SCBA that
 - (i) operates in a pressure demand or other positive pressure mode,
 - (ii) has a minimum rated capacity of 30 minutes,
 - (iii) is sufficiently charged to enable the worker to perform the work safely, and
 - (iv) is equipped with a low pressure warning device or an escape respirator;
- (b) an airline respirator equipped with a full facepiece that
 - (i) operates in a pressure demand or other positive pressure mode, and
 - (ii) has an auxiliary supply of air sufficient to allow the worker to escape in case of failure of the primary air supply equipment; or
- (c) a closed circuit SCBA.

(3) Where a worker is required to enter an atmosphere that is immediately dangerous to life or health, an employer shall ensure that

- (a) a second worker, suitably equipped and trained, is present and in communication with the worker at all times; and
- (b) suitably equipped personnel who are trained in rescue procedures and are fully informed of the hazards are readily available to rescue the endangered worker immediately if the worker's atmosphere-supplying respirator fails or the worker becomes incapacitated for any other reason.

(4) An employer shall ensure that compressed air in an atmosphere-supplying respirator used by a worker in an atmosphere that is immediately dangerous to the worker's life or health meets approved purity requirements.

Head Protection

93. (1) Where there is a risk of injury to the head of a worker, an employer shall ensure that the worker is provided with approved industrial head protection and require the worker to use it.

(2) Where a worker may contact an exposed energized electrical conductor, an employer shall provide, and require the worker to use, approved industrial head protection that is of adequate dielectric strength to protect the worker.

(3) Where a worker is required by these regulations to use industrial head protection, an employer shall ensure that the worker is provided with

- (a) a suitable liner where it is necessary to protect the worker from cold conditions; and
- (b) a retention system to secure the industrial head protection firmly to the worker's head where the worker is likely to work in conditions that may cause the head protection to dislodge.

(4) An employer shall ensure that any industrial head protection provided to a worker pursuant to these regulations is fluorescent orange or some other high visibility colour if visibility of the worker is necessary to protect the health and safety of the worker.

(5) An employer shall not require or permit a worker to use any industrial head protection that

- (a) is damaged or structurally modified;
- (b) has been subjected to severe impact; or
- (c) has been painted or has been cleaned with solvents.

Workers Using All-terrain Vehicles

94. (1) In this section,

"all-terrain vehicle" means an all-terrain vehicle as defined in the *All-terrain Vehicles Act*;

"towed conveyance" means any sled, cutter, trailer, toboggan or carrier that may be towed by an all-terrain vehicle.

(2) An employer shall ensure that every worker who is required or permitted to travel in or on an all-terrain vehicle or a towed conveyance is provided with and required to use

- (a) approved head protection; and
- (b) approved eye or face protectors if the all-terrain vehicle or towed conveyance does not have an enclosed cab.

(3) Subsection (2) does not apply where

- (a) the all-terrain vehicle is equipped with roll-over protective structures and enclosed by a cab that is an integral part of the vehicle; and
- (b) the worker is provided with a seat belt secured to the all-terrain vehicle and is required to use it.

(4) Where a worker is required by these regulations to use head protection while working in cold

conditions, the head protection must be equipped with a suitable liner and a cold weather face guard.

Workers Using Bicycles

95. An employer shall ensure that every worker who is required or permitted to travel on a bicycle is provided with and required to use approved head protection.

Eye and Face Protectors

96. (1) Where there is a risk of irritation or injury to the face or eyes of a worker from flying objects or particles, splashing liquids, molten metal or ultraviolet, visible or infrared radiation, an employer shall provide and require the worker to use an approved industrial eye or approved industrial face protector.

(2) An employer shall take all reasonable steps to ensure that a worker does not perform electric arc welding if another worker may be exposed to radiation from the arc, unless the other worker is using an approved industrial eye protector or is protected from the radiation by an approved screen.

(3) A worker shall not perform electric arc welding if another worker may be exposed to radiation from the arc, unless the other worker is using an approved industrial eye protector or is protected from the radiation by an approved screen.

(4) Where an industrial eye or face protector is required by these regulations to be provided or used, a worker shall not wear any contact lens.

Skin Protection

97. (1) Where there is a risk of injury to the skin of a worker from sparks, molten metal or radiation, an employer shall ensure that the worker is provided with and require the worker to use, approved protective clothing or covers or any other safeguard that provides equivalent protection for the worker.

(2) Where there is a risk of injury to the skin of a worker from fire or explosion, an employer shall provide the worker with, and require the worker to use, approved fire resistant clothing that

- (a) meets an approved industry standard; and
- (b) is appropriate to the risk.

(3) Where there is a risk of injury to the skin of an electrical worker from arc flash, an employer shall provide the electrical worker with, and require the electrical worker to use approved flash protection.

Lower Body Protection

98. Where a worker is at risk of a cut, puncture, irritation or abrasion to his or her lower body, an employer shall ensure that the worker uses safety pants or chaps that are appropriate for the work being performed.

Footwear

99. (1) Subject to this section, an employer shall ensure that

- (a) a worker uses footwear that is appropriate to the risks associated with the work site and the worker's work; and
- (b) a worker who may be at risk from a heavy or falling object or who may tread on a sharp object uses approved protective footwear.

(2) An employer shall

- (a) provide outer foot guards if there is substantial risk of a crushing injury to the foot of a worker; and
- (b) provide approved protective footwear if the feet of a worker may be endangered by hot, corrosive or toxic substances.

Hand and Arm Protection

100. (1) An employer shall provide, and require a worker to use, suitable and properly fitted hand or arm

protection to protect the worker from injury to the hand or arm, including

- (a) injury arising from contact with chemical biological substances;
- (b) injury arising from exposure to work processes that result in extreme temperatures;
- (c) injury arising from prolonged exposure to water; and
- (d) puncture, abrasion or irritation of the skin.

(2) Where a worker may contact an exposed energized high voltage electrical conductor, an employer shall provide, and require the worker to use, approved rubber insulating gloves and mitts and approved rubber insulating sleeves.

Exposure to Hazardous Substances

101. Where workers are routinely exposed to a hazardous substance, an employer shall provide, and require workers to use, protective clothing, gloves and eye wear or face shields that are adequate to prevent exposure of a worker's skin and mucous membranes to the hazardous substance.

Lifelines

102. (1) Unless otherwise specifically provided, an employer shall ensure that a lifeline

- (a) is suitable for the conditions in which the lifeline is to be used, having regard to factors including strength, abrasion resistance, extensibility and chemical stability;
- (b) is made of wire rope or synthetic material;
- (c) is free of imperfections, knots and splices, other than end terminations;
- (d) is protected by padding where the lifeline passes over sharp edges;
- (e) is protected from heat, flame or abrasive or corrosive materials during use;
- (f) is fastened to a secure anchor point that
 - (i) has a breaking strength of at least 22.2 kN, and
 - (ii) is not used to suspend any platform or other load; and
- (g) is maintained according to manufacturer's recommendations.

(2) Unless otherwise specifically provided, an employer shall ensure that there is a lifeline that meets the requirements of this section for every worker.

(3) Unless otherwise specifically provided, an employer shall ensure that a vertical lifeline required by these regulations has a minimum diameter of

- (a) 12 mm if the lifeline is made of nylon;
- (b) 15 mm if the lifeline is made of polypropylene; or
- (c) 8 mm if the lifeline is made of wire rope.

(4) An employer shall ensure that where a vertical lifeline is used

- (a) the lower end extends to the ground or to a safe landing; and
- (b) the lifeline is protected at the lower end to ensure that the line cannot be fouled by any equipment.

(5) Unless otherwise specifically provided, an employer shall ensure that a horizontal lifeline is

- (a) either
 - (i) designed and certified as safe by a professional engineer, or
 - (ii) manufactured to an approved standard; and
- (b) installed and used in accordance with the design or standard referred to in paragraph (a) and the manufacturer's recommendations.

Personal Fall Arrest System

103. (1) An employer shall ensure that a personal fall arrest system and connecting linkage required by these regulations are approved and maintained.

- (2) An employer shall ensure that a personal fall arrest system required by these regulations
- (a) prevents a worker from falling more than 1.2 m without the use of a shock absorber;
 - (b) where a shock absorber is used, prevents a worker from falling more than 2 m or the limit specified in the manufacturer's specifications whichever is less;
 - (c) applies a peak fall arrest force not greater than 8 kN to a worker; and
 - (d) is fastened to a lifeline or to a secure anchor point that has a breaking strength of 22.2 kN.

Full Body Harness

104. Where a full body harness is required by these regulations for the use of a worker, an employer shall ensure that

- (a) the full body harness and connecting linkage are approved and maintained;
- (b) the full body harness is properly fitted to the worker;
- (c) the worker is trained in the safe use of the full body harness;
- (d) all metal parts of the full body harness and connecting linkage are of drop-forged steel 22 kN proof tested;
- (e) a protective thimble is used to protect ropes or straps from chafing whenever a rope or strap is connected to an eye or a D-ring used in the full body harness or connecting linkage; and
- (f) the connecting linkage is attached to a personal fall arrest system, lifeline or secure anchor point to prevent the worker from fall more than 1.2 m.

Snap Hooks on Personal Fall Arrest System

105. Where a snap hook is used as an integral component of a personal fall arrest system, connecting linkage, full body harness or lifeline, an employer shall ensure that the snap hook is self-locking and is approved and maintained.

Lanyards

106. An employer shall ensure that a lanyard

- (a) is as short as work conditions permit;
- (b) is constructed of
 - (i) nylon, polyester or polypropylene rope or webbing, or
 - (ii) wire rope that is equipped with an approved shock absorbing device;
- (c) is equipped with suitable snap hooks; and
- (d) is approved and maintained.

Workers' Responsibilities

107. (1) Before using a lifeline or lanyard, a worker shall ensure that the lifeline or lanyard

- (a) is free of imperfections, knots and splices, other than end terminations;
- (b) is protected by padding where the lifeline or lanyard passes over sharp edges; and
- (c) is protected from heat, flame or abrasive or corrosive materials during use.

(2) Before using a vertical lifeline, a worker shall ensure that

- (a) the lower end extends to the ground or to a safe landing; and
- (b) the lifeline is protected at the lower end to ensure that the line cannot be fouled by any equipment.

(3) Before using a full body harness, a worker shall ensure that the full body harness

- (a) is properly adjusted to fit the worker securely; and
- (b) subject to subsection 280(5), is attached by means of a connecting linkage to a fixed anchor or a lifeline.

(4) A worker who uses a full body harness and connecting linkage shall ensure that the connecting linkage is attached to a personal fall arrest system, lifeline or a fixed anchor.

Inspections

108. (1) Where the use of a connecting linkage, personal fall arrest system, full body harness or lifeline is required by these regulations, an employer shall ensure that a competent person

- (a) inspects the connecting linkage, personal fall arrest system, full body harness or lifeline
 - (i) as recommended by the manufacturer, and
 - (ii) after the connecting linkage, personal fall arrest system, full body harness or lifeline has sustained fall arresting incident; and
- (b) determines whether the connecting linkage, personal fall arrest system, full-body harness or lifeline is safe for continued use.

(2) An employer shall ensure that a worker inspects the connecting linkage, personal fall arrest system, full body harness or lifeline before each use and that where a defect or unsafe condition that may create a hazard to a worker is identified in a safety belt, connecting linkage, personal fall arrest system, full body harness or lifeline,

- (a) steps are taken immediately to protect the health and safety of any worker who may be at risk until the defect is repaired or the unsafe condition is corrected; and
- (b) as soon as is reasonably practicable, the defect is repaired or the unsafe condition is corrected.

Protection Against Drowning

109. (1) In this section,

"buoyant apparatus" means a device that is capable of supporting the weight in water of a worker and that is constructed to

- (a) remain stable when floating on either side,
- (b) have no projections that would prevent the buoyant apparatus from sliding easily over the side of a boat or ship, and
- (c) require no adjustment before use;

"life jacket" means an approved device that is capable of keeping a worker's head above water in a face up position without effort by the worker;

"personal floatation device" means an approved device that is capable of keeping a worker's head above water without effort by the worker.

(2) Where a worker is required to work at a place from which the worker could fall and drown, and the worker is not protected by a guardrail, an employer shall

- (a) provide the worker with a life jacket and ensure that the worker uses it, and ensure that the rescue equipment and personnel described in subsection (3) are readily available;
- (b) provide the worker with a full body harness and lifeline and ensure that the worker uses them; or
- (c) ensure that a net is installed that is capable of safely catching the worker if the worker falls.

(3) The rescue equipment and personnel required by paragraph (2)(a) must consist of

- (a) a suitable boat equipped with a boat hook;

- (b) a buoyant apparatus attached to a nylon rope that is not less than 9 mm in diameter and not less than 15 m long; and
- (c) a sufficient number of properly equipped and trained workers to implement rescue procedures.

(4) An employer shall ensure that a life jacket or personal flotation device is provided for each worker who is transported by boat or works from a boat, and that each worker uses the life jacket or personal flotation device at all times when the worker is in the boat.

PART 8

NOISE CONTROL AND HEARING CONSERVATION

Interpretation

110. In this Part, "dBA L_{ex} " means the level of a worker's total exposure to noise in dBA, averaged over an entire workday and adjusted to an equivalent eight-hour exposure.

General Duty

111. (1) An employer shall ensure that all reasonably practicable means are used to reduce noise levels in all areas where workers may be required or permitted to work.

(2) The means to reduce noise levels pursuant to subsection (1) may include any of the following:

- (a) eliminating or modifying the noise source;
- (b) substituting quieter equipment or processes;
- (c) enclosing the noise source;
- (d) installing acoustical barriers or sound absorbing materials.

Noise Reduction Through Design and Construction of Buildings

112. An employer shall ensure that

- (a) all new work sites are designed and constructed so as to achieve the lowest reasonably practicable noise level;
- (b) any alteration, renovation or repair to an existing work site is made so as to achieve the lowest reasonably practicable noise level; and
- (c) all new equipment to be used at a work site is designed and constructed so as to achieve the lowest reasonably practicable noise level.

Measurement of Noise Levels

113. (1) In every area where workers are required or permitted to work and the noise level may frequently exceed 80 dBA, an employer shall ensure that

- (a) the noise level is measured in accordance with an approved method;
- (b) in consultation with the Committee or the representative, that a competent person evaluates the sources of the noise and recommends corrective action; and
- (c) the measurements, evaluation and recommendations are documented.

(2) An employer shall re-measure the noise level in accordance with subsection (1) where altering, renovating or repairing the work site, introducing new equipment to the work site or modifying any process at the work site may result in a significant change in noise levels or occupational noise exposure.

(3) An employer shall keep a record of the results of any noise level measurements conducted at the work site as long as the employer operates in Nunavut.

(4) On request, an employer shall make available to an affected worker a copy of the results of any measurements conducted.

(5) An employer shall ensure that any area in which the measurements taken pursuant to subsection (1) show noise levels in excess of 80 dBA is clearly marked by a sign indicating the range of noise levels.

Hearing Protection Required Daily Exposure Between 80 dBA L_{ex} and 85 dBA L_{ex}

114. Where a worker's occupational noise exposure is or is believed to be between 80 dBA L_{ex} and 85 dBA L_{ex} , an employer shall

- (a) inform the worker of the hazards of occupational noise exposure;
- (b) on the request of the worker, make available to the worker approved hearing protectors; and
- (c) train the worker in the selection, use and maintenance of the hearing protectors.

Daily Exposure Greater than 85 dBA L_{ex}

115. (1) Where a worker's occupational noise exposure equals or exceeds 85 dBA L_{ex} , an employer shall

- (a) establish and maintain an occupational health and safety program under section 21;
- (b) inform the worker of the hazards of occupational noise exposure;
- (c) take all reasonably practicable steps to reduce noise levels in all areas where the worker may be required or permitted to work;
- (d) minimize the worker's occupational noise exposure to the extent that is reasonably practicable; and
- (e) document steps taken pursuant to paragraphs (b) and (c).

(2) Where, in the opinion of an employer, it is not reasonably practicable to reduce noise levels or minimize a worker's occupational noise exposure to less than 85 dBA L_{ex} , the employer shall provide written reasons for that opinion to the Committee and, where there is no Committee, shall inform the workers of the reasons for that opinion.

(3) Where it is not reasonably practicable to reduce a worker's occupational noise exposure below 85 dBA L_{ex} or the noise level below 90 dBA in any area where a worker may be required or permitted to work, an employer shall

- (a) provide an approved hearing protector to the worker;
- (b) train the worker in the selection, use and maintenance of the hearing protector; and
- (c) arrange for the worker to have, at least once every 24 months during the worker's normal working hours, an audiometric test and appropriate counselling based on the test results under the direction of a medical professional or an audiologist who has a certificate in audiometric testing.

(4) Where a worker cannot attend an audiometric test referred to in paragraph (3)(c) during the worker's normal working hours, an employer shall credit the worker's attendance at the test as time at work and ensure that the worker does not lose any pay or other benefits.

(5) Where a worker cannot recover the costs of a audiometric test referred to paragraph (3)(c), an employer shall reimburse the worker for the costs of the test that, in the opinion of the Chief Safety Officer, are reasonable.

Hearing Conservation Plan

116. (1) Where 20 or more workers' occupational noise exposure exceeds or is believed to exceed 85 dBA L_{ex} , an employer shall, in consultation with the Committee

- (a) develop a hearing conservation plan; and
- (b) review and, where necessary, revise the hearing conservation plan every three years.

(2) An employer shall implement a hearing conservation plan developed pursuant to subsection (1) and appoint a supervisor to oversee the plan.

(3) A hearing conservation plan must be in writing and must include

- (a) the methods and procedures to be used in assessing the occupational noise exposure of workers;

- (b) the methods of noise control to be used, including engineering controls and administrative arrangements;
- (c) the selection, use and maintenance of hearing protectors;
- (d) a plan to train workers in the hazards of excessive exposure to noise and the correct use of control measures and hearing protectors;
- (e) the maintenance of exposure records;
- (f) the requirements for audiometric tests; and
- (g) a schedule for reviewing the hearing conservation plan and procedures for conducting the review.

(4) An employer shall make a copy of a hearing conservation plan readily available for reference by workers.

PART 9

SAFEGUARDS, STORAGE, WARNING SIGNS AND SIGNALS

Interpretation

117. In this Part, "toeboard" means a low vertical guard that is located at the outer edge of a platform, scaffold, floor, stair or walkway and that is designed to prevent materials or equipment from falling over the edge.

Protection Against Falling

118. (1) In this section and sections 119 to 121,

"anchor point" or "anchor plate" means a secure connecting point capable of safely withstanding the impact forces applied by a fall protection system;

"control zone" means the area within 2 m of an unguarded edge of a level, elevated work surface of 3 m or more in height;

"fall protection system" means

- (a) a control zone as required pursuant to section 120,
- (b) a personal fall arrest system,
- (c) a safety net, or
- (d) a travel restraint system;

"permanent" means intended and designed to last indefinitely;

"similar barrier" means any barrier that the employer can demonstrate provides a level of protection that is at least equivalent to a guardrail;

"temporary" means intended and designed

- (a) not to last indefinitely, and
- (b) to last not more than one year;

"travel restraint system" means a system that prevents a worker from travelling to the edge of a structure or to a work position from which the worker could fall.

(2) An employer shall ensure that workers use a fall protection system at a work site where

- (a) a worker may fall 3 m or more; or
 - (b) there is a possibility of injury if a worker falls less than 3 m.
- (3) An employer shall ensure that a worker at a permanent work site is protected from falling by a guardrail or similar barrier if the worker may fall a vertical distance of more than 1.2 m and less than 3 m.
- (4) Despite subsection (3), where the use of a guardrail or similar barrier is not reasonably practicable, an employer shall ensure that a worker uses a travel restraint system.
- (5) Despite subsection (4), where the use of a travel restraint system is not reasonably practicable, an employer shall ensure that a safety net or control zone or other equally effective means that protects the worker from falling is used.
- (6) Subsection (2) does not apply to competent workers who are engaged in
- (a) installing or attaching a fall protection system to the anchor point;
 - (b) removing or disassembling the associated parts of a fall protection system when it is no longer required; or
 - (c) activities within the normal course of business on a permanent loading dock that is not greater than 1.2 m in height.

Fall Protection Plan

119. (1) An employer shall develop a written fall protection plan where
- (a) a worker may fall 3 m or more; and
 - (b) workers are not protected by a guardrail or similar barrier.
- (2) The fall protection plan must describe
- (a) the fall hazards at the work site;
 - (b) the fall protection system to be used at the work site;
 - (c) the procedures used to assemble, maintain, inspect, use and disassemble the fall protection system; and
 - (d) the rescue procedures to be used if a worker falls, is suspended by a personal fall arrest system or safety net and needs to be rescued.
- (3) The employer shall ensure that a copy of the fall protection plan is readily available before work begins at a work site where a risk of falling exists.
- (4) The employer shall ensure that a worker is trained in the fall protection plan and the safe use of the fall protection system before allowing the worker to work at the work site where a fall protection system must be used.

Control Zone

120. (1) An employer shall ensure that a control zone
- (a) is only used if a worker can fall from a level surface at a work site; and
 - (b) is not less than 2 m wide when measured from the unguarded edge.
- (2) When crossing a control zone referred to in subsection (1), a worker
- (a) subject to subsection (4) is not required to use a fall protection system, other than the control zone, to enter or leave the work site; and
 - (b) shall follow the most direct route to get to or from the unguarded edge.
- (3) An employer shall ensure that a control zone is clearly marked with an effective raised warning line or other equally effective method if a worker is working more than 2 m from an unguarded edge.
- (4) An employer shall ensure that a worker who works in control zone uses

- (a) a travel restraint system; or
- (b) another system means that is as equally effective as a travel restraint system and that prevents the worker from getting to the unguarded edge.

Anchor Points and Anchor Plates

121. (1) Where a worker uses a personal fall arrest system or a travel restraint system, an employer, shall ensure that an anchor point or anchor plate that meets the requirements of this section is used as part of that system.

- (2) An employer shall ensure that a temporary anchor point used in a travel restraint system
 - (a) has an ultimate load capacity of at least 3.5 kN per worker attached in any direction in which the load may be applied;
 - (b) is installed and used according to the manufacturer's specifications;
 - (c) is permanently marked as being for travel restraint only; and
 - (d) is removed by the last worker from use on the earlier of
 - (i) the date the work project for which it is intended is completed, and
 - (ii) the time specified by the manufacturer.

(3) An employer shall ensure that a permanent anchor point used in a travel restraint system associated with any new construction project on or after the date this section comes into force

- (a) has an ultimate load capacity of at least 8.75 kN per worker attached in any direction in which the load may be applied;
- (b) is installed and used according to the manufacturer's specifications; and
- (c) is permanently marked as being for travel restraint only.

(4) In the case of a personal fall arrest system installed on or after one year after the date this section comes into force, an employer or supplier shall ensure that anchor points to which the personal fall arrest system is attached have an ultimate load capacity of at least 22.2 kN per worker attached in any direction in which the load may be applied.

(5) An employer or supplier shall ensure that the following types of equipment that are components of fall protection systems, and their installation, conform to the manufacturer's specifications or are certified by a professional engineer:

- (a) permanent anchor points;
- (b) anchors with multiple attachment points;
- (c) permanent horizontal lifeline systems;
- (d) support structures for safety nets.

Elevated Conveyors

122. Where an elevated conveyor crosses over a place where a worker may pass or work, an employer shall ensure that suitable precautions are taken to prevent materials on the conveyor from falling on the worker.

Wire Mesh

123. Where wire mesh is required by these regulations, the wire mesh must

- (a) be made from wire that is at least 1.6 mm in diameter; and
- (b) have a mesh size that is not greater than 40 mm by 40 mm.

Protection Against Falling Objects

124. (1) Subject to section 125, where a worker is required to work in an area where the worker may be in danger from a falling object, an employer shall ensure that the worker is adequately protected by the installation of an overhead barrier.

(2) An employer shall ensure that every area where a worker could be struck by a falling object is clearly marked by barriers, notices, warning lights or other warning devices.

Protection from Objects Falling from Scaffolds

125. (1) Where a suspended scaffold, suspended powered scaffold or load carrying unit is suspended from or attached to a structure, an employer shall ensure that wire mesh, or other material equally effective to prevent objects from falling from the working surface, is installed from the working surface to a height of at least 900 mm on all sides except the side adjacent to the structure.

(2) An employer shall ensure that wire mesh is installed from the working surface of a platform to a height of 2 m on all sides of

- (a) a tower hoist as defined in section 204;
- (b) a building shaft hoist; and
- (c) a hoist cage in an excavated shaft.

(3) Where it is necessary to hoist or lower materials that are of such a nature that the sides of a cantilever hoist platform or skip cannot be equipped as required by subsection (1), an employer shall provide another equally effective means for the protection of workers against falling materials.

(4) Where it is necessary for workers to pass through a safeguard required by this section, an employer shall install a gate that is equally effective to prevent objects from falling from the working surface and shall ensure that the gate is kept closed except when the gate is in use.

Handrails

126. (1) An employer shall ensure that a stairway with five or more treads

- (a) is equipped with a handrail that
 - (i) extends the entire length of the stairway,
 - (ii) is adequately secured to the structure,
 - (iii) is installed on the stairway at a height of
 - (A) between 760 and 860 mm above the stair tread, measured vertically from the nose of the tread, in the case of a stairway installed before the coming into force of this section, and
 - (B) between 800 and 920 mm above the front edge of the treads, in the case of stairway installed on or after the coming into force of this section, and
 - (iv) is strong enough to support a worker who falls on the stairway; and
- (b) on an open side, is equipped with both a handrail and an intermediate rail or equivalent safeguard.

(2) Where a handrail is required for a temporary stairway to which subsection (1) applies, an employer shall ensure that the handrail is constructed of at least 38 mm by 89 mm construction grade lumber, or material of equivalent strength, and is supported by posts that are not more than 3 m apart.

Guardrails

127. (1) Subject to subsections (2) to (4), where the installation of a guardrail is required by these regulations, an employer shall ensure that the guardrail

- (a) has a horizontal top member that is not less than 920 mm and not more than 1070 mm above the working surface;
- (b) has a horizontal intermediate member that is spaced midway between the horizontal top member and the working surface;
- (c) is supported for the entire length of the guardrail by vertical members that are, where reasonably practicable, not more than 2.4 m apart;
- (d) is capable of supporting a worker who may fall against the guardrail; and
- (e) is constructed of 38 mm by 89 mm construction grade lumber or other materials that are of equal

or greater strength.

(2) A horizontal intermediate member is not required in the case of a temporary guardrail that is manufactured with a substantial barrier completely filling the area enclosed by the horizontal top member, a horizontal bottom member and the vertical members.

(3) A wire rope guardrail may be used at the external perimeter of a building under construction.

(4) Where a wire rope guardrail is used pursuant to subsection (3), an employer shall ensure that

- (a) the guardrail consists of a horizontal top member and a horizontal intermediate member made of wire rope that is not less than 9.5 mm in diameter, with vertical separators not less than 50 mm wide that are spaced at intervals not exceeding 2.4 m;
- (b) the horizontal top member and horizontal intermediate member are positioned above the working surface in accordance with paragraphs (1)(a) and (b);
- (c) the guardrail is kept taut by means of a turnbuckle or other appropriate device; and
- (d) the guardrail is arranged so that a worker coming into contact with the ropes cannot fall through the ropes.

(5) An employer shall ensure that no worker hangs equipment on a guardrail.

Toeboards

128. (1) An employer shall provide toeboards at the edge of

- (a) a permanent floor, platform, mezzanine, walkway, ramp, runway or other surface from which it is possible for materials to fall more than 1.2 m;
- (b) a temporary scaffold or work platform from which it is possible for materials to fall more than 3 m; and
- (c) a pit for a flywheel or pulley.

(2) Subsection (1) does not apply to a loading or unloading area if the employer has taken other precautions to ensure that materials will not fall from the floor or other horizontal surface.

(3) Where a toeboard is required by these regulations, an employer shall ensure that the toeboard extends from the floor or other horizontal surface to a height of not less than

- (a) 125 mm from the floor or surface; or
- (b) 100 mm from the floor or surface, in the case of a toeboard that was installed before the day these regulations come into force.

Openings in Floors and Roofs

129. (1) An employer shall ensure that any opening or hole in a floor, roof or other work surface into which a worker could step or fall is

- (a) covered with a securely installed covering that is capable of supporting a load of 360 kg/m² and that is provided with a warning sign or permanent marking clearly indicating the nature of the hazard; or
- (b) provided with a guardrail and a toeboard.

(2) Where the covering or guardrail and toeboard referred to in subsection (1) or any part of the guardrail or toeboard is removed for any reason, an employer shall immediately provide

- (a) an effective alternative means of protection; and
- (b) prominently post, near the opening, a warning sign clearly indicating the nature of the hazard.

Building Shafts

130. (1) An employer shall ensure that a work platform that is an integral part of a slip form used in a building shaft is designed by a professional engineer to withstand the maximum foreseeable load and is constructed,

erected and used in accordance with that design.

(2) An employer shall ensure that a platform referred to in subsection (1) that has been moved is examined by a competent person and that a written report of the examination is made by the person who carried it out and is kept by the employer.

(3) An employer shall not require or permit a worker to work on a platform referred to in subsection (1) that has been moved before the platform has been examined in accordance with subsection (2), unless the worker is using a personal fall arrest system, a full-body harness and a lifeline or lanyard that meet the requirements of Part 7.

(4) Where there is no work platform installed at the level of a doorway or opening in a building shaft, an employer shall ensure that the doorway or opening is covered by a solid barrier that extends from the bottom of the doorway or opening to a height of at least 2 m and is capable of preventing a worker or loose material from falling down the shaft.

(5) An employer shall ensure that at least one warning sign indicating the presence of an open building shaft is placed on a barrier erected pursuant to subsection (4).

Safety Nets

131. Where a safety net is required by these regulations, an employer shall ensure that the safety net

- (a) is manufactured from rope that is at least
 - (i) 8 mm in diameter, and
 - (ii) equivalent in breaking strength to number one grade pure manila rope 9 mm in diameter;
- (b) has a mesh size that is not greater than 150 mm by 150 mm;
- (c) has safety hooks or shackles of drop-forged steel that is 22.2 kN proof tested;
- (d) has joints between the net panels that are equal in strength to the net;
- (e) extends at least 2.4 m beyond, and is not more than 6 m below, the work area; and
- (f) is installed and maintained so that, at the maximum deflection of the net when arresting the fall of a worker, no portion of the net contacts another surface.

Storage Tanks

132. (1) Where a worker is regularly required to walk or work on top of a storage tank, an employer shall ensure that the storage tank is fitted with a permanent walkway with guardrails.

(2) Where a worker is required to walk or work on top of a storage tank, an employer shall ensure that any opening in the tank into which a worker may fall is guarded by a grid or other suitable means to prevent the worker from falling into the tank.

Mounting of Tires

133. (1) Where a worker is required to mount a tire and the maximum inflation pressure is not clearly indicated on the tire wall, the employer shall provide the worker with written instructions specifying the maximum inflation pressures for the various sizes and types of tires normally encountered and ensure that the worker follows those instructions.

(2) The employer shall ensure that a tire and the rim assembly on which the tire is to be mounted are designed and constructed to be compatible with each other.

(3) Where the worker is required to mount a tire on a split rim assembly or a locking ring assembly, the employer shall

- (a) provide the worker with
 - (i) a clamp-on type air hose, an in-line pressure gauge and a positive pressure control, and
 - (ii) a suitable cage or other restraining device to contain flying parts in the event of a split rim assembly or locking ring assembly failure or tire rupture; and

- (b) ensure that the worker inflates the tire from a safe position out of the immediate danger area.
- (4) A worker who mounts a tire
 - (a) shall, before commencing the mounting, place the tire that is to be mounted on a split rim assembly or locking ring assembly in a cage or restraining device;
 - (b) shall not inflate the tire in excess of the maximum pressure indicated on the tire wall or listed for the size and type of tire in the written instructions provided pursuant to subsection (1);
 - (c) shall use a clamp-on type air hose, an in-line pressure gauge and positive pressure control; and
 - (d) shall inflate the tire from a safe position out of the immediate danger area.

Storage of Materials

134. An employer shall ensure that

- (a) no material or equipment is placed, stacked or stored so as to constitute a hazard to workers; and
- (b) stacked materials or containers are stabilized, if necessary, by interlocking, strapping or other effective means of restraint.

Pallets and Storage Racks

135. An employer or supplier shall ensure that

- (a) pallets are maintained in a manner that will permit safe lifting of the pallets and the pallets' loads by a forklift or other device; and
- (b) racks for the storage of material or equipment are
 - (i) designed, constructed and maintained to support any load placed on the racks, and
 - (ii) erected on a firm foundation.

Pressurized Hoses

136. Where an inadvertent disconnection of a hose, pipe or connection that is under pressure could result in danger to workers, an employer shall ensure that an effective restraining device is used on the hose, pipe or connection that is under pressure.

Designated Signallers

137. (1) Where the giving of signals by a designated signaller is required by these regulations, an employer shall
- (a) designate a worker to be the designated signaller;
 - (b) ensure that the designated signaller is sufficiently trained to carry out the signaller's duties in a manner that will ensure the signaller's safety and the safety of other workers; and
 - (c) keep a record of the training required by paragraph (b) and give a copy of the record to the designated signaller.
- (2) An employer shall
- (a) provide each designated signaller with, and require the signaller to use, a high visibility vest, armbands or other high visibility clothing, whether the signaller is on a highway or is at any other work site; and
 - (b) provide each designated signaller with a suitable light to signal with during hours of darkness and in conditions of poor visibility.
- (3) An employer shall
- (a) install suitably placed signs to warn traffic of the presence of a designated signaller before the signaller begins work; and
 - (b) where reasonably practicable, install suitable overhead lights to illuminate a designated signaller effectively.
- (4) A designated signaller shall ensure that it is safe to proceed with a movement before signalling for that

movement to proceed.

(5) Where the giving of signals by a designated signaller is required by these regulations, an employer shall ensure that

- (a) no worker other than the designated signaller gives signals to an operator except in an emergency; and
- (b) only one designated signaller gives signals to an operator at a time.

(6) Where hand signals cannot be transmitted properly between a designated signaller and an operator, an employer shall ensure that additional designated signallers are available to effect proper transmission of signals or that some other means of communication is provided.

(7) Where two or more designated signallers are used, an employer shall ensure that the designated signallers are able to communicate effectively with each other.

Risk from Vehicular Traffic

138. (1) An employer shall ensure that a worker who is at risk from vehicular traffic, whether on a highway or at any other work site, is provided with and required to use a high visibility vest, armlets or other high visibility clothing.

(2) Where the worker is at risk from vehicular traffic, whether on a highway or at any other work site, an employer shall develop and implement a traffic control plan, in writing, to protect the worker from traffic hazards by the use of one or more of the following:

- (a) warning signs;
- (b) barriers;
- (c) lane control devices;
- (d) flashing lights;
- (e) flares;
- (f) conspicuously identified pilot vehicles;
- (g) automatic or remote-controlled traffic control systems;
- (h) designated signallers directing traffic.

(3) An employer shall ensure that

- (a) workers are trained in the traffic control plan developed pursuant to subsection (2); and
- (b) the traffic control plan developed pursuant to subsection (2) is made readily available for reference by workers at the work site.

(4) An employer shall use designated signallers to control traffic on a highway only where other methods of traffic control are not adequate or suitable.

(5) Where designated signallers are used to control traffic on a highway, an employer shall provide

- (a) at least one designated signaller if
 - (i) traffic approaches from one direction only, or
 - (ii) traffic approaches from both directions and the designated signaller and the operator of an approaching vehicle would be clearly visible to one another; and
- (b) at least two designated signallers if traffic approaches from both directions and the designated signaller and the operator of an approaching vehicle would not be clearly visible to one another.

(6) The traffic control plan must

- (a) be in writing;
- (b) be made readily available for reference by workers at the work site; and
- (c) set out, where appropriate
 - (i) the maximum allowable speed of any vehicle or class of vehicles, including powered mobile

- equipment, in use at the work site,
- (ii) the maximum operating grades,
 - (iii) the location and type of control signs,
 - (iv) the route to be taken by vehicles,
 - (v) the priority to be established for classes of vehicle,
 - (vi) the location and type of barriers or restricted areas, and
 - (vii) the duties of workers and the employer.

(7) A worker who operates a vehicle or unit of powered mobile equipment at a work site and who does not have a clear view of the path to be travelled shall not proceed until a person who has a clear view of the path to be travelled by the vehicle or unit of powered mobile equipment signals to the worker that it is safe to proceed.

(8) Where a provision of this section conflicts with a provision of the *Motor Vehicles Act* or *All-terrain Vehicles Act*, a regulation made pursuant to any of those Acts or a bylaw of a municipality made under any enactment, the provision of that other enactment prevails.

PART 10 MACHINE SAFETY

Interpretation

139. In this Part, "power tool" means a hand-held machine that is powered by energy other than the energy of a worker.

Manufacturer's Specifications

140. An employer or supplier shall ensure that each machine or other equipment under this Part is constructed, repaired, inspected, tested, maintained and operated in accordance with the manufacturer's specifications or an approved standard.

Operation by Worker

141. (1) An employer shall, in respect of machines at the work site, ensure that

- (a) the machines are operated only by a competent worker; and
- (b) workers are informed of any risk associated with, and trained in the safe use of, the machines.

(2) Before starting a machine, an operator shall ensure that neither the operator nor any other worker will be endangered by starting the machine.

(3) Where a worker or a worker's clothing may contact a moving part of a machine, an employer shall ensure that the worker

- (a) wears close-fitting clothing;
- (b) confines or cuts short any head and facial hair; and
- (c) does not wear dangling neckwear or jewellery, rings or other similar items.

Operating Controls

142. (1) Where reasonably practicable, an employer or supplier shall ensure that operating controls on a machine

- (a) are located within easy reach of the operator; and
- (b) cannot be activated by accidental contact.

(2) Where reasonably practicable, an employer or supplier shall ensure that stopping devices on the machine are

- (a) located in the direct view and within easy reach of the operator; and
 - (b) readily identifiable.
- (3) Where a worker is required to feed material into a material forming press, punch, shear or similar machine, an employer or supplier shall
- (a) where practicable, install a positive means to prevent the activation of the machine while any part of the worker's body could be injured by moving parts of the machine; or
 - (b) where it is not practicable to comply with paragraph (a), install safeguards to prevent the worker from contacting a moving part of the machine.

Unattended and Suspended Machines

143. (1) An employer shall not require or permit a worker to leave unattended or in a suspended position any machine or any part of a machine unless the machine or part has been
- (a) immobilized and secured against accidental movement; or
 - (b) enclosed by a safeguard to prevent access by any other worker to the machine or part.
- (2) A worker shall not leave unattended or in a suspended position any machine or any part of a machine unless the machine or part has been
- (a) immobilized and secured against accidental movement; or
 - (b) enclosed by a safeguard to prevent access by any other worker to the machine or part.

Safeguards

144. (1) Except where otherwise provided by these regulations, an employer shall provide an effective safeguard where a worker may contact
- (a) a dangerous moving part of a machine;
 - (b) a pinch point, cutting edge or point of a machine at which material is cut, shaped, bored or formed;
 - (c) an open flame;
 - (d) a steam pipe or other surface with a temperature that exceeds or may exceed 80°C; or
 - (e) a cooled surface that is or may be less than -80°C.
- (2) An employer shall ensure that a safeguard required by subsection (1) remains in place at all times.
- (3) Subsection (1) does not apply to
- (a) a machine that is equipped with an effective safety device that stops the machine automatically before any part of a worker's body comes into contact with a hazard referred to in paragraph (1)(a) or (b); or
 - (b) a belt, rope or chain that is operated from a cathead or capstan.
- (4) An employer shall ensure that a safeguard that is removed from a machine or made ineffective to permit maintenance, testing, repair or adjustment of a machine is replaced or made effective before a worker is required or permitted to use the machine.
- (5) Where there is a possibility of machine failure and of injury to a worker resulting from the failure, an employer shall install safeguards strong enough to withstand the impact of debris from the machine failure and to contain any debris resulting from the machine failure.

Warning Systems

145. (1) An employer shall, where the circumstances described in subsection (2) exist, install
- (a) an audible alarm system that provides a warning of sufficient volume and for a sufficient period before start up of the machine to give workers timely notice of the imminent start up; or
 - (b) a distinctive and conspicuous visual warning system to alert workers of the imminent start up of

the machine.

(2) Subsection (1) applies where

- (a) a worker may be endangered by moving machine parts when a machine is started; and
- (b) the operator of the machine does not have a clear view from the operating position of all parts of the machine and of the surrounding area in which there is a potential danger.

(3) An employer shall place adequate, appropriate and clearly visible warning signs at each point of access to a machine that starts automatically.

Locking Out

146. (1) Subject to section 147, an employer shall, before a worker undertakes the maintenance, repair, test or adjustment of a machine other than a power tool, ensure that the machine is locked out and remains locked out during that activity.

(2) Before a worker undertakes the maintenance, repair, test or adjustment of a power tool, an employer shall ensure that the energy source has been isolated from the power tool, any residual energy in the power tool has been dissipated and the energy source remains isolated during that activity.

(3) An employer shall

- (a) provide a written lockout process to each worker who is required to work on a machine to which subsection (1) applies; and
- (b) where the lockout process uses a lock and key, issue to that worker a lock that is operable only by that worker's key.

(4) Where the lockout process does not use a lock and key, an employer shall designate a person to coordinate and control the lock out process.

(5) Where the lockout process uses a lock and key, an employer shall designate a person to keep the duplicate to the key mentioned in paragraph (3)(b) and ensure that

- (a) the duplicate key is accessible only to the designated person; and
- (b) a log book is kept to record the use of the duplicate key and the reasons for that use.

(6) Where it is not practicable to use a worker's key to remove a lock, an employer may permit the person designated pursuant to subsection (5) to remove the lock if the designated person

- (a) has determined the reason that the worker's key is not available;
- (b) has determined that it is safe to remove the lock and activate the machine; and
- (c) if a Committee is in place, has informed the co-chairpersons or the representative of the proposed use of the duplicate key before it is used.

(7) An employer shall ensure that the designated person who is permitted to use a duplicate key pursuant to subsection (6)

- (a) records in the log book the removal of the lock including, the reason for the duplicate key's use and the date of its use; and
- (b) signs the log book each time that the duplicate key is used.

(8) Where a central automated system controls more than one machine, an employer shall ensure that the machine to be maintained, repaired, tested or adjusted is isolated from the central system before the lockout process required by subsection (3) is implemented.

(9) Before undertaking any maintenance, repairs, tests or adjustments to a machine to which subsection (1) applies, a worker shall lock out the machine following the lockout process referred to in paragraph (3)(a).

(10) After a lockout device has been installed or a lockout process has been initiated, the worker who installed the device or initiated the process shall check the machine to ensure that the machine is inoperative.

(11) No person shall deactivate a lockout process that does not use a lock and key except the person designated pursuant to subsection (4).

- (12) No person shall remove a lockout device except
- (a) the worker who installed the lockout device; or
 - (b) the designated person acting in accordance with subsection (6).

Cleaning or Maintaining Machine in Motion

147. (1) This section applies where any of the following requires cleaning, lubrication or adjustment while all or any part of a machine or other piece of equipment is in motion or under power:

- (a) the machine or other piece of equipment;
 - (b) a part of the machine or of the piece of other equipment;
 - (c) any material on the machine or on the piece of equipment.
- (2) An employer shall
- (a) develop and implement written work practices and procedures that ensure that the cleaning, lubrication or adjustment is carried out in a safe manner;
 - (b) ensure that workers who are required to perform the cleaning, lubrication or adjustment are trained in the written work practices and procedures referred to in paragraph (a); and
 - (c) ensure that a copy of the written work practices and procedures referred to in clause (a) is readily available for reference by workers.

Belts

148. (1) An employer shall ensure that a permanent belt shifter is

- (a) provided for all loose pulleys on any machine; and
- (b) constructed so that the belt cannot creep back on to the tight pulley.

(2) An employer shall ensure that a worker does not shift a belt on a machine by hand while the belt is in motion.

Air-Actuated Fastening Tools

149. An employer shall ensure that a worker does not hold the trigger of an air-actuated fastening tool mechanically in the operating position unless the tool is specifically designed to be used in that manner.

Explosive-Actuated Fastening Tools

150. (1) In this section, "explosive-actuated fastening tool" means a machine that propels or discharges, by means of an explosive force, a fastening device to attach the fastening device on, affix the fastening device to or cause the fastening device to penetrate another object or material.

(2) An employer shall ensure that a worker who operates explosive-actuated fastening tool systems is trained in and uses safe work procedures for any explosive-actuated fastening tool that the worker may operate, including

- (a) the selection of the appropriate tool, accessories, fastener and power load for each application;
 - (b) the limitations of each type of tool, fastener and power load; and
 - (c) the maintenance, inspection and use of the tool.
- (3) An employer shall ensure that a worker who operates an explosive-actuated fastening tool
- (a) does not leave the tool or explosive charges unattended;
 - (b) stores the tool and explosive charges in a locked container when not in use; and
 - (c) uses an industrial eye or face protector and hearing protectors that meets the requirements of Part 7.

Airless Spray Units

151. Where a worker is required or permitted to use an airless spray unit that is capable of operating at a pressure greater than 7 MPa, an employer shall ensure that

- (a) the gun, the reservoir and the pump are bonded to ground with a single continuous approved bonding conductor; and
- (b) the gun is fitted with suitable tip and trigger guards.

Grinding Machines

152. (1) An employer shall ensure that

- (a) no abrasive wheel is operated
 - (i) unless it is equipped with blotters installed according to the manufacturer's recommendations and a safeguard, or
 - (ii) at a speed in excess of the manufacturer's recommendations;
- (b) the maximum speed of each grinder shaft in revolutions per minute is permanently marked on the grinder; and
- (c) the mounting flanges for an abrasive wheel have an equal and correct diameter for the wheel.

(2) Where a tool rest is installed on a fixed grinder, an employer shall ensure that the tool rest is

- (a) installed in a manner that is compatible with the work process;
- (b) securely attached to the grinder; and
- (c) set not more than 3 mm from the face of the wheel or below the horizontal centre line of the wheel.

(3) An employer shall not require or permit a worker to use the sides of an abrasive wheel for grinding unless the abrasive wheel is designed for that use.

(4) An employer shall ensure that a worker who operates a grinder

- (a) is provided with and uses the following personal protective equipment that meets the requirements of Part 7:
 - (i) an industrial eye or face protector,
 - (ii) hand or arm protection; and
- (b) is instructed in the potential hazards and safe use of the grinder.

Chainsaws

153. (1) An employer or supplier shall ensure that a chainsaw is

- (a) equipped with an effective chain brake or a chain and bar that is designed to minimize the possibility of a kickback; and
- (b) designed and constructed so that the chain stops when the engine is at idle.

(2) Where a chainsaw is to be used by a worker operating from an elevated cage or basket, the width of which is less than twice the length of the chainsaw, an employer shall ensure that a secondary platform is installed outside the cage or basket and is used to store the chainsaw and to start the chainsaw engine.

(3) An employer shall ensure that a worker who operates a chainsaw

- (a) stops the chain while the worker is walking with the chainsaw;
- (b) does not operate the chainsaw at a height that is higher than the worker's shoulder level;
- (c) holds the chainsaw firmly in both hands; and
- (d) maintains the chainsaw, cutting chain and safeguards in safe operating condition.

(4) A worker who operates a chainsaw

- (a) shall stop the chain while the worker is walking with the chainsaw;

- (b) shall not operate the chainsaw at a height that is higher than the worker's shoulder level;
- (c) shall hold the chainsaw firmly in both hands;
- (d) shall maintain the chainsaw, cutting chain and safeguards in safe operating condition; and
- (e) shall maintain the chainsaw so that the chain stops when the engine is at idle.

Circular Saws

154. (1) Subject to subsection (2), where a circular saw blade develops a crack in the outside edge of the saw blade, an employer shall ensure that the blade is discarded unless

- (a) the blade is effectively repaired by a competent person; and
- (b) the original blade tension is restored.

(2) An employer shall ensure that a circular saw blade that develops a crack from the eye or the collar is discarded.

(3) An employer or supplier shall ensure that a portable hand operated circular saw is equipped with a safeguard that will automatically cover the exposed part of the blade during use and the entire blade when the saw is not in use.

Power Fed Circular Saws

155. (1) An employer or supplier shall ensure that a power fed circular rip saw with horizontal, power driven feed rolls is equipped with a sectional non-kickback device located in front of the saw blade and across the full width of the rolls.

- (2) An employer or supplier shall ensure that a power fed circular rip saw
 - (a) is equipped with a splitter that extends to the height of the top of the saw blade; and
 - (b) has a saw blade that is equipped with a safeguard or located so that a worker cannot reach it.

Band Saws

156. (1) Where a band saw blade develops a crack the depth of which is more than 5% of the width of the saw blade, an employer shall ensure that the blade is discarded unless

- (a) the width of the blade is reduced by a competent person so as to eliminate the crack; or
- (b) the cracked section is repaired by a competent person.

(2) An employer or supplier shall ensure that a band saw has an automatic tension control device.

Cut-Off Saws

157. An employer or supplier shall ensure that

- (a) a hand operated, sliding or swing cut-off saw is equipped with a device that will return the saw automatically to the back of the table when the saw is released at any point in the saw's travel; and
- (b) a limit device is installed on a swing or sliding cut-off saw to prevent the saw from travelling beyond the outside edge of the cutting table.

Push Blocks and Push Sticks

158. (1) In this section,

"push block" means a short block of wood with a shoulder at the rear that is provided with a suitable handle that will engage with the shoulder;

"push stick" means a narrow strip of wood or other suitable material with a notch cut into one end.

- (2) An employer shall ensure that a worker uses a push stick or push block to feed wood or other material

into any machine that is used for cutting or shaping the wood or other material.

Hand Fed Planers and Joiners

159. (1) An employer shall ensure that a hand fed planer or joiner is operated at a height that is suitable for the worker who operates it.

(2) An employer or supplier shall ensure that a hand fed planer or joiner with a horizontal cutting head has an automatic safeguard that will cover all sections of the head on the working side of the safeguard when material is not being cut.

PART 11

POWERED MOBILE EQUIPMENT

Interpretation

160. In this Part, "hours of darkness" means any time when, because of insufficient light or unfavourable atmospheric conditions, persons or vehicles are not clearly discernable at a distance of, or greater than 150 m.

Operation by Competent Workers

161. An employer shall ensure that only competent workers operate powered mobile equipment or are required or permitted to operate that equipment.

Visual Inspection

162. (1) An employer shall, before a worker starts any powered mobile equipment, ensure that the worker makes a complete visual inspection of the equipment and the surrounding area to ensure that no worker, including the operator, is endangered by the start up of the equipment.

(2) No worker shall start any powered mobile equipment until the inspection required under subsection (1) is completed.

Inspection and Maintenance

163. (1) An employer or supplier shall ensure that all powered mobile equipment at a work site is inspected

- (a) by a competent worker for defects and unsafe condition; and
- (b) as often as is necessary to ensure that the equipment is capable of safe operation.

(2) Where a defect or unsafe condition is identified in powered mobile equipment, an employer or supplier shall

- (a) immediate steps to protect the health and safety of every worker who is at risk until the defect is repaired or the unsafe condition is corrected; and
- (b) repair the defect or unsafe condition as soon as is reasonably practicable.

(3) An employer or supplier shall, at the work site,

- (a) keep a written record of inspections and maintenance carried out under this section; and
- (b) make the written record in paragraph (a) readily available to the operator of the powered mobile equipment.

Requirements for Powered Mobile Equipment

164. (1) An employer or supplier shall ensure that each unit of powered mobile equipment is equipped with

- (a) a device within easy reach of an operator that will permit the operator to stop as quickly as possible any ancillary equipment driven from the powered mobile equipment, including any power take-off, crane and auger and any digging, lifting and cutting equipment;
- (b) an audible or visual warning device that is adequate to warn other workers of the operation of the powered mobile equipment;

- (c) seats that are designed and installed to ensure the safety of each worker in or on the powered mobile equipment except where the equipment is designed to be operated from a standing position; and
- (d) an effective braking system and an effective parking device.

(2) Where a unit of powered mobile equipment is operated during hours of darkness in an area that is not adequately illuminated, an employer or supplier shall ensure that it is equipped with suitable headlights and backup lights that clearly illuminate the path of travel.

(3) Where a unit of powered mobile equipment has a windshield, an employer or supplier shall ensure that it is equipped with suitable windshield washers and wipers.

(4) Where a unit of powered mobile equipment is fitted with rollover protective structures, an employer or supplier shall ensure that the equipment is equipped with

- (a) seat belts for the operator and any other worker who are in or on the equipment; or
- (b) shoulder belts, bars, gates, screens or other restraining devices designed to prevent the operator and any other worker from being thrown outside the rollover protective structures if the work process renders the wearing of a seat belt impracticable.

(5) Where there is a danger to the operator of a unit of powered mobile equipment or any other worker who is required or permitted to be in or on a unit of powered mobile equipment from a falling object or projectile, an employer or supplier shall ensure that the powered mobile equipment is equipped with a suitable and adequate cab, screen or guard.

Maintenance of Powered Mobile Equipment

165. An employer or supplier shall ensure that each unit of powered mobile equipment is constructed, repaired, inspected, tested, maintained and operated in accordance with the manufacturer's specifications or an approved standard.

Use of Seat Belt or Restraint by Operator

166. An employer shall ensure that the operator of a unit of powered mobile equipment uses the seat belt or other restraining device required by subsection 164(4).

Protection Against Shifting of Load

167. An employer shall install a bulkhead or other effective restraining device to protect the operator and any other worker who is required or permitted to be in or on powered mobile equipment used to transport equipment or materials that may shift under emergency stopping conditions and endanger the operator or other worker.

Warning of Reverse Motion

168. Where a vehicle may be used in such a way that a worker other than the operator may be placed at risk by an unexpected reverse movement, the employer or supplier shall ensure that the vehicle is equipped with a suitable warning device that operates automatically when the vehicle or equipment starts to move in reverse.

Rollover Protective Structures

169. (1) An employer or supplier shall ensure that no unit of powered mobile equipment that is equipped with an engine rated at 15 kW or more and is in any of the following categories is used unless it is fitted with a rollover protective structure that meets the requirements of subsection (2):

- (a) motor grader;
- (b) crawler tractor, other than one that operates with side booms;
- (c) wheeled or tracked dozer and loader, other than one that operates with side booms;
- (d) self-propelled wheeled scraper;
- (e) self-propelled roller;

- (f) compactor;
- (g) rubber tired tractor;
- (h) skidder.

(2) Except as otherwise provided in these regulations, an employer or supplier shall ensure that a rollover protective structure required by subsection (1)

- (a) is designed, manufactured and installed to meet the requirements of an approved standard; and
- (b) has the following information permanently and legibly marked on the structure:
 - (i) the manufacturer's name and address;
 - (ii) the model and serial number;
 - (iii) the make and model or series number of the machines that the structure is designed to fit;
 - (iv) an identification of the standard to which the structure was designed, manufactured and installed.

(3) Where a rollover protective structure required by subsection (1) is not available, an employer or supplier shall ensure that a unit of powered mobile equipment referred to in subsection (1) is equipped with a rollover protective structure that is

- (a) designed by a professional engineer;
- (b) designed and fabricated so that the structure and supporting attachments will support at least twice the weight of the equipment to which the structure is to be fitted, based on the ultimate strength of the metal and integrated loading of structural members, with the resultant load applied at the point of impact; and
- (c) installed to have a vertical clearance of 1.2 m between the decks and the structures at the point of operator entrance or exit.

(4) A rollover protective structure is deemed to meet the requirements of this section if all of the following apply:

- (a) it was installed on powered mobile equipment on or before the day on which these regulations come into force;
- (b) the powered mobile equipment on which it is installed was manufactured after July 1, 1978;
- (c) it meets the criteria of any of the following recommended practices of the Society of Automotive Engineers (SAE), amended from time to time, as follows:
 - (i) recommended SAE practice J395 for crawler tractors, loaders and skidders;
 - (ii) recommended SAE practice J394 for wheel dozers, loaders and skidders;
 - (iii) recommended SAE practice J396 for motor graders;
 - (iv) recommended SAE practice J320a for self-propelled wheel scrapers;
 - (v) recommended SAE practice J334a for agricultural and industrial tractors.

(5) An employer or supplier shall ensure that all modifications or repairs to existing rollover protective structures are certified as meeting the requirements of this section by a professional engineer.

Transparent Materials Used in Cabs

170. (1) An employer or supplier shall ensure that any transparent material used as part of the enclosure for a cab, canopy or rollover protective structure on powered mobile equipment is made of safety glass or another material that gives at least equivalent protection against shattering.

(2) An employer or supplier shall ensure that any defective glass or other transparent material in a cab, canopy or rollover protective structure that creates or may create a hazard is removed and replaced.

Fuel Tanks in Enclosed Cabs

171. Where a unit of powered mobile equipment is equipped with an enclosed cab, an employer or supplier

shall ensure that a fuel tank located in the enclosed cab has a filler spout and vents that extend to the outside of the cab.

Dangerous Movements

172. (1) Where a worker may be endangered by the swinging movement of a load or a part of a unit of powered mobile equipment, an employer shall not require or permit a worker to remain within range of the swinging load or part.

(2) Where a worker may be required or permitted to perform maintenance, repairs or other work on or under an elevated part of a unit of powered mobile equipment, an employer shall ensure that the elevated part is securely blocked to prevent accidental movement.

(3) An operator of a unit of powered mobile equipment shall not move or cause to be moved any load or part of the equipment when a worker may be endangered by that movement.

Transporting Workers

173. (1) An employer shall ensure that no worker is transported on a vehicle unless the worker is seated and secured by a seat belt or other restraining device that is designed to prevent the worker from being thrown from the vehicle while it is in motion.

(2) An employer shall ensure that no worker is transported on the top of a load that is being moved by a vehicle.

(3) An employer shall ensure that no worker places equipment or material in a compartment of a vehicle in which the operator or another worker is being transported unless the equipment or material is positioned or secured so as to prevent injury to the operator or the other worker.

(4) Where an open vehicle or unit of powered mobile equipment is used to transport a worker, an employer shall ensure that the worker is restrained from falling from the vehicle and that no part of the worker's body protrudes beyond the side of the vehicle.

Ladders Attached to Extending Boom

174. (1) An employer shall ensure that

- (a) subject to subsection (2), no worker is on a ladder that is attached as a permanent part of an extending boom on powered mobile equipment during any movement of the equipment, including extension or retraction of the boom;
- (b) where outriggers are incorporated into powered mobile equipment, no worker climbs a ladder attached to an extending boom unless the outriggers are deployed; and
- (c) no worker operates any powered mobile equipment equipped with an extending boom unless the powered mobile equipment is stable under all operating conditions.

(2) Paragraph (1)(a) does not apply to firefighting equipment.

Forklifts

175. (1) An employer or supplier shall ensure that every forklift

- (a) is provided with a durable and clearly legible load rating chart that is readily available to the operator; and
- (b) is equipped with a seat belt for the operator if the forklift is equipped with a seat.

(2) An employer shall ensure that the operator of a forklift uses the seat belt required by paragraph (1)(b).

PART 12
SCAFFOLDS, AERIAL DEVICES, ELEVATING WORK PLATFORMS AND TEMPORARY SUPPORTING STRUCTURES

Interpretation

176. In this Part,

“aerial device” means a vehicle-mounted telescoping or articulating unit that is used to position a worker at an elevated work site, and includes a work basket or bucket, an aerial ladder, an extendable and articulating boom platform, a vertical tower and any combination of those devices;

“base plate” means a device that is attached to the base of a scaffold upright and that is used to distribute the vertical load over a larger area of the sill;

“bearer” means a horizontal scaffold member on which the platform rests and that may be supported by ledgers, and includes transoms and joists;

“brace” means a scaffold member fastened diagonally to the uprights across the vertical faces of the scaffold to provide stability against lateral movement of the scaffold;

“bracket scaffold” means a platform that is supported by two or more triangular brackets projecting out from a structure to which the brackets are securely fastened;

“double-pole scaffold” means a platform that is supported by bearers attached to a double row of braced uprights;

“elevating work platform” means a work platform that can be self-elevated to overhead work sites, and includes an elevating rolling work platform, a self-propelled elevating work platform and a boom-type elevating work platform;

“flyform deck panel” means a temporary supporting structure that

- (a) is used as a modular falsework,
- (b) is intended to be moved, and
- (c) is capable of being moved from floor to floor and re-used during a construction project;

“half-horse scaffold” means a platform that is supported by two or more braced, splayed supports resting in or on the structure;

“heavy-duty scaffold” means a scaffold that is intended to support workers, equipment and stored or stacked materials and that is designed to support the minimum load identified in paragraph 180(1)(b);

“ladderjack scaffold” means a platform that is supported by brackets attached to ladders;

“ledger” means a horizontal scaffold member extending from upright to upright that may support the bearers, and includes runners, stringers and ribbons;

light-duty scaffold” means a scaffold that is intended to support workers and materials for current use only, with no storage of other materials except the worker’s tools, and that is designed to support the load identified in paragraph 180(1)(a);

“maximum load” means the maximum actual load that a scaffold is designed to support or resist in use, and includes the working load, the actual weight of all the components of the scaffold, wind, environmental conditions and all other loads that may reasonably be anticipated;

“modular scaffold” means a platform that is supported by uprights with fixed attachment points for standardized ledgers, bracing and accessories;

“needle-beam scaffold” means a platform that is supported by parallel horizontal beams suspended by ropes attached to overhead anchors;

“outrigger scaffold” means a platform that is supported by rigid members that are cantilevered out from the structure or vertical supports;

“personnel lifting unit” means a work platform suspended by rigging from a crane or hoist that is used to position a worker at an elevated work site, and includes a manbasket and work basket;

“pumpjack scaffold” means a scaffold consisting of a work platform supported by vertical poles and adjustable support brackets and end guardrails and a safety net between the tool bench and the foot board;

“rolling scaffold” means a freestanding scaffold that is equipped with castors or wheels at the base of the scaffold;

“scaffold” means a temporary elevated platform and the platform’s supporting structure that are designed to support workers and hand tools, or workers, equipment and materials;

“sill” means a wood, concrete or metal footing used to distribute the load from a standard, an upright or a base plate of a scaffold to the ground;

“single-pole scaffold” means a platform that is supported by bearers attached at the outer end to a single row of braced uprights and at the inner end to the structure;

“suspended outrigger scaffold” means a scaffold with a working platform that is suspended by wooden vertical members from rigid horizontal members that are cantilevered out from the structure;

“suspended powered scaffold” means a platform that is suspended from overhead supports by ropes or cables and equipped with winches or pulley blocks so that the scaffold can be moved, and includes a boatswain’s chair, work basket, work cage, swingstage or other similar scaffold;

“suspended scaffold” means a platform that is supported by four wire ropes suspended from members that are cantilevered out from the structure;

“temporary supporting structure” means a falsework, form, flyform deck panel, shoring, brace or cable that is used to support a structure temporarily or to stabilize materials or earthworks until the materials or earthworks

are self-supporting or the instability is otherwise overcome, and includes metal scaffold components;

“tube and clamp scaffold” means a platform that is supported by steel or aluminum tubes with wedge or bolt clamp connectors and accessories;

“tubular frame scaffold” means a platform that is supported by welded tubular frames, cross-braces and accessories;

“upright” means a vertical scaffold member that transmits the load to the ground, and includes posts, verticals and standards;

“working load” means the total of the loads from workers, materials, equipment and work processes.

Scaffold Required

177. Where work cannot be safely done from the ground or from a permanent structure, an employer shall provide a scaffold or other safe working platform or a ladder that meets the requirements of Part 16 for the use of workers.

Prohibition

178. (1) An employer shall not require or permit a worker to use
- (a) a needle-beam scaffold or a suspended outrigger scaffold as a work platform; or
 - (b) a half-horse scaffold.
- (2) A worker shall not use a scaffold of a type described in subsection (1).

Limited Use of Certain Scaffolds

179. (1) An employer shall ensure that the following types of scaffolds are used only as light-duty scaffolds:
- (a) ladderjack scaffolds;
 - (b) single-pole scaffolds;
 - (c) pumpjack scaffolds.
- (2) An employer shall ensure that the following types of scaffolds are used only as light-duty scaffolds unless the scaffold is designed by a professional engineer and constructed, erected, used, maintained and dismantled in accordance with that design:
- (a) bracket scaffolds;
 - (b) outrigger scaffolds;
 - (c) suspended scaffolds;
 - (d) suspended powered scaffolds.

General Requirements

180. (1) An employer shall ensure that
- (a) every light-duty scaffold is designed and constructed to support
 - (i) a minimum working load of 3.63 kN per lineal metre of platform width applied vertically and uniformly across an independent platform section along an imaginary line drawn perpendicular to the platform edge anywhere along the length of the section, and
 - (ii) a minimum uniformly distributed working load of 1.20 kN/m², acting simultaneously with the concentrated load specified in subparagraph (i); and
 - (b) every heavy-duty scaffold is designed and constructed to support
 - (i) a minimum working load of 3.88 kN per lineal metre of platform width applied vertically and

- uniformly across an independent platform section along an imaginary line drawn perpendicular to the platform edge anywhere along the length of the section, and
- (ii) a minimum uniformly distributed working load of 3.60 kN/m^2 , acting simultaneously with the concentrated load specified in subparagraph (i).
- (2) An employer shall ensure that every scaffold is
- (a) designed, constructed, erected, used and maintained so as to perform safely;
 - (b) designed, constructed and erected to support or resist
 - (i) in the case of a wooden scaffold, at least four times the load that may be imposed on the scaffold,
 - (ii) in the case of a metal scaffold, at least 2.2 times the load that may be imposed on the scaffold,
 - (iii) in the case of any components suspending any part of a scaffold supporting workers, at least ten times the load that may be imposed on those components, and
 - (iv) four times the maximum load or force to which the scaffold is likely to be subjected without overturning;
 - (c) erected, maintained and dismantled by a competent worker; and
 - (d) inspected by a competent person prior to use and daily when in use for any damage, deterioration or weakening of the scaffold or the scaffold's components.
- (3) An employer shall ensure that a freestanding scaffold is restrained from overturning by using guying or other suitable means.
- (4) An employer shall ensure that a scaffold that is built from the ground or other surface
- (a) is supported by a foundation that is of sufficient area, stability and strength to ensure the stability of the scaffold;
 - (b) is set level on a stable sill that is at least 38 mm x 240 mm and continuous under at least two consecutive supports;
 - (c) where an upright could penetrate the sill, a base plate is installed in the upright;
 - (d) is supported against lateral movement by adequate, secure bracing;
 - (e) is anchored
 - (i) vertically at not more than 4 m intervals and horizontally at not more than 6 m intervals,
 - (ii) where designed by a professional engineer, at intervals recommended by a professional engineer, or
 - (iii) where commercially manufactured, at intervals recommended by the manufacturer;
 - (f) is provided with internal stairways or ladders if the scaffold is 9 m or more in height; and
 - (g) is checked to ensure that the scaffold is plumb and level after each tier is added.
- (5) Where a scaffold is partially or fully enclosed, an employer shall ensure that all scaffold components and tie-ins are adequate to support the added load that may be placed on the scaffold as a result of wind or other adverse weather conditions.
- (6) An employer shall ensure that all workers who are required to work on a scaffold are provided with the following information:
- (a) the maximum working load of the scaffold;
 - (b) any other information, restriction or condition that is necessary to ensure the safe use of the scaffold.
- (7) Where a scaffold is more than 6 m high, an employer shall install a gin wheel and hoist arm or other suitable lifting device to hoist materials from the ground.

181. (1) An employer shall ensure that a rope or wire rope that forms an integral part of a scaffold is protected against abrasion or other physical damage.

(2) Where damage to a rope that forms an integral part of a scaffold from heat or chemicals is possible, an employer shall ensure that rope of heat or chemical resistant material is used.

Scaffold Planks and Platforms

182. (1) An employer shall ensure that scaffold planks

- (a) are inspected by a competent worker to ensure that the scaffold planks are free of defects before the planks are incorporated in a scaffold;
- (b) subject to subsections (2) and (4), are of 38 mm by 240 mm, number 1 structural grade spruce lumber or material of equivalent or greater strength;
- (c) are the same thickness as adjoining planks;
- (d) are laid tightly side by side with adjoining planks to cover the full width of the platform;
- (e) are secured to prevent accidental or inadvertent movement in any direction;
- (f) where wooden, do not span more than 3 m between vertical supports on a light-duty scaffold or 2.1 m between vertical supports on a heavy-duty scaffold;
- (g) where metal or manufactured laminate, do not have a span between vertical supports greater than the span recommended by the manufacturer; and
- (h) do not extend less than 150 mm or more than 300 mm beyond the bearers.

(2) An employer or supplier shall ensure that

- (a) no wooden ladder or stepladder is painted with any substance other than a transparent coating; and
- (b) no ladder is made by fastening cleats across a single rail or post.

(3) Subject to subsection (4), an employer shall ensure that a scaffold platform

- (a) is at least 1/2 m wide in the case of a light-duty scaffold;
- (b) is at least 1 m wide in the case of a heavy-duty scaffold; and
- (c) is level or, where used as a ramp, has a slope at an angle not steeper than five horizontal to one vertical.

(4) A single manufactured extending painter's plank, or a plank that is 51 mm by 305 mm, number 1 structural grade spruce lumber or material of equivalent or greater strength, may be used in a ladderjack scaffold.

Wooden Scaffolds

183. (1) An employer shall ensure that the dimensions of members of a wooden light-duty scaffold that is less than 6 m in height are not less than the dimensions specified in Schedule M.

(2) An employer shall ensure that any wooden scaffold is constructed of unpainted number 1 structural grade spruce lumber or material of equivalent or greater strength.

Metal Scaffolds

184. (1) Where a metal scaffold is used, an employer shall ensure that the metal scaffold is erected, used, maintained and dismantled in accordance with the manufacturer's or professional engineer's specifications and recommendations.

(2) Where a metal scaffold or a component of a metal scaffold is damaged, deteriorated or weakened so that the strength or stability of the scaffold is affected, an employer shall ensure that the scaffold is not used until the scaffold or component is repaired or replaced by a competent person in accordance with the manufacturer's or a professional engineer's specifications and recommendations.

- (3) Where a metal scaffold is a tube and clamp scaffold, an employer shall ensure that
- (a) joints in adjacent uprights are staggered and do not occur in the same tier;
 - (b) joints in uprights are located not more than one-third of a tier away from the connection of a ledger;
 - (c) ledgers are erected horizontally along the length of the scaffold and coupled to each upright at regular intervals of one tier;
 - (d) all ledgers are joined to form a continuous length;
 - (e) individual tube lengths of a ledger are the lesser of
 - (i) two or more bays in length; or
 - (ii) the horizontal length of the scaffold;
 - (f) tubes of different metals or gauges are not joined together; and
 - (g) where base plates are required, they are securely installed in the uprights and securely attached to the sills.
- (4) Where a metal scaffold is a standard tubular frame scaffold, an employer shall ensure that
- (a) where base plates, shore heads, extension devices or screwjacks are necessary, they are securely installed and securely attached to the sills and the legs of the frame; and
 - (b) there are no gaps between the lower end of one frame and the upper end of the frame below on stacked frames.
- (5) Where a metal scaffold is a modular scaffold, an employer shall ensure that
- (a) where extension devices or screwjack bases and base collars are necessary, they are securely installed and securely attached to the sills;
 - (b) joints in adjacent uprights are staggered and do not occur in the same tier;
 - (c) there are no gaps between the lower end of one upright and the upper end of the upright below it;
 - (d) ledgers, bearers and braces are properly secured; and
 - (e) components from different modular scaffold systems are not used in the same scaffold.

Heavy-Duty Scaffolds, Scaffolds Used at Certain Heights

185. (1) This section applies to a scaffold that
- (a) is to be used as a heavy-duty scaffold;
 - (b) in the case of a wooden scaffold, has a platform at a height that is 6 m or more above either ground level or a permanent working surface; or
 - (c) in the case of a metal scaffold, has a platform at a height that is greater than 15 m above either ground level or a permanent working surface.
- (2) An employer shall ensure that a scaffold referred to in subsection (1) is
- (a) designed by a professional engineer and erected, used, maintained and dismantled in accordance with that design; or
 - (b) commercially manufactured to meet the requirements of an approved standard and erected, used, maintained and dismantled in accordance with the manufacturer's specifications and recommendations.
- (3) While a scaffold referred to in subsection (1) is being constructed, erected, used, maintained or dismantled, an employer shall keep at the work site all drawings and supplementary information regarding the scaffold, including
- (a) the dimensions, specifications, type and grade of all components of the scaffold; and
 - (b) the maximum load and the maximum working load that the scaffold is designed or manufactured to support.

(4) An employer shall make readily available to the workers a copy of the drawings and supplementary information referred to in subsection (3).

Bracket Scaffolds

186. An employer shall ensure that the brackets of a bracket scaffold are securely attached to prevent the brackets from dislodging and are not more than 3 m apart.

Ladderjack Scaffolds

187. An employer shall ensure that

- (a) brackets and ladders used for a ladderjack scaffold are
 - (i) designed and constructed to support the anticipated load safely, and
 - (ii) used according to the manufacturer's specifications and recommendations; and
- (b) ladders used for a ladderjack scaffold are not more than 3 m apart.

Single-Pole Scaffolds

188. An employer shall ensure that

- (a) a single-pole scaffold is adequately supported in two directions by a system of diagonal braces that are
 - (i) not more than 6 m long, and
 - (ii) connected to the uprights as close to the ledgers as possible; and
- (b) every ledger on a single-pole scaffold is supported by a bearer that is of substantial construction and that is securely fastened to the structure.

Outrigger Scaffolds

189. Where an outrigger scaffold is used, an employer shall ensure that the scaffold is

- (a) designed by a professional engineer and erected, used, maintained and dismantled in accordance with that design; or
- (b) commercially manufactured to meet the requirements of an approved standard and erected, used, maintained and dismantled in accordance with the manufacturer's specifications and recommendations.

Suspended Scaffolds

190. (1) Where a suspended scaffold is used, an employer or supplier shall ensure that the scaffold is

- (a) designed by a professional engineer and erected, used, maintained and dismantled in accordance with that design; or
- (b) commercially manufactured to meet the requirements of an approved standard and erected, used, maintained and dismantled in accordance with the manufacturer's specifications and recommendations.

(2) An employer shall ensure that the working parts of the hoisting mechanism of a suspended scaffold are left exposed so that defective parts or irregular working of the mechanism can be easily detected.

(3) An employer shall ensure that no worker is required or permitted to operate the hoisting mechanism of a suspended scaffold unless the worker is competent and has been designated by the employer to perform that work.

(4) An employer shall ensure that all parts of a suspended scaffold are inspected prior to use and daily when in use.

Suspended Powered Scaffolds

191. (1) Where a suspended powered scaffold is used, an employer or supplier shall ensure that the scaffold

and its suspension system are

- (a) designed by a professional engineer and erected, used, maintained and dismantled in accordance with that design; or
 - (b) commercially manufactured to meet the requirements of an approved standard and erected, used, maintained and dismantled in accordance with the manufacturer's specifications and recommendations.
- (2) An employer shall ensure that
- (a) where a parapet is part of the support structure of a suspended powered scaffold, the parapet can withstand the force of the load; and
 - (b) the anchor points for the suspension system are secure and can safely withstand the load.
- (3) An employer or supplier shall ensure that a power unit of a suspended powered scaffold is equipped with positive pressure controls and positive drives for raising and lowering the scaffold.
- (4) Where workers are required to use a manually-operated suspended powered scaffold, an employer or supplier shall ensure that
- (a) the scaffold is equipped with spring-actuated locking pawls;
 - (b) the hoisting mechanism is locked in a positive drive position by means of a spring-steel locking pin; and
 - (c) the locking pin is permanently attached to the hoisting mechanism by a light chain.
- (5) Where a suspended powered scaffold is used, an employer shall ensure that
- (a) the suspension rope consists of wire rope that is at least 8 mm in diameter or meets the specifications recommended by the manufacturer of the scaffold or the professional engineer who designed the scaffold;
 - (b) either
 - (i) the suspension rope is long enough to reach the next working surface below the scaffold,
 - (ii) the end of the suspension rope is doubled back and held securely by a cable clamp to prevent the hoisting machine from running off the end of the rope, or
 - (iii) directional limiting devices that prevent travel of the working platform beyond the safe limit of travel are installed; and
 - (c) all rigging hardware has a safety factor of at least ten.
- (6) An employer shall ensure that a suspended powered scaffold is equipped with a secondary safety device that will activate if the suspension rope connection or primary hoisting system fails.
- (7) An employer shall ensure that a lifeline used with a suspended powered scaffold is
- (a) suspended independently from the scaffold; and
 - (b) securely attached to a fixed anchor point so that the failure of the scaffold will not cause the lifeline to fail.
- (8) An employer shall ensure that the working platform of a suspended powered scaffold
- (a) is at least 500 mm wide and fastened to the stirrups; and
 - (b) is designed to prevent the scaffold from swinging or swaying away from the structure from which the scaffold is suspended.
- (9) An employer shall ensure that
- (a) there is no covering or hoarding around or over a suspended powered scaffold; and
 - (b) two or more suspended powered scaffolds are not linked together by bridging the distance between the scaffolds with planks or any similar form of connection.
- (10) Despite paragraph 180(2)(d), where a suspended powered scaffold is permanently installed on a

structure, an employer shall, before the scaffold is used, ensure that a professional engineer has certified that the scaffold, its suspension system and all components and anchor points are safe.

Tie-In Guides

192. (1) An owner shall ensure that a new structure that will be serviced by a suspended powered scaffold is constructed with

- (a) fixed anchor points that will safely support the scaffold and lifelines; and
- (b) tie-in guides to provide a positive means of engagement between the suspended part of the equipment and the structure during the full vertical or inclined travel of the scaffold on the face of the structure.

(2) The tie-in guides required by paragraph (1)(b) must meet the requirements of an approved standard.

Use of Suspended Powered Scaffolds

193. (1) An employer shall

- (a) develop work practices and procedures for the safe use of any suspended powered scaffold;
- (b) train the workers in the procedures required pursuant to paragraph (a); and
- (c) ensure that every worker complies with the procedures required pursuant to paragraph (a).

(2) An employer shall ensure that a suspended powered scaffold is operated by a competent worker.

(3) An employer shall ensure that all parts of a suspended powered scaffold are inspected prior to use and daily when in use.

(4) An employer shall ensure that a worker who works on a suspended powered scaffold is provided with and uses a full-body harness, connecting linkage, personal fall arrest system and lifeline that meet the requirements of Part 7.

Workers' Responsibilities

194. (1) Before starting to work on a suspended powered scaffold, a worker shall inspect the scaffold to ensure that

- (a) the thrustouts or parapet hooks are secured; and
- (b) the suspension ropes and lifelines are free from abrasion or other damage.

(2) While working on a suspended powered scaffold, a worker shall

- (a) remain on the platform between the suspension ropes at all times;
- (b) secure from fouling all ropes from the scaffold that extend to the ground or a landing;
- (c) use a full-body harness, connecting linkage, personal fall arrest system and lifeline that meet the requirements of Part 7; and
- (d) ensure that, when the scaffold is being moved up or down on a suspension rope, the scaffold is kept level.

(3) A worker shall not

- (a) bridge the distance between a suspended powered scaffold and any other scaffold with planks or by any other means; or
- (b) use the lifeline or the suspension ropes as a means of access to or exit from the scaffold except in cases of emergency.

(4) A worker shall comply with the work practices and procedures developed pursuant to paragraph 193(1)(a).

Rolling Scaffolds

195. (1) An employer shall ensure that the height of a rolling scaffold is not more than three times

- (a) the smallest dimension of the scaffold's base; or
 - (b) where outriggers are provided, the smallest dimension of the scaffold's base, including the extended outriggers.
- (2) Where outriggers are provided on a rolling scaffold, an employer shall ensure that the outriggers are firmly attached to the scaffold uprights to ensure the stability of the scaffold.
- (3) An employer shall ensure that
- (a) each wheel on a rolling scaffold is equipped with a device to securely attach the wheel to the scaffold;
 - (b) where vertical adjusting devices are required, they are securely attached to the scaffold; and
 - (c) each rolling scaffold is secured against inadvertent movement while a worker is on the scaffold.
- (4) An employer shall ensure that a scaffold erected on a movable platform is securely fastened to that platform.
- (5) An employer shall not require or permit a worker to remain on a rolling scaffold while the scaffold is being moved unless
- (a) the height of the work platform does not exceed twice the shortest base dimension of the scaffold;
 - (b) the route to be travelled by the rolling scaffold has been thoroughly examined and found to be free of any condition that could cause the rolling scaffold to tilt or otherwise go out of control; and
 - (c) a work platform fills the entire area enclosed by the scaffold structure.

Prohibition

196. Except as provided in sections 197 and 199, an employer shall ensure that no worker is raised or lowered by, or works on, a platform or load suspended from powered mobile equipment.

Aerial Devices and Elevating Work Platforms

197. (1) An employer shall ensure that
- (a) an aerial device, elevating work platform or personnel lifting unit is designed, constructed, erected, operated and maintained in accordance with an approved standard; or
 - (b) a professional engineer has certified that
 - (i) an aerial device, elevating work platform or personnel lifting unit and its elevating system and mountings are safe for the purpose of raising workers and loads, and
 - (ii) the components of an aerial device, elevating work platform or personnel lifting unit and its elevating system and mountings are designed in accordance with an approved standard.
- (2) An employer shall not require or permit a worker to be raised or lowered by any aerial device or elevating work platform or to work from a device or platform held in an elevated position unless
- (a) there is an adequate and suitable means of communication between the worker operating the controls and the worker raised on the platform, if they are not the same person;
 - (b) the elevating mechanism is designed so that, if any failure of the mechanism occurs, the platform will descend in a controlled manner so that no worker on the platform will be endangered;
 - (c) the controls are designed so that the platform will be moved only when direct pressure is applied to the controls;
 - (d) the drive mechanism of any operation for moving the platform is positive and does not rely on gravity;
 - (e) road traffic conditions, environmental conditions, overhead wires, cables and other obstructions do not create a danger to the worker;
 - (f) the brakes of the aerial device or elevating work platform are engaged;
 - (g) if the aerial device or elevating work platform is equipped with outriggers, the outriggers are set;

- (h) the worker is provided with and is required to use a personal fall arrest system pursuant to Part 7; and
- (i) the aerial device or elevating work platform is equipped with a lanyard attachment point that is
 - (i) designed and constructed to an approved standard, or
 - (ii) certified as safe by a professional engineer and installed and used in accordance with that design.

(3) Despite any other provision in this section, an employer shall not require or permit a worker working on an exposed energized high voltage electrical conductor to work from an aerial device or elevating work platform unless the controls are operated by that worker on the device or platform.

(4) Where a worker leaves an aerial device or elevating work platform parked or unattended, an employer shall ensure that the device or platform

- (a) is locked or rendered inoperative; or
- (b) is fully lowered and retracted with all hydraulic systems in the neutral position or incapable of operating by moving the controls.

(5) An employer shall ensure that

- (a) a worker who operates an aerial device or elevating work platform is trained to operate the device or platform safely; and
- (b) the training includes the manufacturer's instructions and recommendations, the load limitations, the proper use of all controls and any limitations on the surfaces on which the device or platform is designed to be used.

(6) An employer shall ensure that, while a worker is on a work platform mounted on a forklift and the forklift is in the raised position, the operator

- (a) remains at the controls; and
- (b) does not drive the forklift.

(7) An employer shall ensure that the manufacturer's operating manual for the aerial device or elevating work platform is kept with the device or platform at all times.

Maintenance and Inspection

198. (1) An employer or supplier shall ensure that only competent persons maintain and inspect an aerial device, elevating work platform, suspended powered scaffold, personnel lifting unit or scaffold to which section 185 applies.

(2) An employer or supplier shall, in respect of the aerial device, elevating work platform, suspended powered scaffold, personnel lifting unit or scaffold, ensure that a maintenance and inspection record

- (a) is provided and is attached to it near the operator's station; and
- (b) includes the following recorded information concerning the last maintenance:
 - (i) the date of the maintenance;
 - (ii) the name and signature of the person who performed the maintenance;
 - (iii) an indication that the maintenance has been carried out in accordance with the manufacturer's recommendations.

Forklifts

199. (1) An employer shall ensure that no worker is raised or lowered by, or required or permitted to work on, a forklift or any device mounted on a forklift except as provided by this section.

(2) An employer shall ensure that a work platform mounted on a forklift on which a worker may be raised or lowered or required or permitted to work is

- (a) designed and constructed to an approved standard or designed and constructed and certified safe

for use by a professional engineer to support safely the maximum load that the platform is expected to support;

- (b) securely attached to the forks of the forklift to prevent accidental lateral or vertical movement of the platform;
- (c) equipped with guardrails and toeboards that meet the requirements of sections 127 and 128; and
- (d) equipped with a screen or similar barrier along the edge of the platform adjacent to the mast of the forklift to prevent a worker from contacting the mast drive mechanism.

(3) The employer shall ensure that a worker working from a work platform referred to in subsection (2) uses a personal fall arrest system that meets the requirements of Part 7.

(4) An employer shall comply with the requirements referred to in section 175.

Temporary Supporting Structures

200. (1) An employer shall ensure that a temporary supporting structure is designed and constructed to withstand safely all loads that the structure is intended, or may reasonably be anticipated, to support.

(2) An employer shall, subject to subsection (3), ensure that

(a) a temporary supporting structure

- (i) is designed by a professional engineer,
- (ii) is inspected by a professional engineer after assembly and before use, and
- (iii) is certified by a professional engineer to be safe; and

(b) all the drawings and other instructions necessary to construct and use the temporary supporting structure safely are kept at the work site.

(3) Paragraph (2)(a) does not apply where a temporary supporting structure consists of

- (a) shoring that is less than 3.6 m high; or
- (b) members that are not connected to one another so that a load applied to any member of the structure may alter the stresses induced in the other members.

(4) An employer shall ensure that a scaffold constructed as an integral part of a temporary supporting structure is designed and certified to be safe by a professional engineer.

Flyform Deck Panels

201. (1) In addition to the requirements of section 200, an employer shall ensure that

- (a) all drawings and written procedures that are necessary to safely assemble, fly, use, dismantle or re-use a flyform deck panel are kept at the work site for reference by workers;
- (b) the workers are instructed in and comply with the procedures referred to in paragraph (a);
- (c) a flyform deck panel is securely attached to the permanent structure or to an adjacent panel; and
- (d) the attachments referred to in paragraph (c) are completed and made secure before the flyform deck panel is detached from the hoist used to position the panel.

(2) The drawings and procedures referred to in paragraph (1)(a) must include

- (a) the plan view, the longitudinal section and the cross-section of the panel;
- (b) the calculated position of the centre of gravity of the panel;
- (c) the step-by-step procedures for all phases of assembly, flying, use, dismantling, repair and re-use of the panel;
- (d) procedures for ensuring stability, if the panel is inherently unstable;
- (e) procedures for application of the panel on a non-typical floor; and
- (f) any other instructions that are necessary to ensure the safety of workers.

Erection of Masonry Wall

202. An employer shall ensure that a temporary supporting structure used to stabilize a masonry wall during the erection of the wall is not removed until the wall has been permanently stabilized.

Erection of Skeleton Structure

203. (1) Where structural members of a skeleton structure or concrete sections of a structure are to be erected, an employer shall ensure that the design includes safe procedures for erecting the members or sections.

(2) An employer shall ensure that

- (a) the design and safe procedures for erecting the members or sections required by subsection (1) are certified as safe by a professional engineer; and
- (b) all the necessary drawings and instructions to erect the structure safely are kept at the work site.

(3) An employer shall ensure that workers are instructed in and follow the safe procedures required by subsection (1).

(4) Where the procedures referred to in subsection (1) have to be modified, an employer shall ensure that

- (a) the procedures are certified by a professional engineer; and
- (b) the drawings showing the procedures are available at the work site.

(5) An employer shall ensure that a competent supervisor is present on the work site while the erection of a skeleton structure is in progress until the structure has been permanently stabilized.

PART 13

HOISTS, CRANES AND LIFTING DEVICES

Interpretation

204. In this Part,

“anti two block warning device” means a device that warns the worker that continued upward movement of the load line may cause the load block to strike the upper sheaves;

“boom” means a member that is attached to a crane superstructure and used to support the upper end of the hoisting tackle;

“crane” means equipment that is designed to lift, lower and move loads horizontally and that consists of a rotating superstructure, operating machinery and a boom;

“designated operator” means a worker designated pursuant to paragraph 209(2)(a) to operate a hoist, crane or lifting device;

“jib” means an extension to a boom that is attached to the boom tip to provide additional boom length;

“lifting device” means a device that is used to raise or lower material or an object, but does not include a crane or hoist;

“load rating” means the maximum loads that may be lifted or lowered safely at a series of stated configurations under a series of stated conditions;

“material hoist” means a hoist that is designed to raise and lower equipment or material and that has a load-

carrying unit that moves within fixed guides, but does not include a hoist that is designed to raise or lower workers;

“mobile crane” means a crane mounted on a truck, wheel or crawler base that can move freely under the crane’s own power without being restricted to a predetermined path;

“rated load” means the maximum load that may be lifted or lowered safely using a particular configuration under the conditions existing at the time of the lifting or lowering operation;

“tower crane” means a crane that is mounted on a tower and that can rotate about the axis of the tower;

“tower hoist” means a hoist with a tower that forms an integral part of the supporting structure and a load-carrying unit that travels between fixed guides.

Application of Part

205. This Part applies to hoists, cranes and lifting devices other than hoists, cranes and lifting devices that are governed by the *Electrical Protection Act* or regulations made under that Act.

General Requirements

206. (1) An employer shall ensure that every hoist, crane and lifting device, including all rigging, used at a work site is designed, constructed, installed, maintained and operated to perform safely any task for which the hoist, crane, lifting device or rigging is used.

(2) A supplier shall ensure that every hoist, crane and lifting device, including all rigging, supplied for use at a work site is designed, constructed, installed, maintained and operated to perform safely any task for which the hoist, crane, lifting device or rigging is intended to be used.

Standards

207. (1) An employer shall ensure that all hoists, cranes and lifting devices are constructed, inspected, tested, maintained and operated in accordance with an approved standard.

(2) A supplier shall ensure that all hoists, cranes and lifting devices are constructed, inspected, tested and maintained in accordance with an approved standard.

Load Ratings

208. (1) An employer shall ensure that a hoist, crane or lifting device is provided with a durable and clearly legible indication of the load rating that is readily accessible to the operator at the control station.

- (2) A supplier shall ensure that the indication of the load rating of a hoist, crane or lifting device contains
- (a) all appropriate load ratings for the hoist, crane or lifting device;
 - (b) any applicable warning that no allowance is made in the load ratings for such factors as the effects of swinging loads, tackle weight, wind, degree of machine level, ground conditions, inflation of tires and operating speeds; and
 - (c) any applicable restrictions on operating in low temperatures.

Designated Operator

209. (1) In this section,

“competent operator” means a worker who

- (a) has successfully completed a training program that includes all of the elements set out in Schedule N for the crane that the worker will be required or permitted to operate; or

- (b) is completing the practical training required by Part II of Schedule N under the direct supervision of a competent operator or a qualified operator;

“qualified operator” means

- (a) a holder of a certificate of qualification in the crane and hoist operator trade issued pursuant to the *Apprenticeship, Trade and Occupations Certification Act*,
 - (b) an apprentice in the crane and hoist operator trade who is working under the direction of a person described in paragraph (a) or (c), or
 - (c) any other worker who
 - (i) has received training and has experience in the safe operation of a crane that, in the opinion of the Chief Safety Officer, is equivalent to or superior to the training and experience of a person referred to in paragraph (a) or (b), or
 - (ii) is a member of a category of workers whose training and experience in the safe operation of a crane is, in the opinion of the Chief Safety Officer, equivalent to or superior to the training and experience of a person referred to in paragraph (a).
- (2) An employer shall
- (a) designate a worker to operate a hoist, crane or lifting device;
 - (b) ensure that the designated operator is trained in the operation of that hoist, crane or lifting device; and
 - (c) ensure that no worker other than a designated operator operates that hoist, crane or lifting device.
- (3) Subject to subsection (4), an employer shall ensure that the designated operator is a qualified operator where the crane to be operated is
- (a) a tower crane;
 - (b) an overhead travelling crane that has a load rating equal to or greater than 50 t;
 - (c) a crane that is used to raise or lower a worker on a personnel-lifting unit suspended from a hoist line; or
 - (d) a mobile crane that has a load rating greater than 5 t.
- (4) In circumstances other than those described in subsection (3), an employer shall ensure that
- (a) for any crane with a load rating greater than or equal to 5 t, the designated operator is a competent operator; and
 - (b) for any mobile or overhead travelling crane with a load rating less than 5 t, the designated operator is a competent worker.
- (5) No worker shall operate a hoist, crane or lifting device unless the worker is a designated operator and has been trained in the operation of that hoist, crane or lifting device.
- (6) No worker shall operate a crane unless the worker
- (a) has written proof of training in the operation of any crane that the worker will be required or permitted to operate; and
 - (b) has that written proof of training readily accessible at all times while the worker is operating the crane.

Operating Procedures

210. (1) Subject to subsection (2), an employer shall ensure that
- (a) a copy of the manufacturer's operating manual for a hoist or crane is readily accessible to the operator; and
 - (b) an operator of a hoist or crane is thoroughly trained in and implements the manufacturer's

recommended operating procedures.

- (2) Where the manufacturer's manual for a hoist or crane cannot be obtained, an employer shall develop an operating manual for the hoist or crane and ensure that
- (a) a copy of the operating manual is readily accessible to the operator; and
 - (b) an operator of the hoist or crane is thoroughly trained in and implements the operating procedures set out in the operating manual.

Rated Load

211. (1) An employer shall not require or permit an operator of a hoist, crane or lifting device to raise any load that is greater than the rated load determined by the manufacturer of the equipment or a professional engineer for the conditions in which the equipment is to be operated.

(2) An employer shall not require or permit the operator of a hoist, crane or lifting device to use the hoist, crane or lifting device to raise or lower workers unless the load applied to the hoist, crane or lifting device is less than one-half of the rated load as determined pursuant to subsection (1).

- (3) An operator of a hoist, crane or lifting device shall not raise a load unless
- (a) the operator has determined the accurate weight of the load; and
 - (b) the load is less than the rated load for the operating conditions.

Raising and Lowering Workers

212. (1) Where a crane or hoist will be used to raise or lower workers, an employer shall

- (a) develop and implement work practices and procedures that will provide for the safe raising and lowering of the workers;
- (b) train the workers in those work practices and procedures;
- (c) ensure that hoisting equipment and personnel lifting units are inspected by a competent person before use and daily when in use; and
- (d) ensure that the competent person records the details of the inspection in the log book referred to in section 220.

(2) An employer shall not require or permit an operator of a crane or hoist to use the crane or hoist to raise or lower workers unless

- (a) the personnel lifting unit meets the requirements of section 197;
- (b) the suspension members of the personnel lifting unit are securely attached to the crane, hoist line or hook by a shackle, weldless link, ring or other secure rigging attachment;
- (c) there is a secondary safety device that attaches the suspension members of the personnel lifting unit to the crane or hoist rigging above the point of attachment referred to in paragraph (b);
- (d) the load line hoist drum has a system or device on the power train, other than the load hoist brake, that regulates the lowering rate of speed of the hoist drum mechanism; and
- (e) workers in the personnel lifting unit each use a full body harness attached to the personnel lifting unit.

- (3) An operator of a crane or hoist shall not use the crane or hoist to raise or lower workers unless
- (a) the personnel lifting unit meets the requirements of section 197;
 - (b) the suspension members of the personnel lifting unit are securely attached to the crane, hoist line or hook by a shackle, weldless link, ring or other secure rigging attachment;
 - (c) there is a secondary safety device that attaches the suspension members of the personnel lifting unit to the crane or hoist rigging above the point of attachment referred to in paragraph (b);
 - (d) the load line hoist drum has a system or device on the power train, other than the load hoist brake, that regulates the lowering rate of speed of the hoist drum mechanism; and

- (e) workers in the personnel lifting unit each use personnel fall arrest system attached to the personnel lifting unit.

Determining Weight of Load

213. (1) An employer shall provide an operator of a hoist, crane or lifting device with all information necessary to enable the operator to determine readily and accurately the weight of any load that the operator is required or permitted to raise.

(2) An employer shall provide a permanent load gauge for a mobile crane that may be used for load ratings of 9 t or greater at the minimum operating radius.

(3) A permanent load gauge required pursuant to subsection (2) must measure the weight of any load being hoisted and instantaneously indicate that weight to the operator.

(4) Subsection (2) does not apply to cranes that

- (a) use a device suspended by a wire rope to demolish a structure;
- (b) use a magnet to raise or lower a load; or
- (c) use a clam-style load carrier to move material.

(5) An employer shall not require or permit a worker to use the crane referred to in subsection (2) unless the crane is equipped with a permanent load gauge that will measure the weight of any load being hoisted and instantaneously indicate that weight to the operator.

(6) An employer shall ensure that

- (a) a worker who is required or permitted to use a crane equipped with a permanent load gauge is trained in the safe use and limitations of the permanent load gauge; and
- (b) the permanent load gauge is regularly inspected, maintained and calibrated in accordance with the manufacturer's instructions.

Overload Switches

214. (1) An employer or supplier shall ensure that a tower crane is equipped with

(a) both

- (i) an overload limit switch that causes the hoist drum to stop when the load being hoisted exceeds the maximum rated load for any radius or boom angle or when the overturning moment exceeds the rated load moment, and
- (ii) a moment overload switch that automatically restricts the radius within which the load can travel; or

(b) a permanent load gauge.

(2) An employer shall not require or permit a worker to use a tower crane unless

- (a) the crane is equipped with the overload limit switch and moment overload switch required by paragraph (1)(a) or the permanent load gauge required by paragraph (1)(b);
- (b) the worker is trained in the safe use and limitations of the overload limit switch and the moment overload switch or the permanent load gauge; and
- (c) the overload limit switch and moment overload switch or the permanent load gauge are regularly inspected, maintained and calibrated in accordance with the manufacturer's instructions.

Designated Signaller

215. (1) An employer shall designate a signaller pursuant to section 137 where the operator of a hoist or crane does not have a clear, unobstructed view of any of the following throughout the whole range of movement of the load or hook:

- (a) the pick-up point;

- (b) the setting point and the load;
- (c) the hook, if there is no load.

(2) Before a hoisting operation begins, an employer shall ensure that the operator of the hoist or crane reviews with the designated signaller the signals to be used.

(3) Where a hand signal is to be used in connection with a hoist or crane, an employer shall ensure that the signal used is the signal that is appropriate for the activity to be carried out and that is set out in an approved standard.

(4) An operator of a hoist or crane and a designated signaller shall use the signal set out in the standard referred to in subsection (3) that is appropriate for the activity to be carried out.

General Requirements for Cranes and Hoists

216. (1) An employer or supplier shall ensure that a crane is equipped with an effective warning device that can be readily activated by the operator and that is adequate to warn workers of the impending movement of the crane.

- (2) An employer or supplier shall ensure that a crane that has a boom is equipped with
 - (a) positive boom stops to prevent inadvertent movement of the boom;
 - (b) a boom stop limit device to prevent the boom from being drawn back beyond a predetermined safe boom angle identified by the manufacturer;
 - (c) a jib stop device to prevent the jib from being drawn back beyond the safe boom angle identified by the manufacturer, where a jib is attached to the boom; and
 - (d) a boom angle indicator that is clearly visible to the operator while seated at the control station.

(3) An employer or supplier shall ensure that a crane is equipped with an anti two block warning device where the crane will be used to hoist workers on a personnel-lifting unit or where the crane is a hydraulic crane with a rated load of 9 t or greater.

(4) An employer or supplier shall ensure that a hoist or crane that operates on rails, tracks or other guides is fitted with

- (a) a positive stop or limiting device installed on the hoist or crane or on the rails, tracks or other guides to prevent the hoist or crane from over-running safe limits or contacting other equipment that is on the same rail, track or other guide;
- (b) sweep guards installed to prevent materials on the rail, track or other guide from causing dislodgment of the hoist or crane; and (c) stops to prevent the crane or hoist from dropping more than 2.5 cm if the axle breaks.

(5) Where a worker leaves a crane or hoist unattended or parked, an employer shall ensure that

- (a) the crane or hoist is stored in a manner that does not create a risk to any worker;
- (b) the operating machinery is locked or rendered inoperative;
- (c) the rigging and boom angle are secured; and
- (d) a mobile crane is stored on level ground with the wheels locked or chocked.

Hoists, Cranes with Outriggers

217. Where a hoist or crane is designed to be operated with outriggers or other stabilizing devices, an employer shall ensure that

- (a) the outriggers or other stabilizing devices
 - (i) are used according to the manufacturer's instructions,
 - (ii) are set on a solid footing or pad, and
 - (iii) have their controls, if any, readily accessible to the operator and in a suitable position for safe operation;

- (b) the area around the outriggers or other stabilizing devices is kept free of obstruction;
- (c) there is a minimum clearance of at least 600 mm between any moving part of the crane and any obstacle near the base of the hoist or crane; and
- (d) where there is a danger of a worker being trapped or crushed by any moving part of the crane when the crane swings, the area around the base of the crane is barricaded to restrict the entry of workers.

Operators' Cabs on Tower Cranes

218. Where an operator's cab is to be attached to the boom or jib of a tower crane, the employer or supplier shall ensure that the cab is designed, positioned and attached in accordance with the specifications of the manufacturer of the crane or a professional engineer.

Erecting and Dismantling

219. (1) Subject to subsection (4), an employer shall develop a written procedure for safely erecting and dismantling a hoist or crane.

(2) The written procedure required by subsection (1) must include the safe blocking of any mast, boom or jib and the number and qualifications of workers required to implement the procedure.

(3) An employer shall ensure that the erecting and dismantling of a hoist or crane is carried out in accordance with the written procedure required by subsection (1).

(4) An employer may use the manufacturer's instructions for erecting or dismantling a hoist or crane if the instructions contain the requirements set out in subsection (2).

Log Book

220. (1) An employer shall

- (a) provide a log book for each hoist and crane with a rated load greater than 5 t and ensure that the log book is kept readily available;
- (b) provide a copy of the log book to the operator on request;
- (c) ensure that the hours of service of the hoist or crane and all details of any inspection, maintenance or calibration required by this Part are recorded in the log book;
- (d) ensure that each entry required by paragraph (c) is signed by the person who performs the inspection, maintenance or calibration; and
- (e) review and sign the log book on a regular basis.

(2) Where the supplier of a hoist or crane provides a log book, an employer shall ensure that the information and signatures required by subsection (1) are recorded in the supplier's log book instead of the employer's log book and that the supplier's log book is kept with the hoist or crane.

Inspections

221. (1) An employer or supplier shall ensure that a hoist, crane or lifting device is inspected by a competent person to determine whether the hoist, crane or lifting device is in safe working condition

- (a) before the hoist, crane or lifting device is used at the start of each work shift; and
- (b) at regular intervals as recommended by the manufacturer.

(2) Where a defect or unsafe condition that may create a hazard to a worker is found in a hoist, crane, lifting device or rigging, an employer or supplier shall

- (a) take steps immediately to protect the health and safety of any worker who may be at risk until the defect is repaired or the unsafe condition is corrected; and
- (b) as soon as is reasonably practicable, repair the defect or correct the unsafe condition.

(3) An employer or supplier shall ensure that a mobile crane is subjected to a thorough inspection,

including non-destructive testing, under the supervision of a professional engineer every two years or 1,800 hours of operation, whichever comes first.

(4) An employer or supplier shall ensure that a tower crane is subjected to a thorough inspection, including non-destructive testing, under the supervision of a professional engineer

- (a) before erection at each site; and
- (b) at subsequent intervals of 2,000 operating hours or one year, whichever occurs first.

(5) No worker shall operate a crane or cause a crane to be operated unless a copy of the results of the testing or inspection required by subsection (3) or (4) is readily available or is on site.

Repairs

222. (1) Where the inspection of a hoist, crane or lifting device reveals a condition that might render the hoist, crane or lifting device unsafe or incapable of raising the rated load referred to in subsection 211, an employer or supplier shall not require or permit the use of the hoist, crane or lifting device until any necessary repairs are completed.

(2) An employer or supplier shall ensure that a structural repair or modification to a component of a hoist or crane is performed only under the direction and control of a professional engineer.

(3) Before a hoist or crane is used after a structural repair or modification, an employer or supplier shall ensure that

- (a) the equipment is tested under the direction of a professional engineer; and
- (b) a professional engineer has determined the rated load of the repaired or modified hoist or crane and has certified that the hoist or crane is capable of safely raising the new rated load.

(4) Where the rated load of a hoist or crane after repair or modification differs from the rated load before repair or modification, an employer or supplier shall ensure that a new indication of load rating is provided pursuant to section 208.

Friction Type Hoists

223. On a construction site, an employer shall ensure that no material is hoisted vertically by a rope driven by friction between the rope and a powered surge wheel or drum unless the hoist is equipped with

- (a) a safety device that will prevent a free fall of the load; and
- (b) an emergency stop device.

Material Hoists

224. (1) Where a material hoist is in use, an employer shall ensure that

- (a) no worker is required or permitted to ride on the hoist; and
- (b) no load projects beyond the edges of the load-carrying unit.

(2) If the controls of a material hoist are not remote from the hoist, an employer shall ensure that an adequate overhead barrier is provided to protect the operator.

(3) An employer shall ensure that

- (a) the braking systems on a material hoist are capable of stopping 150% of the rated load referred to in subsection 211(1) at the maximum speed;
- (b) the area around the base of a material hoist is fenced or otherwise barricaded to prevent the entry of workers, and that no worker is required or permitted to enter that area except when the load-carrying unit is at the lowest level; and
- (c) a landing gate is installed
 - (i) on any landing served by the material hoist, and
 - (ii) not less than 600 mm nor more than 900 mm from the edge of the landing.

- (4) An operator of a material hoist shall not
 - (a) leave the controls while the load-carrying unit is in the raised position;
 - (b) operate the hoist while a landing gate is open; or
 - (c) move a load-carrying unit until the operator is informed by signal that the load-carrying unit can be moved safely.
- (5) An employer shall ensure that
 - (a) the operator of a material hoist and a designated signaller at a landing where loading or unloading is carried on are able to maintain visual or audible communication with each other at all times during loading or unloading; and
 - (b) a material hoist that is, or is designed to be, over 20 m high is equipped with a signal system that will
 - (i) allow voice communication between a worker at any landing and the operator, and
 - (ii) inform the operator of the landing from which a signal originates.
- (6) An employer shall ensure that a power driven material hoist is equipped with a safety device that will stop and hold the load-carrying unit if the hoist rope or braking system fails.

Tower Hoists

225. (1) Where a tower hoist is used, an employer shall ensure that
- (a) the pulley block is securely anchored and the ropes from the pulley to the hoisting engine are enclosed, and
 - (b) at each landing, the hoist is equipped with landing gates and devices that will prevent
 - (i) movement of the load-carrying unit when a landing gate is open, and
 - (ii) opening of a landing gate when the load-carrying unit is not standing at that landing.
- (2) Where a tower hoist is not erected inside a structure, an employer shall ensure that the hoist
- (a) is enclosed on all sides except the landing side by solid walls or equally effective fencing from ground level to a height of not less than 2 m; and
 - (b) is adequately braced or guyed to prevent sway or movement.
- (3) Where a tower hoist is erected inside a structure, an employer shall ensure that
- (a) the hoist is enclosed on all sides except the landing side at the ground level and at each floor level by solid walls or equally effective fencing from ground or floor level to a height of not less than 2 m;
 - (b) each point of access to the hoist is conspicuously marked by a warning sign; and
 - (c) the hoist structure is adequately supported at vertical intervals not exceeding 6 m.

Roofers' Hoists

226. (1) Where a roofer's hoist is used, an employer shall ensure that
- (a) all counterweights on the hoist
 - (i) are designed as an integral part of the hoist,
 - (ii) remain securely attached to the hoist at all times that hoisting is in progress, and
 - (iii) are designed to exert an opposing moment that is equal to at least four times the moment exerted by the maximum rated load; and
 - (b) any part or section of the hoist that may become disconnected is equipped with suitable locking devices.
- (2) An employer shall not require or permit a worker to use roofing material as a counterweight on a roofer's hoist.

(3) An employer shall ensure that a roofer's hoist is used only to perform vertical lifts.

(4) An employer shall ensure that no worker is required or permitted to use a wooden gallows frame roofer's hoist.

Vehicle Hoists

227. (1) In this section, "lock" means to fix the controls of a hoist in one position by any mechanical means.

(2) An employer shall ensure that a pneumatic or hydraulic vehicle hoist is equipped with clearly marked controls that raise or lower the hoist only when a worker is applying pressure to the controls.

(3) An employer shall ensure that no worker is required or permitted

(a) during raising or lowering of the hoist, to lock the controls referred to in subsection (2); or

(b) to work or be under a raised vehicle or trailer unless the vehicle or trailer is supported by

(i) a vehicle hoist that is designed to safely support the weight of the vehicle or trailer, or

(ii) substantial stands or blocks and, where necessary, wheel chocks.

(4) For the purposes of subparagraph (3)(b)(ii), jacks alone are not sufficient.

(5) An employer shall ensure that all pneumatic or hydraulic vehicle hoists are assembled, installed, operated and maintained according to the manufacturer's instructions.

Hand Operated Hoists

228. (1) An employer shall ensure that a hand operated hoist is designed, constructed, installed, operated and maintained in accordance with an approved standard.

(2) An employer or supplier shall ensure that a hand operated hoist is equipped with a spring-actuated or weighted ratchet and pawl, load brake or other mechanism that will stop and hold the load at any height desired by the operator.

(3) An employer shall not require or permit a worker to work under a load raised by a hand operated hoist unless the load is supported with adequate stands or blocks.

Winches

229. (1) An employer shall inspect all manually operated hoisting or winching equipment thoroughly at appropriate intervals to ensure that the manually-operated hoisting or winching equipment is capable of safe operation.

(2) Before a worker operates a winch on a vehicle, the worker shall ensure that the brakes are applied or other effective means are taken to prevent movement of the vehicle.

(3) A worker who operates a vehicle on which a winch is in use shall not move the vehicle until the winch operator has given a signal that the vehicle can be moved safely.

(4) An employer shall not require or permit a worker to cross over or under a winch cable between a winch and the load or to go underneath the load while a winch is in use.

A-Frames and Gin Poles

230. An employer shall ensure that

(a) no A-frame or gin pole is inclined more than 45° from the vertical;

(b) an A-frame or gin pole is restrained from uncontrolled lateral and vertical movement; and

(c) the sheave and the cable keeper of an A-frame or gin pole are attached securely enough to withstand any load to which the assembly may be subjected.

Piledriving Equipment

231. (1) An employer shall ensure that

- (a) piledriving equipment is operated, inspected and maintained according to the manufacturer's instructions; and
 - (b) any structural repairs or modifications to piledriving equipment are made under the direction of a professional engineer and certified as safe by the professional engineer before the piledriving equipment is put in service.
- (2) Where piledriving equipment is used, an employer shall ensure that a brake band or clutch that is contaminated by oil or grease is dismantled and cleaned or replaced before further use.
- (3) An employer shall ensure that
- (a) before a pile is placed in position for driving, the pile head is cut square and, in the case of a timber pile, cleaned free of debris, bark and splintered wood; and
 - (b) workers are adequately protected from injury that may be caused by the failure of a pile being driven.
- (4) An employer shall not require or permit a worker who works with piledriving equipment
- (a) to remain or ride on a load being moved;
 - (b) to work, stand or pass under a suspended load; or
 - (c) to be on the superstructure of the equipment or within range of a falling pile unless the worker is directly involved in the operation of hoisting piles.
- (5) Where a worker uses piledriving equipment, an employer shall ensure that
- (a) a pile hammer is securely chocked while the hammer is suspended and the equipment is not operating; and
 - (b) no pile is hoisted in the leads while a worker who is not directly involved in the operation is on the superstructure of the equipment or within range of a falling pile.
- (6) Where piledriving equipment is fitted with pressure hammers, an employer or supplier shall ensure that the hoses are equipped with safety chains or safety ropes on the pressure side of the hose connections.
- (7) An employer shall ensure that
- (a) crane booms used with vibratory hammers or vibratory pile extractors are inspected monthly by a competent person for structural defects; and
 - (b) any structural defects found pursuant to paragraph (a) are repaired under the direction of a professional engineer and certified as safe by the professional engineer before the booms are put back into service.
- (8) An operator of piledriving equipment shall ensure that
- (a) the pile hammer is securely chocked while the hammer is suspended and the equipment is not operating; and
 - (b) no pile is hoisted in the leads while a worker who is not directly involved in the operation is on the superstructure of the equipment or within range of a falling pile.

PART 14

RIGGING

Interpretation

232. In this Part,

“pendant” means a fixed-length rope that forms part of a boom-suspension system;

“rigging” means any combination of rope, wire rope, cable, chain, sling, sheave, hook and associated fittings

used in a winching or hoisting operation.

General Requirements

233. An employer shall ensure that

- (a) all rigging is assembled, used, maintained and dismantled under the supervision of a competent worker and in accordance with the manufacturer's specifications and instructions; and
- (b) any worker who is required or permitted to assemble, use, maintain or dismantle rigging is trained in safe rigging practices.

Inspection

234. An employer shall ensure that all rigging and components of rigging safely perform their intended function by

- (a) inspecting them thoroughly at appropriate intervals; and
- (b) visually inspecting them before each use.

Maximum Loads

235. (1) An employer shall ensure that no load is imposed on any rigging that is in excess of

- (a) 10% of the breaking strength of the weakest part of the rigging, in the case of rigging used to raise or lower workers; and
- (b) 20% of the breaking strength of the weakest part of the rigging, in the case of any other rigging.

(2) Subject to subsection (3), an employer or supplier shall ensure that the maximum load that may be winched or hoisted by any rigging, as determined by the manufacturer of the rigging or a professional engineer, is conspicuously marked on the rigging.

(3) Where it is not practicable to conspicuously mark the maximum load on the rigging, an employer shall ensure that information about the maximum load that may be winched or hoisted by the rigging is made readily available to the workers.

Slings

236. (1) An employer shall ensure that a sling used to hoist a load and the sling's fittings and attachments are

- (a) suitable for the intended use of the sling, fittings and attachments;
- (b) suitable for, and capable of, supporting the load being hoisted;
- (c) arranged to prevent the load or any part of the load from slipping or falling;
- (d) arranged to ensure that the load is equally divided among the slings, when more than one sling is used;
- (e) capable of supporting
 - (i) at least 10 times the load to which the sling, fittings and attachments may be subjected, where they are used to support a worker, and
 - (ii) at least five times the maximum load to which the sling, fittings and attachments may be subjected, in any other case; and
- (f) guarded to prevent damage to the sling, where the sling may be applied over a sharp edge.

(2) An employer or supplier shall ensure that a sling

- (a) is clearly labelled to indicate the sling's maximum load or the sling's maximum load is made readily available to workers; and
- (b) is not used if the sling has been or may be damaged.

Shackles

237. (1) An employer shall ensure that no shackle is subjected to a load greater than the maximum load indicated on the shackle.

- (2) An employer shall ensure that
 - (a) all shackle pins are installed to prevent accidental withdrawal; and
 - (b) a bolt is never used in place of a properly fitted shackle pin.

Sheaves, Spools and Drums

- 238. (1) An employer shall ensure that
 - (a) the diameter of a sheave, spool or drum for wire rope is not less than the diameter specified by the manufacturer of the rope and the rope is the correct size for the sheave, spool or drum over which the rope passes;
 - (b) the grooving of a sheave is the correct size for the diameter of rope; and
 - (c) a block or sheave is constructed or installed so that the rope cannot leave the block or sheave groove.
- (2) An employer shall ensure that
 - (a) rope fastened to a winding drum is fastened securely;
 - (b) the number of full wraps of rope that remain on a winding drum corresponds to the manufacturer's recommendations; and
 - (c) where there are no manufacturer's recommendations, at least five full wraps of rope remain on a winding drum at all times.

Knots, Wire Rope Clips

- 239. (1) An employer shall ensure that
 - (a) no knot or wire rope clip is used as a stopper on a rope or rope end that passes through a winding drum; and
 - (b) no knot is used to connect rigging hardware to a wire rope.
- (2) An employer shall ensure that all wire rope clips are
 - (a) made of drop-forged steel;
 - (b) installed according to the manufacturer's instructions; and
 - (c) inspected at frequent intervals to ensure the nuts are tight.
- (3) Where U-bolt clips are used to fasten wire rope, an employer shall ensure that
 - (a) the U-bolt is installed so that the U section bears on the short or dead end of the rope and the saddle bears on the long or live end of the rope;
 - (b) the nuts are correctly torqued; and
 - (c) the number of clips and the amount of rope turn-back conform to the manufacturer's specifications and instructions.
- (4) Where double saddle or fist clips are used to fasten wire rope, an employer shall ensure that the clips are installed in numbers and with the amount of rope turn-back specified by the manufacturer.
- (5) Where double base clips are used to fasten wire rope, an employer shall ensure that the clips are at least six rope diameters in length.

Eye Loops

- 240. (1) An employer shall ensure that every eye loop used in a sling
 - (a) is formed from
 - (i) a Flemish eye splice secured by a pressed steel ferrule; or
 - (ii) a steel wire loop secured by a cold-formed aluminum alloy ferrule; and
 - (b) is readily identifiable as being formed as described in paragraph (a).

(2) Except where otherwise specified by the manufacturer of the rope, an employer shall ensure that a suitable and properly sized thimble is inserted in an eye loop to increase the strength of the eye and decrease wear on the rope.

Hooks

241. (1) Where the dislodgment of a hook could injure a worker, an employer shall ensure that the hook is secured by a safety latch, mousing, shackle or other effective means, except where

- (a) skeleton steel is being hoisted or a similar operation is being performed while a sorting or grab hook is being used;
- (b) power poles or telephone poles are being hoisted into place or removed using an approved S-hook;
- (c) the design of the hook and the work practices used prevent dislodgement of the hook; or
- (d) the health and safety of a worker disconnecting the hook would be placed at risk.

(2) An employer shall not require or permit a worker to use a hook where

- (a) the throat opening has been increased or the tip has been bent more than 10° out of plane from the hook body; or
- (b) any dimension of the hook has been reduced by more than 10%.

(3) An employer shall not require or permit a worker to side load, back load or tip load a hook unless the hook has been specifically designed for that purpose.

(4) An employer or supplier shall ensure that

- (a) a hook is clearly labelled with the maximum load of the hook in a location where a worker using the hook can easily see the rating; or
- (b) the hook's maximum load is made readily available to workers.

(5) An employer shall not require or permit a worker to allow a load to bear against a safety latch, mousing or shackle.

Wedge Sockets

242. Where a wedge socket is used to anchor a wire rope, an employer shall ensure that

- (a) the wedge socket is installed according to an approved method;
- (b) the dead end of the wire rope extends at least 15 cm beyond the wedge socket; and
- (c) the wire rope is fitted with a wire rope clip to prevent accidental release or loosening of the wedge.

Wire Rope

243. (1) An employer shall ensure that wire rope used in rigging

- (a) is the type, size, grade and construction recommended by the manufacturer of the hoisting equipment or is rope of an equivalent type, size, grade and construction;
- (b) is compatible with the sheaves and the drum of the hoisting equipment;
- (c) is lubricated to prevent corrosion and wear;
- (d) is not spliced or knotted; and
- (e) is fitted with end connections that
 - (i) conform to the manufacturer's specifications and instructions concerning number, size and installation method, and
 - (ii) are securely fastened to the wire rope.

(2) An employer shall ensure that no wire rope used in rigging

- (a) subject to subsection (3), contains six or more randomly-distributed wires that are broken in one

- rope lay, or three or more wires that are broken in one strand in a rope lay;
- (b) is worn by more than one-third of the original diameter of the wire rope's outside individual wires; or
 - (c) shows evidence of
 - (i) kinking, birdcaging, corrosion or other damage resulting in distortion of the rope structure, or
 - (ii) damage that may result in rope failure.
- (3) An employer shall ensure that no wire rope that is static or that is used for pendants has
- (a) three or more broken wires in one lay or in a section between end connectors; or
 - (b) one or more broken wires at an end connector.
- (4) An employer shall ensure that rotation-resistant wire rope is not used
- (a) as a cable in boom hoist reeving and pendants; or
 - (b) where an inner wire or strand of the wire rope is damaged or broken.
- (5) An employer shall ensure that no load is imposed on any wire rope that exceeds the maximum load recommended by the manufacturer of the wire rope.

Motion of Load

244. Where a worker may be endangered by the motion of a load during winching or hoisting, an employer shall ensure that
- (a) one or more taglines are used to control the motion of the load;
 - (b) the taglines are of sufficient length to protect the workers from any overhead hazard;
 - (c) the taglines are not removed from the load until the load is securely landed; and
 - (d) only workers directly engaged in the winching or hoisting operation are allowed to be in the area where the load is being winched or hoisted.

PART 15 ROBOTICS

Interpretation

245. In this Part,

"emergency stop" means a circuit that uses hardware based components to override all other robot controls, shut off energy to a robot and stop all moving parts of a robot;

"end-effector" means an accessory device or tool specifically designed to be attached to a robot wrist or tool mounting plate to enable the robot to perform the robot's intended task;

"interlock" means an arrangement whereby the operation of one control or mechanism brings about, or prevents, the operation of another control or mechanism;

"interlock barrier" means a physical barrier around a work envelope that is equipped with gates and interlocks designed to stop all automatic operations of a robot and robot system when any gate within the barrier is opened;

"limiting device" means a device that restricts the distance a robot can travel after the limiting device is actuated;

"pendant" means a portable control device that permits an operator to control a robot from within the work envelope of the robot;

"presence sensing device" means a device that is designed, constructed and installed to create a sensing field or

area and that detects an intrusion into the field or area by workers, robots or other objects and stops all motion of the robot when the presence-sensing device is activated;

"restricted work envelope" means the portion of a work envelope to which a robot is restricted by limiting devices that establish limits that cannot be exceeded if the robot or the robot's controls fail;

"robot" means a reprogrammable multi-functional manipulator designed to move material, parts, tools or specialized devices through variable programmed motions to perform a variety of tasks;

"robot system" means a robot and all the accessories required for the robot's operation, including end-effectors, pendants, devices, sensors, safeguards, power and control panels and communication interfaces to sequence and monitor the robot;

"slow speed" means a mode of operation in which the speed of any part of a robot does not exceed 250 mm per second;

"teach" means to generate and store a series of positional data points by moving a robot arm through a path of intended motions;

"work envelope" means the volume of space enclosing the maximum designed reach of a robot, including the end-effector, and the material, part, tool or specialized device that the robot is designed to manipulate.

Application of Part

246. This Part applies to the installation, operation, teaching and maintenance of robots and robot systems, but does not apply to personal robots, automatic guided vehicle systems, automated storage and retrieval systems, automatic conveyor and shuttle systems, mobile robots or numerically controlled machine tools.

Safe Work Practices and Procedures

247. (1) An employer shall, in consultation with the Committee or the representative,
- (a) assess potential hazards to a worker who is required or permitted to install, operate, teach or maintain a robot or robot system at the work site; and
 - (b) develop written safe work practices and procedures for the installation, operation, teaching and maintenance of robots and robot systems.
- (2) An employer shall ensure that the workers are trained in and implement the safe work practices and procedures developed pursuant to paragraph (1)(b).

General Requirements

248. An employer shall ensure that robots and robot systems are
- (a) installed, anchored and wired in accordance with the manufacturer's recommendations and specifications; and
 - (b) compatible with conditions in the environment of the work site, including temperature, humidity, corrosive conditions, the presence of dust, the presence of electromagnetic interference or radiofrequency interference and other conditions that could affect the safe operation or control of the robot or robot system.

Safeguards

249. (1) Subject to subsection 250(2) and sections 251 and 252, an employer shall ensure that every robot and robot system is equipped with safeguards
- (a) to prevent a worker from entering the restricted work envelope while the robot or robot system is in motion; or
 - (b) to inhibit robot motion while any part of a worker's body is within the restricted work envelope while the robot or robot system is in motion.
- (2) The safeguards required by subsection (1)

- (a) may include interlock barriers, limiting devices and presence sensing devices; and
- (b) must include clearly visible line markings on the floor on which the robot or robot system is mounted to identify the restricted work envelope.

Controls

250. (1) Subject to subsection (2), an employer shall ensure that a robot's primary controls, including a restart control,

- (a) are located outside the restricted work envelope;
- (b) are arranged so that the robot and robot system are clearly visible to the worker who operates the primary controls; and
- (c) cannot be activated inadvertently.

(2) Where a worker is required or permitted to enter the restricted work envelope, an employer shall ensure that the robot's motion cannot be initiated by any person other than the worker within the restricted work envelope using a pendant.

(3) An employer shall ensure that a worker who operates a robot or robot system is provided with a readily accessible emergency stop device.

(4) An employer shall ensure that the controls of a robot provide a slow speed option.

Protection During Maintenance or Repair

251. An employer shall, before a worker undertakes the maintenance or repair of a robot or robot system, ensure that

- (a) the robot or robot system is locked out and remains locked out during that activity; or
- (b) an equally effective procedure is implemented to protect the worker.

Protection During Teaching

252. Where a worker is required or permitted to teach a robot, an employer shall ensure that

- (a) only the worker who is teaching the robot is allowed to enter the restricted work envelope;
- (b) the robot system is under the sole control of the worker who is teaching the robot;
- (c) when the robot is under drive power, it operates at slow speed only or at a speed that is deliberately selected and maintained by the worker who is teaching the robot;
- (d) the robot will not respond to a remote interlock or signal that would activate the robot; and
- (e) the worker leaves the restricted work envelope before returning the robot to automatic operation.

PART 16

ENTRANCES, EXITS AND LADDERS

Entrances and Exits

253. An employer shall provide and maintain a safe means of entrance to and exit from a work site.

Doors

254. An employer shall ensure that

- (a) every door in a hazardous work area opens away from the hazard and is not blocked by an obstruction; and
- (b) every walk-in freezer or refrigerator is equipped with a means to open the door from the inside.

Travelways

255. (1) In this section, "travelway" means any place where workers or vehicles regularly travel or pass, and

includes a ramp, runway, catwalk, bridge, conveyor, gantry or passage.

- (2) An employer shall ensure that every travelway
 - (a) is strong enough to withstand any traffic to which the travelway may be subjected;
 - (b) has secure footing for workers and adequate traction for vehicles or equipment; and
 - (c) is at least 900 mm wide.

(3) An employer shall ensure that every travelway that may give rise to a hazard described in subsection 118(2) is provided with a guardrail.

Stairs

256. An employer shall ensure that

- (a) the widths of treads, the depths of treads and the vertical distances between treads are uniform throughout the length of any stairway and that each tread is level; and
- (b) any stairs installed on or after the day on which this section comes into force, including temporary stairs, are at least 600 mm wide.

Ladders

257. (1) An employer or supplier shall ensure that every ladder is designed, constructed, used and maintained to perform its function safely.

- (2) An employer or supplier shall ensure that
 - (a) no wooden ladder or stepladder is painted with any substance other than a transparent coating; and
 - (b) no ladder is made by fastening cleats across a single rail or post.

Portable Ladders

258. (1) In this section and section 259, "portable ladder" means any ladder that is not fixed in place, and includes a stepladder.

- (2) An employer shall ensure that
 - (a) a portable ladder is equipped with non-slip feet;
 - (b) a portable ladder is secured against accidental movement during use;
 - (c) a metal or wire-bound portable ladder is not used where the ladder or a worker handling or using the ladder may come into contact with an exposed energized electrical conductor; and (d) a portable ladder extends at least 1 m above any platform, roof or other landing to which the ladder is used as a means of access.

(3) An employer shall ensure that each worker who handles or uses a portable ladder is instructed in the requirements of this section.

- (4) An employer shall ensure that a stepladder
 - (a) is not more than 6 m high when set for use;
 - (b) has legs that are securely held in position by means of metal braces or an equivalent rigid support; and
 - (c) when in use, has a front section slope at an angle of one horizontal to six vertical.
- (5) An employer shall ensure that
 - (a) an extension ladder is equipped with locks that securely hold the sections of the ladder in the extended position;
 - (b) where a section of an extension ladder is extended, the section that is extended overlaps another section for at least 1 m;
 - (c) an extension ladder consisting of two sections does not exceed 14.6 m in length; and

- (d) an extension ladder consisting of more than two sections does not exceed 20 m in length.
- (6) An employer shall ensure that no single portable ladder and no section of an extension ladder exceeds 9 m in length.

Use of Portable Ladders

259. (1) Where a worker uses a portable ladder other than a stepladder, an employer shall ensure that
- (a) the ladder is placed against the structure so that the slope of the ladder is one horizontal to four vertical;
 - (b) the worker does not extend any part of the worker's body except for the worker's arms beyond the side rails of the ladder; and
 - (c) the worker maintains a three-point stance on the ladder at all times; and
 - (d) the ladder is anchored to prevent movement
 - (i) at its base, and
 - (ii) at its upper points of support.
- (2) An employer shall ensure that a worker does not work from either of the top two rungs or steps of a portable ladder, unless the ladder is a stepladder that has a platform equipped with a suitable handrail.

Fixed Ladders

260. (1) In this section, "fixed ladder" means a ladder that is fixed to a structure in a vertical position or at an angle that is between vertical and 25° to the vertical.
- (2) A ladder that is fixed to a structure at an angle of more than 25° to the vertical, or more than one horizontal to two vertical, is deemed to be a stairway and is subject to the requirements of sections 126 and 256.
- (3) An employer shall ensure that
- (a) the rungs on a fixed ladder are uniformly spaced with centres that are not less than 250 mm and not more than 300 mm apart;
 - (b) a clearance of at least 150 mm is maintained between the rungs on a fixed ladder and the structure to which the ladder is affixed;
 - (c) a fixed ladder is securely held in place at the top and bottom and at any intermediate points that are necessary to prevent sway;
 - (d) the side rails of a fixed ladder extend not less than 1 m above any platform, roof or other landing on the structure to which the ladder is fixed;
 - (e) a ladder opening in a platform, roof or other landing does not exceed 750 mm by 750 mm;
 - (f) a fixed ladder that is more than 6 m high
 - (i) is equipped with platforms at intervals of not more than 6 m and ladder cages, or
 - (ii) is equipped with a personal fall arrest system; and
 - (g) a fixed ladder in an excavated shaft is installed in a compartment that is separated from the hoist compartment by a substantial partition.
- (4) Where a ladder cage is required by these regulations, an employer shall ensure that
- (a) the ladder cage is constructed of hoops that are not more than 1.8 m apart, joined by vertical members not more than 300 mm apart around the circumference of the hoop;
 - (b) no point on a hoop of the ladder cage is more than 750 mm from the ladder; and
 - (c) the ladder cage is of sufficient strength and is designed to contain any worker who may lean or fall against a hoop.
- (6) Where a ladder cage is constructed, an employer shall ensure that
- (a) the lowest hoop of the ladder cage is not more than 2.2 m from a platform, landing or the ground;

- and
- (b) the uppermost hoop of the ladder cage extends at least 1 m above the level of a platform, landing or roof.

Construction Ladders

261. (1) In this section, "construction ladder" means a ladder constructed at a work site.

- (2) An employer shall ensure that
- (a) the side rails of a construction ladder that is 5 m or less in length are constructed of number 1 structural grade spruce lumber that measures not less than 38 mm by 89 mm or of material of equivalent strength and rigidity;
 - (b) the side rails of a construction ladder that is over 5 m in length are constructed of number 1 structural grade spruce lumber that measures not less than 38 mm by 140 mm or of material of equivalent strength and rigidity;
 - (c) no construction ladder is more than 9 m long;
 - (d) the rungs of a construction ladder are
 - (i) constructed of number 1 structural grade spruce lumber that measures not less than 21 mm by 89 mm or of material of equivalent strength and rigidity,
 - (ii) supported by filler blocks or secured by a single continuous wire, and
 - (iii) uniformly spaced with not more than 300 mm between their centres;
 - (e) the width between the side rails of a construction ladder is at least 500 mm;
 - (f) every two-way construction ladder that permits traffic in both directions at the same time is not less than 1.2 m wide and is constructed with a centre structural rail throughout the ladder's entire length; and
 - (g) no plywood is used for the side rails or rungs of a construction ladder.

PART 17

EXCAVATIONS, TRENCHES, TUNNELS AND EXCAVATED SHAFTS

Interpretation

262. In this Part,

"sheeting" means the members of a shoring system that retain the earth in position and, in turn, are supported by other members of the shoring system, and includes uprights placed so that individual members are closely spaced, in contact with or interconnected to each other;

"shoring" means an assembly of structural members designed to prevent earth or material from falling or sliding into an excavation;

"spoil pile" means material excavated from an excavation, trench, tunnel or excavated shaft;

"temporary protective structure" means a structure or device in an excavation, trench, tunnel or excavated shaft that is designed to provide protection from cave-ins, collapse, sliding or rolling materials, and includes shoring, boxes, trench shields and similar structures;

"type 1 soil" means soil that most closely exhibits the following characteristics:

- (a) is hard in consistency, very dense in compactive condition and, if a standard penetration test is

- performed, has a standard penetration resistance of greater than 50 blows per 300 mm,
- (b) can be penetrated only with difficulty by a small, sharp object;
- (c) has a dry appearance;
- (d) has no signs of water seepage;
- (e) can be excavated only by mechanical equipment;
- (f) does not include previously excavated soils;

"type 2 soil" means soil that most closely exhibits the following characteristics:

- (a) is very stiff in consistency, dense in compactive condition and, if a standard penetration test is performed, has a standard penetration resistance of 30 to 50 blows per 300 mm;
- (b) can be penetrated with moderate difficulty by a small, sharp object;
- (c) is difficult to excavate with hand tools;
- (d) has a low to medium natural moisture content and a damp appearance after it is excavated;
- (e) has no signs of water seepage;
- (f) does not include previously excavated soils;

"type 3 soil" means soil that

- (a) most closely exhibits the following characteristics:
 - (i) is stiff in consistency, compact in compactive condition and, if a standard penetration test is performed, has a standard penetration resistance of 10 to 29 blows per 300 mm;
 - (ii) can be penetrated with moderate ease by a small, sharp object;
 - (iii) is moderately difficult to excavate with hand tools;
 - (iv) exhibits signs of surface cracking;
 - (v) exhibits signs of localized water seepage; or
- (b) is previously excavated soil that does not exhibit any of the characteristics of type 4 soil;

"type 4 soil" means soil that

- (a) exhibits any of the following characteristics:
 - (i) is firm to very soft in consistency, loose to very loose in compactive condition and, if a standard penetration test is performed, has a standard penetration resistance of less than 10 blows per 300 mm;
 - (ii) is easy to excavate with hand tools;
 - (iii) is cohesive soil that is sensitive and, on disturbance, is slightly reduced in internal strength;
 - (iv) is dry and runs easily into a well-defined conical pile;
 - (v) has a wet appearance and runs easily or flows;
 - (vi) is granular soil below the water table, unless the soil has been dewatered;
 - (vii) exerts substantial hydraulic pressure when a support system is used; or
- (b) is previously excavated soil that exhibits any of the characteristics set out in paragraphs (a)(i) to (vii);

"upright" means a vertical member of a shoring system that is placed in contact with the earth and usually positioned so that the vertical member does not contact any other vertical member;

"wale" means a horizontal member of a shoring system that is placed parallel to the excavation face and whose sides bear against the vertical members of the shoring system or the earth.

Application of Part

263. This Part applies to excavations, trenches, tunnels, excavated shafts and boreholes.

Locating Underground Pipelines, Cables and Conduits

264. (1) An employer shall accurately establish the location of all underground pipelines, cables and conduits in an area where work is to be done and shall ensure that those locations are conspicuously marked

- (a) before commencing work using power tools or powered mobile equipment on an excavation, trench, tunnel, excavated shaft or borehole; or
- (b) before breaking ground surface with any equipment to a depth that may contact underground utilities.

(2) Where an operation is to be undertaken involving the disturbance of soil within 600 mm of an area of an existing pipeline, cable or conduit, an employer shall ensure that the pipeline, cable or conduit is exposed by hand digging or other approved method before mechanical excavating is allowed to begin within that area.

(3) Where an operation referred to in subsection (2) exposes a pipeline, cable or conduit, an employer shall ensure that the pipeline, cable or conduit is supported to prevent any damage during backfilling and any subsequent settlement of the ground.

(4) Where there is contact with or damage to an underground pipeline, cable or conduit, an employer shall immediately

- (a) notify the owner of the pipeline, cable or conduit that contact or damage has occurred; and
- (b) take steps to protect the health and safety of any worker who may be at risk until any unsafe condition resulting from the contact or damage is repaired or corrected.

Excavating and Trenching

265. (1) An employer shall ensure that

- (a) before excavating or trenching begins, where the stability of a structure may be affected by an excavation or trench, the structure is supported by a temporary protective structure designed by a professional engineer and constructed, installed, used, maintained and dismantled in accordance with that design;
- (b) all loose material is scaled or trimmed from the side of an excavation or trench where a worker is required or permitted to be present;
- (c) equipment, spoil piles, rocks and construction materials are kept at least 1 m from the edge of an excavation or trench;
- (d) an excavation or trench that a worker may be required or permitted to enter is kept free from any accumulation of water; and
- (e) the slope of a spoil pile adjacent to an excavation or trench has a slope at an angle not steeper than one horizontal to one vertical, or 45° measured from the horizontal.

(2) Subject to subsections (3) and (4), where a wall of an excavation or trench is cut back, an employer shall ensure that

- (a) in the case of type 1 or type 2 soil, the walls are sloped to within 1.2 m of the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 45° measured from the horizontal;
- (b) in the case of type 3 soil, the walls are sloped from the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 45° measured from the horizontal; and
- (c) in the case of type 4 soil, the walls are sloped from the bottom of the excavation or trench, with a slope at an angle not steeper than three horizontal to one vertical, or 19° measured from the horizontal.

(3) Where an excavation or trench contains more than one type of soil, the soil must be classified as the soil type with the highest number.

(4) Subsection (2) does not apply to an excavation or trench that is cut in sound and stable rock.

(5) Where an excavation or trench is to be made in the vicinity of an above ground utility or service line, an employer shall ensure that the work is carried out in a manner that will not reduce the original support provided for any above ground utility or service pole, unless permission has previously been obtained from the utility company responsible for the line.

(6) An employer shall ensure that no powered mobile equipment or vehicle is operated, and that no powered mobile equipment, vehicle or heavy load is located, near an excavation or trench so as to affect the stability of the walls of the excavation or trench.

Frozen Soil

266. Where an excavation, trench, tunnel, excavated shaft or borehole is made in proximity to or into frozen soil, an employer shall take measures to preserve the adjacent frozen soil.

Temporary Protective Structures

267. (1) An employer shall ensure that a temporary protective structure to be used pursuant to this Part,

- (a) is designed, constructed, installed, used, maintained and dismantled to provide adequate protection to a worker who is in an excavation, trench, tunnel, excavated shaft or borehole and to a worker who installs, uses, maintains or dismantles the temporary protective structure; and
- (b) extends at least 300 mm above the wall of the excavation, trench, tunnel, excavated shaft or borehole to prevent material from falling in.

(2) An employer shall ensure that

- (a) all drawings and instructions necessary to safely construct, install, use, maintain and dismantle a temporary protective structure required pursuant to this Part are kept at the site of the excavation, trench, tunnel, excavated shaft or borehole; and
- (b) where required by this Part, a professional engineer certifies that the temporary protective structure, if constructed and installed as drawn and used, maintained and dismantled as instructed, will provide adequate protection to a worker who constructs, installs, uses, maintains or dismantles the temporary protective structure.

(3) Freezing the ground by artificial means is acceptable as an alternative or partial alternative to installing a temporary protective structure in an excavation, trench, tunnel, excavated shaft or borehole if the freezing is

- (a) designed by a professional engineer to control the ground condition so as to ensure the safety of workers; and
- (b) performed in accordance with the professional engineer's specifications and instructions.

(4) Freezing the ground by natural means is acceptable as an alternative or partial alternative to installing a temporary protective structure in an excavation, trench, tunnel, excavated shaft or borehole if a professional engineer certifies that the freezing achieves the same effect as the temporary protective structure.

Protection Against Cave-In of Excavations

268. (1) Where a worker is present in an excavation that is more than 1.2 m deep and is required to be closer to the wall or bank than the distance equal to the depth of the excavation, an employer shall ensure that the worker is protected from cave-ins or sliding material by

- (a) cutting back the upper portion of the walls of the excavation in accordance with subsection 265(2);
- (b) installing a temporary protective structure; or
- (c) a combination of cutting back the walls to the slope specified in subsection 265(2) and installing a temporary protective structure that extends at least 300 mm above the base of the cut-back.

(2) Subject to subsection (3), an employer shall ensure that a temporary protective structure required by paragraph (1)(b) or (c) is

- (a) designed and installed using shoring made of number 1 structural grade spruce lumber having the dimensions set out in Schedule O for the type of soil and the depth of the excavation or made of material of equivalent or greater strength; or
- (b) designed by a professional engineer and constructed, installed, used, maintained and dismantled in accordance with that design.

(3) An employer shall ensure that a temporary protective structure in an excavation more than 3 m deep is designed and certified as safe by a professional engineer and installed, used, maintained and dismantled in accordance with that design.

Protection Against Cave-In of Trenches

269. (1) Where a worker is present in a trench that is more than 1.2 m deep, an employer shall ensure that the worker is protected from cave-ins or sliding material by

- (a) cutting back the upper portion of the walls of the trench in accordance with subsection 265(2);
- (b) installing a temporary protective structure; or
- (c) a combination of cutting back the walls to the slope specified in subsection 265(2) and installing a temporary protective structure that extends at least 300 mm above the base of the cut-back.

(2) An employer shall ensure that a temporary protective structure required by paragraph (1)(b) or (c) is

- (a) designed and installed using shoring made of number 1 structural grade spruce lumber having the dimensions set out in Schedule O for the type of soil and the depth of the trench or made of material of equivalent or greater strength; or
- (b) designed by a professional engineer and constructed, installed, used, maintained and dismantled in accordance with that design.

(3) An employer shall ensure that a temporary protective structure in a trench more than 6 m deep in type 1, type 2 or type 3 soil or in a trench more than 4 m deep in type 4 soil is designed and certified as safe by a professional engineer and installed, used, maintained and dismantled in accordance with that design.

(4) An employer shall ensure that

- (a) shoring is installed and removed in a manner that protects workers from cave-ins and structural collapses and from being struck by shoring components;
- (b) shoring components are securely connected together to prevent sliding, falling, kickouts or other possible failure; and
- (c) individual components of shoring are not subjected to loads that exceed the loads the components were designed to bear.

(5) Where a worker is in a trench that is more than 1.2 m deep, an employer shall ensure that a competent worker is stationed on the surface to alert the worker in the trench about the development of any potentially unsafe conditions and to provide assistance in an emergency.

(6) Where a worker is required to enter a trench, an employer shall

- (a) install ladders, stairways or ramps to provide a safe means of entrance to and exit from the trench; and
- (b) ensure that the ladder, stairway or ramp is located not more than 8 m from a worker working in the trench.

(7) An employer shall ensure that workers are instructed in and comply with the requirements of this section.

Excavated Shafts and Tunnels

270. (1) An employer shall ensure that
- (a) during excavating, the walls of an excavated shaft or tunnel are retained by temporary protective structures that are adequate
 - (i) for the type of soil; and
 - (ii) to prevent collapse or cave-in of the walls of the excavated shaft or tunnel;
 - (b) during the excavating of an excavated shaft that is 3 m or more deep or of a tunnel, the walls of the shaft or tunnel are retained by temporary protective structures designed and certified by a professional engineer to be adequate for the protection of workers in the shaft or tunnel and constructed, installed, used, maintained and dismantled in accordance with that design;
 - (c) a solid or wire mesh fence at least 1 m high, or other equally effective means of preventing material from falling into an excavated shaft or the surface opening of a tunnel, is provided around that shaft or opening; and
 - (d) substantial gates that are not less than 1 m high are installed in every opening in a fence provided pursuant to paragraph (c) and the gates are kept closed except when being used.
- (2) A worker who opens a gate referred to in paragraph (1)(d) shall close the gate after the worker no longer has a need to keep the gate open.
- (3) An employer shall provide suitable equipment to keep a tunnel or excavated shaft free from any accumulation of water.

Boreholes, Belled Areas of Excavated Shafts

271. (1) An employer shall ensure that
- (a) a worker who is required or permitted to enter a borehole is protected by the installation of a casing that is designed by a professional engineer and constructed, installed, used, maintained and dismantled in accordance with that design; and
 - (b) the casing referred to in paragraph (a) extends and remains at least 300 mm above the surface of the ground to prevent material from falling into the casing.
- (2) An employer shall not require or permit a worker
- (a) to enter the belled area of an excavated shaft unless the worker is protected by a temporary protective structure that is designed by a professional engineer and constructed, installed, used, maintained and dismantled in accordance with that design; or
 - (b) to remain in a belled area of an excavated shaft where the worker may be exposed to falling materials.
- (3) An employer shall ensure that the worker precedes or accompanies each load of excavated material to the surface.

PART 18 CONFINED SPACE ENTRY

Interpretation

272. In this Part,

"hazardous confined space" means a confined space that is or may become hazardous to a worker entering or in the confined space due to

- (a) the design, construction or atmosphere of the space,
- (b) the materials or substances in the space,
- (c) the work activities or processes used in the space, or

- (d) any other conditions relating to the space;

"isolate" means to physically interrupt or disconnect pipes, lines and sources of energy from a confined space.

Identification of Confined Spaces and Hazards

273. Where a worker may be required or permitted to work in a confined space, an employer, in consultation with the Committee, shall identify

- (a) types of confined spaces at the work site that a worker may be required or permitted to enter;
- (b) types of hazards that are or may be present at each confined space;
- (c) alternative means to perform the work to be performed in a confined space that will not require the worker to enter the confined space; and
- (d) alterations to the physical characteristics of the confined spaces that may be necessary to ensure safe entrance to and exit from all accessible parts of each confined space.

Avoidance of Entry into Hazardous Confined Space

274. (1) Where reasonably practicable, an employer shall use an alternative means to perform work that will not require a worker to enter a hazardous confined space.

(2) An employer shall take all reasonably practicable steps to prevent any unauthorized entry into the hazardous confined space.

Requirements Before Confined Space is Entered

275. (1) Where a worker will be required or permitted to work in a confined space, an employer shall, before requiring or permitting the worker to enter the confined space

- (a) ensure that there is a safe entrance to and exit from all accessible parts of the confined space; and
- (b) make all practicable alterations to the physical characteristics of the confined space necessary to ensure a safe entrance to and exit from all accessible parts of the confined space.

(2) In making alterations pursuant to paragraph (1)(b), an employer shall ensure that the structural integrity of the confined space is maintained.

Requirements Before Hazardous Confined Space is Entered

276. (1) Before a worker is required or permitted to enter a hazardous confined space, an employer shall appoint a competent person

- (a) to assess the hazards;
- (b) where a hazardous atmosphere has been identified, to test the atmosphere of the confined space for
 - (i) oxygen enrichment or deficiency,
 - (ii) the presence of flammable or explosive substances, and
 - (iii) the presence and hazardous concentration of airborne chemical substances; and
- (c) to determine whether
 - (i) work activities or processes will result in the release of toxic, flammable or explosive concentrations of any substances during the worker's occupation of the confined space;
 - (ii) measures have been taken to ensure that a worker will not drown or become entrapped in any liquid or free-flowing solid present in the confined space;
 - (iii) the entry of any liquid, free-flowing solid or hazardous substance into the confined space in a quantity that could endanger the health or safety of the worker has been prevented;
 - (iv) all energy sources that present a hazard to a worker entering into, exiting from or occupying the confined space have been locked out, with the energy sources being put in a zero energy state;

- (v) any hazards from chemical or biological substances are present in the confined space; and
- (vi) the opening for entry into and exit from the confined space is sufficient to allow safe passage of a worker who is using personal protective equipment required by these regulations.

(2) When testing the atmosphere of a confined space pursuant to paragraph (1)(b), a competent person shall use appropriate and properly calibrated instruments that have been tested to ensure that the instruments are capable of operating safely and effectively.

(3) A competent person who carries out the activities described in paragraphs (1)(a) to (c) shall prepare a report in writing that sets out

- (a) the results of the assessment, tests and determinations;
- (b) recommended special precautions and procedures to reduce the risk to a worker that are to be followed by a worker entering into, exiting from or occupying the confined space; and
- (c) recommended personal protective equipment to be used by a worker entering the confined space.

Notice Where No Hazard Found

277. Where a confined space is identified as a not being a hazardous confined space, an employer shall

- (a) notify a worker who is required to enter the confined space verifying that the confined space is not hazardous;
- (b) arrange for a method of communication with a worker on entry to and exit from the confined space and at appropriate intervals while a worker is in the confined space;
- (c) prepare a procedure for the removal of a worker who has become injured or incapacitated while in the confined space; and
- (d) ensure that the ventilation in the confined space is adequate to maintain safe atmospheric conditions.

Entry Plan

278. (1) Where a worker will be required or permitted to enter a hazardous confined space, an employer, in consultation with the Committee, if it exists, shall develop a hazardous confined space entry plan to ensure the health and safety of workers who enter or work in the hazardous confined space.

(2) A hazardous confined space entry plan must be in writing and must include

- (a) the tests or measurements necessary to monitor any oxygen deficiency or enrichment or the presence and hazardous concentration of flammable or explosive substances;
- (b) the identification of any other hazards that may be present in the hazardous confined space and may put the health or safety of workers at risk;
- (c) the means, if any, of isolating the hazardous confined space;
- (d) the means, if any, of ventilating the hazardous confined space;
- (e) the procedures to enter, work in and exit from the hazardous confined space safely;
- (f) the availability, location and proper use of personal protective equipment;
- (g) the rescue procedures to be followed, including the number and duties of personnel and the availability, location and proper use of equipment;
- (h) the means to maintain effective communication with a worker who has entered the hazardous confined space; and
- (i) the availability, location and proper use of any other equipment that a worker may need to work safely in the hazardous confined space.

(3) An employer shall ensure that the following workers are trained in and implement a hazardous confined space entry plan:

- (a) a worker who is required or permitted to enter the hazardous confined space;
- (b) a worker who attends a worker in the hazardous confined space pursuant to subsection 280(4) or

subsection 280(5);

- (c) a worker who may be required or permitted to implement the rescue procedures referred to in paragraph (2)(g).

(4) An employer shall make a copy of a hazardous confined space entry plan readily available at the entrance to the hazardous confined space.

Purging and Ventilating of Unsafe Atmosphere

279. (1) In addition to the requirements of section 404, where a concentration of a toxic, flammable or explosive substance is present or an oxygen enrichment or deficiency exists in a hazardous confined space, an employer shall ensure that the hazardous confined space is

- (a) purged and ventilated before a worker is allowed to enter the space, so that
 - (i) any hazard associated with a toxic, flammable or explosive substance is reduced to the extent that is possible or eliminated, and
 - (ii) an oxygen content of not less than 19.5% and not more than 23% is ensured; and
- (b) continuously ventilated at all times during which the worker occupies the hazardous confined space, to maintain a safe atmosphere.

(2) Where ventilation is used to reduce or eliminate a hazard pursuant to subsection (1), an employer shall ensure that a competent person tests the atmosphere to determine that the confined space is safe for entry by a worker

- (a) before a worker enters the confined space;
- (b) where all workers have vacated the confined space, before any worker re-enters the confined space;
- (c) on the request of a worker who is required or permitted to enter the confined space; and
- (d) continuously where any condition in the confined space may change and put the worker's health or safety at risk.

Precautions Where Safe Atmosphere Not Possible

280. (1) Where a hazardous confined space cannot be purged and ventilated to provide a safe atmosphere or a safe atmosphere cannot be maintained pursuant to section 279, an employer shall ensure that no work is carried on in the confined space except in accordance with the requirements of this section and section 404.

(2) An employer shall ensure that a competent person continuously monitors the atmosphere in a hazardous confined space.

(3) An employer shall ensure that a worker is provided with and required to use a respiratory protective device that meets the requirements of Part 7 if

- (a) the airborne concentration for any substance meets or exceeds the permissible contamination limit as set out pursuant to section 314;
- (b) oxygen deficiency or enrichment is detected; or
- (c) the airborne concentration of any other substance may be harmful to the worker.

(4) An employer shall ensure that a worker in a hazardous confined space is attended by and in communication with another worker who

- (a) has been adequately trained in the rescue procedures referred to in paragraph 278(2)(g);
- (b) is stationed and remains at the entrance to the confined space unless replaced by another adequately trained worker; and
- (c) is equipped with a suitable alarm to summon assistance.

(5) If entrance to a hazardous confined space is from the top

- (a) an employer shall ensure that

- (i) a worker uses a full-body harness and, where appropriate, is attached to a lifeline,
 - (ii) if a lifeline is used, the lifeline is attended by another worker who is adequately trained in the rescue procedures referred to in paragraph 278(2)(g), and
 - (iii) where reasonably practicable, a mechanical lifting device is available to assist with a rescue and is located at the entry to the confined space while a worker is in the confined space; or
- (b) an employer shall ensure that an alternate method of rescue is developed and implemented where the use of a full-body harness or lifeline would create an additional hazard.
- (6) Where any flammable or explosive dusts, gases, vapours or liquids are or may be present in a hazardous confined space, an employer shall ensure that all sources of ignition are eliminated or controlled.
- (7) An employer shall ensure that
- (a) equipment necessary to rescue workers is readily available at the entrance to the hazardous confined space and used in accordance with the rescue procedures developed pursuant to paragraph 278(2)(g);
 - (b) the holder of a Level 1 first aid qualification certificate is available to provide immediate first aid; and
 - (c) personnel who are trained in the rescue procedures developed pursuant to paragraph 278(2)(g) and who are fully informed of the hazards in the confined space are readily available to assist in a rescue procedure.

Piping Discharging Hazardous Substances

281. (1) Where a worker may be required or permitted to work in a confined space into which piping may discharge a hazardous substance, an employer shall ensure that the piping
- (a) has a blank installed that is sized for the proper pressure in the piping before the piping enters the confined space;
 - (b) is equipped with two blocking valves and a bleed-off valve installed between the blocking valves located so that any bleed off does not contaminate the confined space; or
 - (c) is equipped with an approved safety device.
- (2) Where piping is equipped with two blocking valves and a bleed-off valve pursuant to paragraph (1)(b) or an approved safety device pursuant to paragraph (1)(c), an employer shall ensure that
- (a) the valves in the flow lines are locked out in the "closed" position and the bleed-off valve is locked out in the "open" position;
 - (b) the valves are tagged to indicate that the valves must not be activated until the tags have been removed by a worker designated by the employer for that purpose; and
 - (c) the worker designated pursuant to paragraph (b)
 - (i) monitors the valves to ensure that they are not activated while a worker is in the confined space, and
 - (ii) records on the tag referred to in paragraph (b) the date and time of each monitoring and signs the tag each time the worker monitors the valves.

PART 19

WORK IN COMPRESSED OR RAREFIED AIR

Interpretation

282. In this Part,

“airlock” means a chamber designed for the passage of persons or materials from one place to a place with a

different air pressure;

“compressed air” means air that is mechanically raised to a pressure higher than 15 kPa above standard atmospheric pressure;

“medical lock” means a chamber in which persons may be subjected to changes in air pressure for medical purposes;

"rarefied air" means air that is mechanically lowered to a pressure lower than 15 kPa below standard atmospheric pressure;

"standard atmospheric pressure" means atmospheric pressure of 101.325 kPa or 1 atm;

“working chamber” means the part of a project under construction that is used for work in compressed air, but does not include an airlock or medical lock.

Application of Part

283. This Part applies to work performed in compressed or rarefied air, but does not apply to divers or persons working in diving bells.

Before Work in Compressed or Rarefied Air Begins

284. (1) At least 30 days before beginning work in compressed or rarefied air, an employer shall
- (a) give notice in writing to the Chief Safety Officer of the nature and location of the work; and
 - (b) provide the Chief Safety Officer with copies of the certificates of a professional engineer who is competent in construction work carried out in compressed air or rarefied air and a medical professional who is competent in hyperbaric or hypobaric medicine.
- (2) The certificates required by subsection (1) must
- (a) certify that the design of the compressed air or rarefied air installation and its components, including any airlock, medical lock, bulkhead, door and working chamber, the air supply system, the control system and the emergency facilities, are suitable and adequate to provide a healthy and safe work environment; and
 - (b) contain a statement of conditions and procedures that are necessary to ensure the health and safety of workers employed in the compressed air or rarefied air installation.
- (3) An employer shall ensure that any work in a compressed air or rarefied air installation is performed in accordance with the conditions and procedures contained in the certificates required by subsection (1).
- (4) Despite subsection (1), where it is not reasonably possible, as a matter of routine, for an employer to give the notice required under subsection (1) or (2), the Chief Safety Officer may waive the application of this section.

Workers in Working Chamber

285. (1) Where workers are employed in a working chamber, an employer shall ensure that
- (a) emergency procedures, including decompression or compression procedures, have been developed that are adequate to prevent worker ill health;
 - (b) the workers are fully trained in the emergency procedures required by paragraph (a);
 - (c) the workers are regularly monitored by a medical professional; and
 - (d) a competent supervisor is appointed and given the authority and resources necessary to protect the health and safety of workers in the working chamber.

(2) A worker who is monitored by a medical professional pursuant to paragraph (1)(c) shall comply with any requirement that the medical professional considers necessary to prevent or treat ill health caused by working in compressed air or rarefied air.

(3) An employer shall ensure that the emergency procedures required by paragraph (1)(a) are implemented in an emergency.

Standards for Air

286. An employer shall ensure that

- (a) the air supplied by a compressor plant for use in a working chamber, airlock or medical lock meets the requirements of the Canadian Standards Association standard CAN/CSA-Z180.1-00(R2010), *Compressed Breathing Air and Systems*, as amended from time to time;
- (b) the air intake for a compressor plant that supplies air to a working chamber, an airlock or a medical lock is located so as to prevent the entry of exhaust gases from internal combustion engines, gasoline fumes or other contaminants; and
- (c) the air supplied to a working chamber, airlock or medical lock is kept, as far as is practicable, between 10° and 27°C.

Maximum Air Pressure

287. An employer shall ensure that the air pressure in a working chamber

- (a) does not exceed 350 kPa for more than five minutes except when it is necessary for the safety of workers in an emergency; and
- (b) is not less than 30 kPa for more than five minutes except when it is necessary for the safety of workers in an emergency.

Working Periods and Rest Periods

288. (1) In this section,

“column” means a column in Schedule P;

“rest period” means a period during a worker’s hours of work that immediately follows a working period and in which the worker is at standard atmospheric pressure, and may include time spent by the worker in an airlock after a working period;

“working day” means a period of 24 consecutive hours;

“working period” means a period in which a worker works in compressed air or rarefied air.

(2) An employer shall ensure that

- (a) a worker who works in compressed air is not required or permitted to work more than two working periods in one working day;
- (b) the total number of hours in the two working periods of a worker's working day does not exceed the number of hours set out in column 2;
- (c) a worker's first working period in a working day does not exceed the number of hours set out in column 3;
- (d) after the first working period in a working day, a worker receives a rest period that is not less than the number of hours set out in column 4;
- (e) a worker's second working period in a working day does not exceed the number of hours set out in column 5; and

- (f) after the second working period in a working day, a worker receives a rest period that is not less than the number of hours set out in column 6.

(3) An employer shall ensure that no worker is required or permitted to perform manual work, engage in physical exertion or leave the work site during a rest period.

PART 20 DIVING OPERATIONS

Interpretation

289. In this Part,

“atmospheric pressure” means the atmospheric pressure at the surface of the body of water in which a diving operation is conducted;

“bail-out system” means an independent breathing gas supply of sufficient quantity to return a diver to the surface, to a diving bell or to an emergency supply in the event of a malfunction of the primary breathing gas supply system;

“bottom time” means the total elapsed time, measured in minutes, from the time a descending diver leaves the surface of the water to the time the diver begins final ascent;

“breathing gas” means air or mixed gas;

“buddy system” means the system described in section 305;

“Class A hyperbaric chamber” means a hyperbaric chamber that meets the requirements for a Class A hyperbaric chamber as set out in Canadian Standards Association standard Z275.1-05, *Hyperbaric Facilities*, as amended from time to time;

“control system” means a manual, remote, automatic or partially automatic system for controlling the operation of equipment;

“decompression limit” means the point in the descent of a diver, based on the depth and duration of the dive and determined in accordance with a decompression table, beyond which the diver will require one or more decompression stops during ascent if the diver descends further;

“decompression schedule” means the procedure derived from a decompression table that a diver follows during ascent from a depth in order to minimize the risk of decompression sickness;

“decompression sickness” means a condition caused by the formation of gas bubbles in the blood or body tissue as a result of the reduction of pressure on the body;

“decompression table” means a table referred to in section 291;

“diving base” means a location, other than a dive site, from which logistical support to a diving operation is rendered;

“diving operation” means any form of diving by a worker;

“dive site” means the location at the surface of the water at which a diver enters the water at the beginning of a dive and to which the diver intends to return on ascent;

“diver” means a competent worker who performs underwater work;

“diver’s tender” means a worker who monitors the dive of a diver and who is competent in the operation of diving apparatus being used for a dive, the diving operation in progress and the emergency diving procedures and signals to be used between diver and diver’s tender;

“diving supervisor” means a competent person who has complete responsibility for a diving operation, including responsibility for the health and safety of all diving personnel;

“dressed-in” means fully equipped to dive and ready to enter the water, with all life support and communications equipment tested and at hand, but not necessarily with the helmet, face plate or face mask in place;

“free swimming diving” means diving while using scuba with the diver supervised but not tethered to the surface by a lifeline or float;

“hyperbaric chamber” means a pressure vessel and associated equipment that are designed for the purpose of subjecting persons to pressures greater than atmospheric pressures;

“lifeline” means a line of manila rope that is 19 mm in diameter and has a breaking strength of at least 8.9 kN or material of equivalent or greater strength, secured at the surface to a substantial anchorage;

“mixed gas” means a respirable breathing mixture, other than air, that provides adequate oxygen to support life and does not cause excessive breathing resistance, impairment of neurological functions or other detrimental physiological effects;

“scuba” means a self-contained underwater breathing apparatus, and includes self-contained open-circuit compressed air breathing apparatus;

“standby diver” means a diver who is

- (a) available at a dive site to give assistance to a submerged diver in the event of an emergency,
- (b) dressed-in, and
- (c) trained and equipped to operate at the depths and in the circumstances in which the submerged diver is operating;

“surface crew” includes the minimum crew under section 294, the diving supervisor, standby diver and diver’s tender;

“surface supply diving” means a mode of diving in which a diver is supplied from the dive site with a breathing gas by way of an umbilical;

“therapeutic recompression” means treatment of a diver for decompression sickness, usually in a hyperbaric chamber;

“umbilical” means a life support hose bundle comprising a composite hose and cable, or separate hoses and cables, that

- (a) extends from the surface to a diver or to a submersible chamber occupied by a diver, and
- (b) supplies breathing gas, power, heat and communication to the diver;

“vessel” means a vessel as defined in section 2 of the *Canada Shipping Act, 2001*.

Competent Workers

290. An employer shall ensure that only competent workers are required or permitted to perform underwater diving operations.

Standards

291. An employer shall ensure that all diving operations, repetitive dives and treatments of divers are carried out in strict accordance with decompression tables and procedures published or approved by the Defence Research and Development Canada Toronto (formerly known as Defence and Civil Institute of Environmental Medicine) or another approved agency.

Medical Examination

292. (1) An employer who employs a diver shall ensure that the diver has a comprehensive medical examination conducted by a medical professional at least once every 12 months.

(2) The medical examination referred to in subsection (1) must be in accordance with the criteria set forth in Appendices A and B of Canadian Standards Association standard *CAN/CSA-Z275.2-11 Occupational Safety Code for Diving Operations*, as amended from time to time.

(3) No diver shall dive unless the diver has been certified by the medical professional referred to in subsection (1) to be free of any medical condition that would make unsafe the performance of the type of dive to be carried out.

(4) A diver shall

- (a) provide the employer with a copy of the certification referred to in subsection (3); and
- (b) place the original certification in the diver's personal log kept pursuant to section 304.

(5) An employer shall

- (a) ensure that no diver is required or permitted to dive unless the diver furnishes the employer with a copy of the certification that has been obtained within the preceding 12 months;
- (b) retain the copy of the certification while the diver is employed by the employer; and
- (c) ensure that every diver employed by the employer is competent in the use of any diving apparatus that the diver will be required to use in a diving operation.

Diving Supervisor

293. An employer shall

- (a) ensure that a diving operation is conducted under the direction of a diving supervisor; and
- (b) give to the diving supervisor all the information and resources necessary to protect the health and safety of every diver under the supervisor's direction.

Minimum Crew

294. An employer shall ensure that workers are present in a sufficient number for a diving operation to ensure that the operation can be undertaken safely.

Standby Diver

295. (1) An employer shall ensure that a standby diver is present at all times when diving operations are in progress.

(2) An employer shall not require or permit a standby diver to dive except in the case of emergency.

Diver's Tender

296. An employer shall ensure that

- (a) a diver's tender acceptable to the diver is provided for each diver in the water during a diving operation; and
- (b) the diver's tender devotes his or her whole time and attention to the work as a diver's tender.

Breathing Gas

297. (1) Subject to subsection (2), where air is used as the breathing gas, an employer shall ensure that

- (a) the air is clean and wholesome and supplied in adequate quantity; and
- (b) a reserve supply of 2.5 times the air required for the operation is supplied.

(2) An employer shall ensure that any air or mixed gas used as the breathing gas meets the approved standard for composition and purity requirements.

(3) Where a mixed gas is used as the breathing gas, an employer shall ensure that the decompression procedures, schedules and tables used are appropriate for the mixed gas.

Diving Equipment

298. An employer shall ensure that all diving equipment, including breathing apparatus, compressor, compressed gas cylinder, gas control valve, pressure gauge, reserve supply device, piping, helmet, winch, cable, diving bell or stage and every other accessory necessary for the safe conduct of the diving operation, is

- (a) of an approved design, sound construction, adequate strength and free from obvious defect;
- (b) maintained in a condition that will ensure the equipment's continuing operating integrity and suitability for the equipment's use;
- (c) adequately protected against malfunction at low temperatures that may be caused by ambient air or water or by the expansion of gas; and
- (d) examined, tested, overhauled and repaired in accordance with the manufacturer's recommended procedure.

Diving Base

299. (1) An employer shall not allow any diving operation to proceed, unless a diving base is set up before and maintained during the diving operation.

(2) While a diving operation is in progress, an employer shall ensure that the diving base is equipped with the following:

- (a) if scuba is being used, one complete spare set of underwater breathing apparatus with fully charged cylinders to be used for emergency purposes only;
- (b) an adequate quantity of oxygen for therapeutic purposes;
- (c) one shot-line of weighted 19 mm manila of sufficient length to reach the bottom at the maximum depth of water at the dive site;
- (d) a first aid kit that is appropriate for the number of workers and the work site;
- (e) one complete set of decompression tables;
- (f) a suitable heated facility for the use of divers that is located on or as near as possible to the dive site;
- (g) any other equipment that may be necessary to protect the health and safety of a worker.

Hyperbaric Chamber

300. An employer shall ensure that a Class A hyperbaric chamber in operable condition is on site where
- (a) a dive is planned that may exceed the decompression limit; or
 - (b) the depth of a dive is greater than 50 m.

Diving from a Vessel

301. Where a diver dives from a vessel,
- (a) the diver shall use a lifeline; and
 - (b) an employer shall ensure that the diver uses a lifeline.

Diving Plan

302. (1) A diving supervisor shall submit a general diving plan in writing to the employer before beginning a diving operation.

- (2) A diving supervisor shall
- (a) plan the dive to ensure the health and safety of the diver;
 - (b) instruct the surface crew on the procedures necessary to ensure the health and safety of the diver;
 - (c) ensure that all necessary equipment is available and is in good operating condition;
 - (d) ensure that the quantity of breathing gas supplied to a diver is sufficient for the dive that is planned;
 - (e) develop and implement a contingency plan for any emergency situation that may endanger the diver;
 - (f) keep a log showing each diver's activities on each day and make entries respecting each dive on the day on which the dive is performed;
 - (g) remain in the immediate area of the dive site at all times while a diving operation is in progress;
 - (h) ensure that each diver enters in the diver's personal log the information required by paragraph 304(2)(a) for each dive performed by the diver; and
 - (i) verify the accuracy of the information recorded in each diver's personal log pursuant to paragraph 304(2)(a) and sign the entry to acknowledge the supervisor's verification.
- (3) Nothing in this section limits the responsibilities of an employer pursuant to this Part.

General Responsibilities of Diver

303. A diver shall
- (a) proceed in accordance with the general diving plan and the instructions of the diving supervisor;
 - (b) inspect the diver's equipment immediately before each dive; and
 - (c) begin each dive by submerging and checking all equipment to ensure that there are no leaks and that the equipment is functioning properly.

Diver's Personal Log

304. (1) A diver shall keep a personal log and retain the log for a five-year period after the log's completion.
- (2) A diver shall record in the personal log in chronological order
- (a) an entry for each dive that the diver has made, verified and signed by the diving supervisor; and
 - (b) each entry including
 - (i) the type of breathing apparatus used,
 - (ii) the breathing gas used,
 - (iii) the time at which the diver left the surface,
 - (iv) the bottom time,

- (v) the maximum depth reached,
 - (vi) the time at which the diver left the bottom,
 - (vii) the time at which the diver reached the surface,
 - (viii) the surface interval, if more than one dive is undertaken in a day,
 - (ix) the decompression table and schedule used,
 - (x) the date of the dive,
 - (xi) any observations relevant to the health or safety of the diver arising from the dive, and
 - (xii) the name of the employer; and
- (c) an entry, signed by the attending medical professional or diving supervisor, respecting any therapeutic recompression or other exposure to a hyperbaric environment.

Buddy System

305. (1) The buddy system of diving involves the use of two divers, each of whom is responsible for the other diver's safety.

- (2) A diver who is diving using the buddy system
 - (a) shall maintain constant visual contact with the other buddy diver during the dive;
 - (b) shall know the hand signals being used and acknowledge each signal as given;
 - (c) shall not leave the other buddy diver except in the case of emergency requiring the assistance of one of the buddy divers; and
 - (d) shall abort the dive immediately if the buddy divers become separated from each other or the other buddy diver aborts the dive.

Free Swimming Diving

306. (1) An employer shall ensure that free-swimming diving is performed only where a dive cannot safely be accomplished in the tethered mode.

- (2) An employer shall not require or permit a diver to perform free-swimming diving unless
 - (a) the diver is accompanied by a tethered in-water standby diver or the buddy system is used; and
 - (b) the employer has first ensured that conditions are such that the free-swimming dive can be undertaken safely.

Scuba Diving

307. (1) An employer shall ensure that, during scuba diving operations, a diver uses

- (a) open-circuit scuba equipped with a demand regulator and a tank with quick-release harness;
- (b) a reserve device or bail-out system;
- (c) a lifeline, except where the buddy system is used; and
- (d) an exposure suit or protective clothing that is appropriate for the condition of work and the temperature of the water.

(2) An employer shall ensure that no diver using scuba equipment

- (a) dives to a depth exceeding 50 m; or
- (b) dives without a lifeline under ice or where potentially hazardous conditions exist, including water currents, low visibility and adverse weather conditions.

Surface-Supply Diving

308. Where a diver is required or permitted to perform surface-supply diving, an employer shall ensure that

- (a) the umbilical incorporates a lifeline to prevent stress on the hose;
- (b) the connections between the airline and the equipment supplying the breathing gas to the diver are secured and properly guarded to prevent accidental disconnection or damage;

- (c) the air line is equipped with the following, in sequence from the surface connection:
 - (i) a regulating valve that is clearly marked as to which diver's air supply the valve controls;
 - (ii) a pressure gauge that is accessible and clearly visible to the diver's tender;
 - (iii) a non-return valve at the point of attachment of the airline to the diving helmet or mask;
- (d) the diver carries a bail-out system; and
- (e) the diver is equipped with a lifeline and an effective means of two-way communication between the diver and the diver's tender.

PART 21

CHEMICAL AND BIOLOGICAL SUBSTANCES

General Duties of Employers

309. (1) An employer shall, at a work site,
- (a) monitor the use or presence of, or a worker's exposure to, any hazardous chemical or biological substance;
 - (b) where reasonably practicable, substitute a less harmful chemical or biological substance for a hazardous or harmful chemical or biological substance;
 - (c) subject to subsection 314(1), to the extent that is reasonably practicable, reduce any contamination of the work site by a chemical or biological substance; and
 - (d) develop and implement work procedures and processes that are as safe as is reasonably practicable for the handling, use, storage, production and disposal of chemical or biological substances.
- (2) An employer shall take all practicable steps to prevent exposure of a worker to
- (a) a hazardous chemical or biological substance; or
 - (b) a chemical or biological substance in combination or association with any other hazardous substance present.
- (3) An employer shall
- (a) inform the workers of the nature and degree of the effects to their health or safety of any chemical or biological substance to which the workers are exposed; and
 - (b) provide the workers with adequate training with respect to
 - (i) work procedures and processes developed pursuant to paragraph (1)(d), and
 - (ii) the proper use of any personal protective equipment required by these regulations.
- (4) An employer shall make available to the Committee and the representative
- (a) the results of any measurements of worker exposure to, and contamination of a work site by, a chemical or biological substance; and
 - (b) any steps taken to reduce the contamination of a work site by, and eliminate or reduce exposure of the workers to, a chemical or biological substance.

List of Chemical and Biological Substances

310. (1) An employer shall, in consultation with the Committee and the representative,
- (a) develop and maintain a list of
 - (i) all hazardous chemical or biological substances that are regularly handled, used, stored, produced or disposed of in the course of work processes at the work site, and
 - (ii) any other chemical or biological substances that may be present at the work site and are of concern to the workers; and
 - (b) identify on the list all chemical substances that are controlled products.

- (2) The employer shall
- (a) amend the list referred to in subsection (1) whenever a hazardous chemical or biological substance is added to or removed from the work site;
 - (b) submit a copy of each amendment to the Committee or representative; and
 - (c) keep a copy of the list at the work site and make the list readily available to the workers.

Precautions for Certain Substances

311. (1) Where a chemical or biological substance is listed or identified under subsection 310(1), an employer shall take all reasonable steps to

- (a) ascertain and record the hazards that may arise from the handling, use, storage, production or disposal of the substance at the work site;
- (b) ascertain and record the precautions that need to be taken with respect to the substance to ensure the health and safety of workers; and
- (c) clearly mark the container holding the substance with the name of the substance as set out in the list.

(2) An employer, in consultation with the Committee, shall develop a program to instruct workers about the hazards of the substances to which subsection (1) applies and train workers in the precautions to be taken with respect to those substances.

(3) An employer shall implement a program developed pursuant to subsection (2).

Substances listed in Schedule Q

312. (1) An employer shall send to the Chief Safety Officer a written notice of any handling, use, storage, production, distribution or disposal, or any intended handling, use, storage, production, distribution or disposal of any chemical substance or biological substance listed in Schedule Q.

(2) No employer shall handle, use, store, produce, distribute or dispose of a chemical substance or biological substance listed in Schedule Q without

- (a) obtaining the written permission of the Chief Safety Officer; and
- (b) complying with any conditions that the Chief Safety Officer may specify.

Substances Listed in Schedule R

313. Where workers are required to handle, use, store, produce or dispose of any chemical substance listed in Schedule R, an employer shall

- (a) provide adequate engineering controls to prevent, to the extent that is reasonably practicable, the release of the substance into the work site; and
- (b) take other measures and provide personal protective equipment that meets the requirements of Part 7 to prevent, to the extent that is practicable, any significant risk to workers from the substance.

Substances Listed in Schedule S

314. (1) Subject to sections 313 and 315, where a chemical substance or biological substance listed in Schedule S is present at a work site, an employer shall

- (a) provide adequate engineering controls, to the extent that it is reasonably practicable to do so, to ensure that the contamination limit set out in Schedule S is not exceeded in any area where a worker is usually present; and
- (b) take all practicable steps to ensure that no worker's personal exposure exceeds the contamination limit set out in Schedule S.

(2) An employer, in consultation with the Committee, shall develop a written procedure that meets the requirements of subsection (3) where a chemical substance or biological substance listed in Schedule S is

present at a work site in an airborne concentration that may be hazardous to a worker, and a worker

- (a) is regularly required or permitted to work more than eight hours in a day or 40 hours in a week; or
 - (b) may be exposed to a combination or association of substances listed in Schedule S that have similar toxicological effects when acting on the same organ or body system.
- (3) A written procedure required by subsection (2) must identify
- (a) the substances to which a worker may be exposed;
 - (b) the conditions under which a worker will be required or permitted to work, including the frequency, quantity and duration of exposure to the substances; and
 - (c) the steps that the employer will take to ensure, to the extent that is practicable, that no worker's personal exposure exceeds the equivalent of the contamination limit set out in Schedule S.
- (4) An employer shall implement a procedure developed pursuant to subsection (2).

Protection of Certain Workers

315. (1) This section applies where a chemical or biological substance is present at a work site in a form and to an extent that may be harmful to a worker who

- (a) has become sensitized to the substance;
- (b) is unusually responsive to the substance; or
- (c) is pregnant.

(2) An employer shall, after the worker has notified the employer of the worker's condition and as soon as is reasonably possible,

- (a) where reasonably practicable, take steps to minimize the exposure of the worker to the substance; or
- (b) on the worker's request, assign the worker to less hazardous alternate work if that work is available.

Respiratory Protective Devices

316. Where it is not reasonably practicable to reduce a worker's personal exposure to a chemical substance or biological substance to the contamination limit set out in Schedule S, an employer shall provide an approved respiratory protective device that meets the requirements of Part 7 and require the worker to use it.

Accumulations, Spills and Leaks

317. Where there is a possibility of an accumulation, spill or leak of a chemical or biological substance that may be hazardous to workers at a work site, an employer

- (a) in consultation with the Committee, shall develop written emergency procedures to be implemented in the event of an accumulation, spill or leak;
- (b) shall make readily available for reference by workers a copy of the emergency procedures developed pursuant to paragraph (a);
- (c) shall ensure that each worker is trained in and implements any of the emergency procedures developed pursuant to paragraph (a) that
 - (i) require the involvement of the worker, or
 - (ii) are necessary to protect the health or safety of the worker;
- (d) shall ensure that competent persons, equipment, supplies and personal protective equipment are available for the prompt, safe and effective containment, neutralizing and decontamination of any accumulation, spill or leak; and
- (e) shall ensure that the emergency procedures developed pursuant to paragraph (a) are implemented in the event of an accumulation, spill or leak.

Report of Worker's Exposure

318. (1) Where an accumulation, spill or leak of a chemical or biological substance listed in Schedules Q or R occurs and results in the exposure of a worker to the chemical or biological substance to an extent that may affect the health or safety of the worker, an employer, in consultation with the Committee if there is one, shall investigate the incident as soon as is reasonably possible and prepare a written report that includes

- (a) a description of the incident, including the date and all affected work sites;
- (b) the names of the substances released and the characteristics of the substances;
- (c) for each substance released, the estimated duration and the extent of each worker's exposure;
- (d) the name of each worker exposed and the manner in which the substance entered the worker's body;
- (e) the causes of the incident; and
- (f) any corrective actions taken to prevent occurrence of a similar incident.

(2) An employer shall provide a copy of a report prepared pursuant to subsection (1) to any worker who was exposed to the chemical or biological substance that was released.

Emergency Showers

319. Where there may be a risk of substantial contamination of a worker or of a worker's clothing from corrosive or other hazardous substances, an employer shall provide and maintain an approved and readily accessible means of bathing or showering the worker in lukewarm water.

Eye Flushing Equipment

320. Where there may be a risk to the eyes of a worker from corrosive or other hazardous substances, an employer shall provide, at readily accessible locations, approved equipment to flush the eyes of the worker with lukewarm water or another appropriate liquid.

Flammable, Unstable, Highly Reactive and Corrosive Substances

321. (1) Where the storage at a work site of a chemical substance that is flammable, oxidizing, corrosive or dangerously reactive may put at risk the health or safety of a worker, an employer shall ensure that

- (a) the substance is
 - (i) stored in a self-contained enclosure, room or building that is isolated from work sites and is adequately ventilated, and
 - (ii) protected from conditions, including temperature, shock or vibration, that could reduce the stability or increase the potential hazard of the substance;
- (b) subject to sections 326 to 331, a durable, legible sign setting out the harmful characteristics of the substance and the precautions to be taken for storage is posted at each entrance to the enclosure, room or building in which the substance is stored; and
- (c) the container in which the substance is kept is
 - (i) subject to sections 326 to 331, is clearly labelled with the name, harmful characteristics and precautions to be taken for the safe storage of the substance or substances,
 - (ii) subject to section 400, is designed, constructed and maintained to contain the substance securely and to be resistant to the substance and any other substances to which the container may be exposed,
 - (iii) sealed or covered, and
 - (iv) is stored in a manner to protect the container from falls or damage.

(2) Where two or more chemical substances, when combined, produce a toxic, corrosive or explosive reaction, an employer shall ensure that the substances are effectively separated and stored to prevent the substances from combining.

PART 22

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM

Interpretation

322. In these regulations,

"appeal board" means an appeal board appointed pursuant to subsection 43(1) of the *Hazardous Materials Information Review Act* (Canada) in relation to appeals relating to the provisions of the *Hazardous Products Act* (Canada);

"bulk shipment" means a shipment of a controlled product that is contained without intermediate packaging in

- (a) a vessel with a water capacity of more than 454 L,
- (b) a freight container, a road vehicle, a railway vehicle, a portable tank, a freight container carried on a road vehicle, a railway vehicle, ship or aircraft or a portable tank carried on a road vehicle, a railway vehicle, ship or aircraft,
- (c) the hold of a ship, or
- (d) a pipeline;

"Commission" means the Hazardous Materials Information Review Commission established under subsection 28(1) of the *Hazardous Materials Information Review Act* (Canada);

"container" includes a bag, barrel, bottle, box, can, cylinder, drum, storage tank or similar package or receptacle;

"*Controlled Products Regulations*" means the *Controlled Products Regulations* (Canada), SOR/88-66;

"fugitive emission" means a gas, liquid, solid, vapour, fume, mist, fog or dust that escapes from process equipment or from emission control equipment or from a product;

"hazard information" means information on the proper and safe use, storage and handling of a controlled product and includes information relating to its toxicological properties;

"hazard symbol" includes any design, mark, pictogram, sign, letter, word, number, abbreviation or any combination of them that is to be displayed on a controlled product or container in which a controlled product is packaged in order to show the nature of the hazard of the controlled product;

"hazardous waste" means a controlled product that is intended for disposal or is sold for recycling or recovery;

"laboratory sample" means a sample of a controlled product that is intended solely to be tested in a laboratory, but does not include a controlled product that is to be used

- (a) by the laboratory for testing other products, materials or substances, or
- (b) for educational or demonstration purposes;

"manufactured article" means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, under normal conditions of use, will not release or otherwise cause a person to be exposed to a controlled product;

"medical professional" means a person who provides health care and consists of

- (a) a medical practitioner as defined in the *Medical Profession Act*, and
- (b) a registered nurse, a nurse practitioner or a temporary certificate holder under the *Nursing Act* and the *Nursing Profession Act* (Northwest Territories);

"product identifier" means, in respect of a controlled product, the brand name, code name or code number specified by a supplier or the chemical name, common name, generic name or trade name;

"readily available" means present in an appropriate place in a physical form that can be handled;

"risk phrase" means, in respect of a controlled product or a class, division or subdivision of controlled products, a statement identifying a hazard that may arise from the nature of the controlled product or the class, division or subdivision of controlled products;

"supplier" means a supplier as defined in subsection 11(1) of the *Hazardous Products Act* (Canada);

"supplier identifier" means, with respect to a controlled product, the name of the supplier of the controlled product;

"supplier label" means a label provided by a supplier disclosing the information and displaying the hazard symbols referred to in paragraph 13(b) of the *Hazardous Products Act* (Canada);

"supplier material safety data sheet" means a material safety data sheet provided by a supplier disclosing the information referred to in subparagraphs 13(a)(i) to (v) of the *Hazardous Products Act* (Canada);

"workplace" means a work site;

"workplace label" means a label that discloses

- (a) a product identifier that is identical to that found on the material safety data sheet of the corresponding controlled product,
- (b) information for the safe handling of the controlled product, and
- (c) that a material safety data sheet, if supplied or produced, is available.

Certain Products Exempted

323. (1) The provisions of this Part with respect to a supplier label and a material safety data sheet do not apply to a controlled product that is

- (a) an explosive within the meaning of the *Explosives Act* (Canada);
- (b) a cosmetic, device, drug or food within the meaning of the *Food and Drugs Act* (Canada);
- (c) a pest control product within the meaning of subsection 2(1) of the *Pest Control Products Act* (Canada);
- (d) a nuclear substance defined in section 2 of the *Nuclear Safety and Control Act* (Canada); or
- (e) a product, material or substance packaged as a consumer product and in quantities normally used by the consuming public.

(2) This Part does not apply to a controlled product that is

- (a) a wood or a product made of wood;
- (b) a tobacco or a product made of tobacco;
- (c) a manufactured article; or
- (d) being transported or handled pursuant to the *Transportation of Dangerous Goods Act* (Canada) or the *Transportation of Dangerous Goods Act, 1990*.

(3) Subject to subsection (4), this Part does not apply to hazardous waste.

(4) An employer shall ensure the safe storage and handling of hazardous waste generated at a work site through a combination of identification of the hazardous waste and worker training.

(5) The worker training referred to in subsection (4) must include all hazard information of which the employer is aware, or ought to be aware, concerning the hazardous waste.

Restriction on the Use of Controlled Products

324. (1) Subject to subsection (2), an employer shall ensure that a controlled product is not used, stored or handled at a work site unless all the applicable requirements of this Part with respect to labels, identifiers, material safety data sheets and worker training are complied with.

(2) An employer may store a controlled product at a work site while actively seeking information required pursuant to this Part.

Worker Training

325. (1) An employer shall ensure that a worker who works with a controlled product or in proximity to a controlled product is informed about

- (a) all hazard information received from a supplier concerning the controlled product; and
- (b) any further hazard information of which the employer is aware or ought to be aware, concerning the use, storage and handling of that controlled product.

(2) Where a controlled product is produced at a work site, an employer shall ensure that a worker who works with or in proximity to that controlled product is informed about all hazard information of which the employer is aware or ought to be aware, concerning the use, storage and handling of that controlled product.

(3) An employer shall ensure that a worker who works with, or in proximity to, a controlled product is trained in

- (a) the content required on a supplier label and workplace label for the controlled product and the purpose and significance of the information contained on those labels;
- (b) the content required on a material safety data sheet for the controlled product and the purpose and significance of the information contained on the material safety data sheet;
- (c) all necessary procedures for the safe use, storage, handling and disposal of the controlled product;
- (d) all necessary procedures to be followed where fugitive emissions are present; and
- (e) all necessary procedures to be followed in case of an emergency involving a controlled product.

(4) An employer shall ensure that the training required by subsection (3) is developed

- (a) for that employer's work site; and
- (b) in consultation with the Committee or representative.

(5) An employer shall ensure that

- (a) the training required by subsection (3) results in a worker being able to apply the information as needed to protect the health and safety of that worker or any other worker; and
- (b) the necessary procedures referred to in clauses (3)(c) to (e) are implemented.

(6) An employer, in consultation with the Committee or representative shall review the training provided to workers concerning controlled products at least annually, or more frequently if there is a change in work conditions or available hazard information.

Supplier Label

326. (1) An employer shall ensure that a controlled product or the container of a controlled product that is received from a supplier at a work site is labelled with a supplier label.

(2) Subject to section 336, no person shall remove, deface, modify or alter the supplier label on the container of a controlled product as long as any amount of the controlled product remains at the work site in the container in which it was received from the supplier.

(3) Where a label applied to a controlled product or a container of a controlled product becomes illegible or is accidentally removed from the controlled product or the container, the employer shall replace the label with either a supplier label or a workplace label.

(4) Where an employer receives a controlled product in a multi-container shipment in which the individual containers have not been labelled by the supplier, the employer shall affix to each container a label that meets the requirements of the *Controlled Products Regulations*.

(5) Where a controlled product imported under section 23 of the *Controlled Products Regulations* is received at a work site without a supplier label, the employer shall affix a label that meets the requirements of

the *Controlled Products Regulations*.

(6) An employer who receives a bulk shipment at a workplace shall affix to the container of the controlled product or to the controlled product, at the work site

- (a) a supplier label; or
- (b) where, pursuant to section 15 of the *Controlled Products Regulations* the supplier is not required to label a controlled product transported as a bulk shipment, a workplace label.

Workplace Label for Employer Produced Products

327. (1) Subject to subsections (2) and (3), where a controlled product is produced at a workplace, the employer shall ensure that a workplace label is applied to the controlled product or the container of the controlled product.

- (2) Subsection (1) does not include the production of a fugitive emission.
- (3) Subsection (1) does not apply to a controlled product in a container that
 - (a) is intended to contain the controlled product for sale or disposition; and
 - (b) is or is about to be appropriately labelled within the normal course of business and without undue delay.

Workplace Label for Decanted Products

328. (1) Subject to subsection (2), where a controlled product at a work site is in a container other than the container in which the controlled product was received from a supplier, an employer shall ensure that a workplace label is applied to the container.

(2) Subsection (1) does not apply to a portable container that is filled directly from a container that has a supplier label or workplace label applied to it if all of the controlled product in the portable container is required for immediate use or

- (a) the controlled product is
 - (i) under the control of, and used exclusively by, the worker who filled the portable container, and
 - (ii) used only during the shift in which the portable container was filled; and
- (b) the content of the container is clearly identified.

Identification of a Controlled Product in Piping Systems and Vessels

329. Despite sections 326 to 328, an employer shall ensure the safe use, storage and handling of a controlled product at a work site through worker training and the use of colour coding, labels, placards or any other mode of identification where the controlled product is contained or transferred in or on

- (a) a pipe;
- (b) a piping system, including valves;
- (c) a process vessel;
- (d) a reaction vessel; or
- (e) a tank car, tank truck, ore car, conveyor belt or similar conveyance.

Placard Identifiers

330. (1) Despite sections 326 to 328, an employer shall post a placard in accordance with subsection (2) where a controlled product is

- (a) not in a container;
- (b) in a container or form intended for export; or
- (c) in a container that is intended to contain the controlled product for sale or disposition, and the container is not yet labelled but is to be labelled pursuant to section 327.

- (2) A placard required by subsection (1)
 - (a) must disclose the information required for a workplace label; and
 - (b) must be of an appropriate size and must be placed in an appropriate location to make the information on it conspicuous and clearly legible to workers.
- (3) An employer who complies with subsections (1) and (2) is deemed to have complied with sections 326 to 328.

Laboratory and Sample Labels

331. (1) Where a quantity of less than 10 kg of a controlled product packaged in a container originates from a laboratory supply house and is intended by the employer solely for use in a laboratory, a label supplied by the supplier and affixed to the container is deemed to be a supplier label for the purposes of section 326 if the label discloses

- (a) a product identifier;
- (b) where applicable, the fact that a material safety data sheet is available; and
- (c) all necessary risk phrases, precautionary measures and first aid measures that apply to the product.

(2) Where a sample of a product described in subsection (3) that is a controlled product or a product that a supplier or an employer has reason to believe may be a controlled product, a label provided by the supplier and affixed to the container received at the work site is deemed to be a supplier label for the purposes of section 326 if it meets the requirements of subsection (4).

(3) Subsection (2) applies to a product that

- (a) is contained in a container that contains less than 10 kg of the product;
- (b) is intended by the supplier or the employer solely for analysis, testing or evaluation in a laboratory; and
- (c) is one with respect to which the supplier is exempted pursuant to section 9 of the *Controlled Products Regulations* from the requirement to provide a material safety data sheet.

(4) A label referred to in subsection (2) must

- (a) disclose the product identifier;
- (b) disclose the chemical identity or generic chemical identity of any ingredient of the controlled product referred to in any of subparagraphs 13(a)(i) to (v) of the *Hazardous Products Act* (Canada), if known to the supplier or the employer;
- (c) disclose the supplier identifier;
- (d) contain the statement "Hazardous Laboratory Sample For hazard information or in an emergency call [*insert telephone number referred to in subparagraph (e)*]"; and
- (e) contain an emergency telephone number of the supplier that will enable:
 - (i) a user of the controlled product to obtain hazard information with respect to the controlled product, and
 - (ii) a medical professional to obtain, for the purpose of making a medical diagnosis of or rendering treatment to a person in an emergency, any information with respect to the controlled product that is referred to in paragraph 13(a) of the *Hazardous Products Act* (Canada) and is in the possession of the supplier.

(5) An employer is exempt from section 328 if the employer complies with subsection (6) with respect to a controlled product referred to in subsection (1) or (2) that

- (a) is manufactured by the employer; or
- (b) in the case of a controlled product received from a supplier, is in a container other than the container in which it was received.

- (6) For the purposes of subsection (5), an employer shall
 - (a) identify the controlled product through a combination of
 - (i) any mode of identification that is visible to workers at the work site, and
 - (ii) worker training; and
 - (b) ensure that the mode of identification and worker training used enables the workers to readily identify and obtain either
 - (i) the information required on a material safety data sheet or label, or
 - (ii) a document disclosing the information referred to in paragraphs (4)(a) to (e) with respect to the controlled product or the sample.
- (7) Where a controlled product is produced in a laboratory, an employer is exempt from section 328 if
 - (a) the controlled product is intended by the employer solely for evaluation, analysis or testing for research and development as defined in subsection 2(1) of the *Controlled Products Regulations*;
 - (b) the controlled product is not removed from the laboratory;
 - (c) the controlled product is clearly identified through a combination of
 - (i) any mode of identification that is visible to workers at the work site, and
 - (ii) worker training; and
 - (d) the employer ensures that the mode of identification and worker training used enables workers to readily identify the controlled product and obtain:
 - (i) the information required on a material safety data sheet, if one has been produced, or
 - (ii) any other information that is necessary for the safe use, storage and handling of the controlled product.

Supplier Material Safety Data Sheets

332. (1) An employer who acquires a controlled product for use at a work site shall obtain a supplier material safety data sheet with respect to that controlled product.

(2) Where a supplier material safety data sheet obtained pursuant to subsection (1) is more than three years old, an employer shall, if possible, obtain from the supplier an up-to-date supplier material safety data sheet with respect to that controlled product.

(3) Where an employer is unable to obtain an up-to-date supplier material safety data sheet pursuant to subsection (2), the employer shall add to the existing supplier material safety data sheet any new hazard information applicable to the controlled product on the basis of the ingredients disclosed in the existing supplier material safety data sheet.

(4) An employer may provide a material safety data sheet that is in a format different from the format provided by the supplier or that contains additional hazard information if

- (a) subject to section 335, the material safety data sheet provided by the employer contains no less information than the supplier material safety data sheet, or any lesser information that is acceptable to the Committee and representative; and
- (b) the supplier material safety data sheet is available at the work site and the employer's material safety data sheet indicates that fact.

(5) Where a supplier is exempted by section 9 or 10 of the *Controlled Products Regulations* from the requirement to provide a material safety data sheet for a controlled product, an employer is exempt from subsection (1).

Employer Material Safety Data Sheets

333. (1) Subject to section 335, where an employer produces a controlled product at a work site, the employer shall prepare a material safety data sheet with respect to the product that discloses the information required

pursuant to the *Controlled Products Regulations*.

(2) For purposes of subsection (1), "produces" does not include the production of a fugitive emission or of intermediate products undergoing reaction within a reaction or process vessel.

(3) An employer shall update the material safety data sheet referred to in subsection (1)

- (a) where new hazard information becomes available to the employer, as soon as is practicable but not later than 90 days after the new information becomes available; and
- (b) at least every three years.

Availability of Material Safety Data Sheets

334. (1) Subject to subsection (4), an employer shall ensure that a copy of a material safety data sheet required by section 332 or section 333 is made readily available

- (a) at a workplace to any worker who may be exposed to the controlled product; and
- (b) to the Committee or the representative.

(2) Where a controlled product is received at a laboratory and the supplier has provided a material safety data sheet, an employer shall ensure that a copy of the material safety data sheet is readily available to any worker in the laboratory.

(3) Where a controlled product is received or produced at a laboratory and the employer has produced a material safety data sheet, the employer shall ensure that the material safety data sheet is readily available to any worker in the laboratory.

(4) A material safety data sheet may be made available on a computer terminal at a workplace if the employer

- (a) takes all reasonable steps to keep the terminal in active working order;
- (b) makes the material safety data sheet readily available on the request of a worker; and
- (c) provides training in accessing computer-stored material safety data sheets:
 - (i) to workers working at a workplace where the material safety data sheet is available on the terminal, and
 - (ii) to members of the Committee or to the representative.

Omissions from a Material Safety Data Sheet

335. Pending the final determination of an employer's claim for an exemption under section 336, the employer may, subject to any terms and conditions pursuant to that section, omit from a material safety data sheet required by section 332 or section 333 the information that is the subject of the claim, but shall not omit any hazard information.

Exemption from Disclosure

336. (1) Subject to section 339, an employer may, if he or she considers such information to be confidential business information, claim an exemption from the requirement under these regulations to disclose either directly or indirectly any of the following information:

- (a) the chemical identity or concentration of any ingredient of a controlled product;
- (b) the name of any toxicological study that identifies any ingredient of a controlled product;
- (c) the chemical name, common name, generic name, trade name or brand name of a controlled product;
- (d) information that could be used to identify a supplier of a controlled product.

(2) A claim for an exemption under subsection (1) may, in the discretion of the Commission, be heard and determined by an officer or employee of the Commission in the same manner and subject to the terms and conditions as if the employer were an employer to whom the *Canada Labour Code* applies.

(3) An appeal by a claimant or any affected party from a decision under subsection (2) may, in the discretion of the Commission, be heard and determined by an appeal board in the same manner and subject to the same terms and conditions as if the employer were an employer to whom the *Canada Labour Code* applies.

(4) The Chief Safety Officer may publish in the *Nunavut Gazette* any notice respecting a claim for exemption or an appeal that would be required pursuant to the *Hazardous Materials Information Review Act* (Canada) to be published in the *Canada Gazette* if the employer were an employer to whom the *Canada Labour Code* applies.

Requirements for Disclosure Where Exemption Applies

337. (1) An employer who files a claim for exemption under section 336 shall disclose on the material safety data sheet and the label

- (a) the date that the claim for exemption was filed; and
- (b) the registry number assigned to the claim pursuant to section 10 of the *Hazardous Materials Information Review Regulations* SOR/88-456.

(2) Where an employer receives notice of a decision that a claim or portion of a claim referred to in subsection (1) is valid

- (a) subsection (1) continues to apply
 - (i) if there is no appeal, for a period of 30 days after the expiry of the appeal period, or
 - (ii) if there is an appeal:
 - (A) for a period of 30 days after the determination of the appeal, and
 - (B) if there is a further appeal, until the final determination of that further appeal; and
- (b) the employer shall, before the end of the period described in subparagraph (a)(i) or (ii) and throughout the period ending on the last day of the exemption period stated in the decision, disclose on the required material safety data sheet or label
 - (i) a statement that an exemption has been granted,
 - (ii) the date of the decision granting the exemption, and
 - (iii) the registry number assigned to the claim pursuant to section 10 of the *Hazardous Materials Information Review Regulations*, SOR/88-456.

Information Confidential

338. (1) Subject to subsections (2) and (3), no officer and no other person who assists in the administration of the Act or these regulations shall, during his or her employment or after the termination of his or her appointment or services, reveal any manufacturing or trade secrets that may come to the knowledge of the officer or other person in the course of his or her duties, except for the purposes of this Part, these regulations or as required by law.

(2) For the purposes of subsection (3), "confidential information" means

- (a) information that, prior to the determination of a claim pursuant to section 16 of the *Hazardous Materials Information Review Act* (Canada), is claimed to be confidential business information
 - (i) pursuant to this section 336, by an employer manufacturing or using a controlled product, or
 - (ii) pursuant to the *Hazardous Materials Information Review Act* (Canada), by a supplier; or
- (b) information with respect to which, pursuant to section 16 of the *Hazardous Materials Information Review Act* (Canada),
 - (i) a claim or portion of a claim for exemption pursuant to section 11 of the *Hazardous Materials Information Review Act* (Canada) has been determined valid, and
 - (ii) compliance with the provisions of the *Hazardous Products Act* (Canada) or the *Canada Labour Code* has not been ordered.

(3) Confidential information is privileged and, despite any other Act or law, shall not be disclosed to any

other person unless the specific disclosure has been expressly authorized in writing by the Commission or the appeal board, if

- (a) for the purposes of the administration or enforcement of the Act and these regulations, the information
 - (i) is communicated to the Government of Nunavut or any agent or employee of the Government of Nunavut by the Commission or an agent or employee of the Commission, or
 - (ii) is obtained by the Government of Nunavut or an agent or employee of the Government of Nunavut from the Commission or the appeal board through the inspection of or access to any book, record, writing or other document, of the Commission or appeal board; or
- (b) the information is obtained by any person for the purposes of or through the administration or enforcement of the Act and these regulations, the *Hazardous Products Act* (Canada) or the *Hazardous Materials Information Review Act* (Canada).

Disclosure of Information in Medical Emergencies

339. (1) An employer shall, in respect of any controlled product present or which was present at the work site, provide, as soon as is practicable in the circumstances, any of the following information that is in the possession of the employer to any medical professional who requests information on the controlled product for the purpose of making a medical diagnosis of, or rendering medical treatment to a person in an emergency:

- (a) where the controlled product is a pure substance, the chemical or biological identity of the controlled product and, where the controlled product is not a pure substance, the chemical or biological identity of any ingredient of it that is a controlled product and the concentration of that ingredient;
- (b) where the controlled product contains an ingredient that is included in the Ingredient disclosure List and the ingredient is in a concentration that is equal to or greater than the concentration specified in the Ingredient Disclosure List for that ingredient, the chemical or biological identity and concentration of that ingredient;
- (c) the chemical or biological identity of any ingredient of the controlled product that the employer has reasonable grounds to believe may be harmful to a worker and the concentration of that ingredient;
- (d) the chemical or biological identity of any ingredient of the controlled product of which the toxicological properties are not known to the employer and the concentration of that ingredient; and
- (e) any prescribed information with respect to the controlled product.

(2) A medical professional to whom information is provided pursuant to subsection (1) shall keep confidential any information that the employer specifies as confidential except for the purposes it is provided.

PART 23

RADIATION

Interpretation

340. In this Part,

"associated apparatus" means any piece of equipment using or associated with radiation which might be hazardous to any person;

"committed dose" means the equivalent dose received by any organ or tissue of the body of a person from the intake of any radioactive substance, other than radon or radon progeny, during the period of 50 years immediately following the intake;

“electromagnetic radiation” means energy in the form of electromagnetic fields emitted from any source, and includes extremely low frequency radiation, radio frequency radiation, infrared radiation, visible light, ultraviolet radiation, x-rays and gamma rays;

"effective dose" means the sum of the products, in sieverts, obtained by multiplying the equivalent dose of radiation received by and committed to each organ or tissue set out in column 1 of Schedule T by the weighting factor set out in column 2 of that item;

“extremely low frequency radiation” means electromagnetic radiation in the frequency range below 3 kHz;

"five-year dosimetry period" means the period of five calendar years beginning on the date that these regulations come into force and every period of five calendar years after that period;

“ionizing radiation” means any atomic or subatomic particle, or electromagnetic wave emitted or produced directly or indirectly by a machine or radioactive isotope and having sufficient kinetic or quantum energy to produce ionization;

“ionizing radiation equipment” means a device capable of emitting ionizing radiation, but does not include

- (a) equipment operated at less than 15 kV and that produces radiation that is incidental to the principal use or purpose of the equipment,
- (b) equipment that is in storage, in transit or not being used or equipment operated in such a manner that it cannot produce radiation,
- (c) any radioactive substance, or
- (d) any other equipment or class of equipment excluded as ionizing radiation equipment in the code of practice;

“ionizing radiation installation” means the whole or any part of a building or other place in which ionizing radiation equipment is manufactured, used or placed or installed for use, and includes that ionizing radiation equipment;

“irradiance” means the radiant power incident per unit area expressed in watts per square metre;

“laser” means an optical source that emits coherent, monochromatic radiation from a solid state, gaseous or liquid lasing source;

“laser device” means a device that incorporates a laser;

"National Dose Registry" means the centralized record-keeping system containing the dose information of radiation workers in Canada that is maintained by Health Canada;

“non-ionizing radiation” includes energy in the form of electromagnetic waves in the frequency range below that for which ionization occurs;

“occupational worker” means a worker who, in the course of the worker’s duties, business, professional activities, studies or training

- (a) is exposed to radiation, and
- (b) might receive radiation exposure in excess of exposure levels or dose limits that are specified for members of the public;

"one-year dosimetry period" means the period of one calendar year beginning on January 1 of each year;

"operator" means a person who uses or controls the use of any radiation equipment;

"owner" means a person having management and control of a radiation installation or radiation equipment, or both;

“radio frequency radiation” means electromagnetic radiation in the frequency range from 3 kHz to 300 GHz;

“radiation” includes ionizing radiation and non-ionizing radiation;

“radiation equipment” includes ionizing radiation equipment and any equipment or substance that is capable of emitting non-ionizing radiation;

“ultraviolet radiation” means electromagnetic radiation in the wavelength from 100 nm to 400 nm;

“use” includes construct, demonstrate, test, operate, handle, repair, service and maintain.

Ionizing Radiation Dose Limits

341. (1) An owner of ionizing radiation equipment shall ensure that the effective dose received by and committed to a person described in column 1 of Schedule U during a period set out in column 2 of that Schedule is as low as is reasonably achievable with economic and social factors taken into consideration and does not exceed the effective dose set out in column 3 of that Schedule.

(2) If the effective dose received by an occupational worker in a one-year dosimetry period exceeds 20 millisieverts, the owner of the ionizing radiation equipment shall submit to the Chief Safety Officer a written report explaining in full the circumstances in which the dose arose and summarizing the steps that will be taken to minimize the possibility of similar doses arising in the future.

(3) Every owner of ionizing radiation equipment must ensure that the equivalent dose received by and committed to an organ or tissue set out in column 1 of Schedule V of a person described in column 2 of that item, during the period set out in column 3 of that item, does not exceed the equivalent dose set out in column 4 of that item.

Effective Dose Calculation

342. (1) In this section,

"ALI", as the acronym for annual limit on intake, means the activity, in becquerels of a radionuclide that will deliver an effective dose of 20 millisieverts during the 50-year period after it is taken into the body of an adult or during the period beginning at the intake and ending at age 70 after it is taken into the body of a person less than 18 years of age;

"E" means the portion of the effective dose, in millisieverts

- (a) received by the person from sources outside the body and includes x-rays, Canadian Nuclear Safety Commission (CNSC) licensed activities or other sources of radiation arising from human activity, and
- (b) received by and committed to the person from sources inside the body, measured directly or from excreta;

"I" means the activity, in becquerels, of any radionuclide that is taken into the body, excluding radon progeny and the activity of other radionuclides accounted for in the determination of E;

"Rn" means the average annual concentration in the air, in becquerels per cubic metre (m³), of radon 222 that is attributable to a CNSC licensed activity;

"RnP" means the exposure to radon progeny in working level months that is attributable to a CNSC licensed activity;

"ΣI/ALI" means the sum of the ratios of I to the corresponding ALI.

(2) For the purposes of item 1 of Schedule U, the effective dose is the amount ED, expressed in millisieverts, calculated in accordance with the following formula:

$$ED = E - 5RnP = 20 \sum \frac{I}{ALI}$$

(3) For the purposes of item 2 of Schedule U, the effective dose is the amount ED, expressed in millisieverts, calculated in accordance with the following formula:

$$ED = E - 20 \sum \frac{I}{ALI}$$

(4) For the purposes of item 3 of Schedule U, the effective dose is the amount ED, expressed in millisieverts, calculated in accordance with either of the following formulas:

$$ED = E + \frac{Rn}{60} = 20 \sum \frac{I}{ALI}$$

$$ED = E - 4RnP = 20 \sum \frac{I}{ALI}$$

Monitoring of Dose

343. (1) An owner of ionizing radiation equipment shall ensure that the effective dose and equivalent dose received by an occupational worker is systematically determined.

(2) An owner of ionizing radiation equipment shall ensure that the dose of an occupational worker determined by monitoring pursuant to subsection (1) is reported to the National Dose Registry and to the Chief Safety Officer not less than once every three months.

(3) Subsection (2) does not apply to a dose of less than 0.25 millisievert received by an occupational worker in a period of three months.

(4) For the purpose of assessing compliance with the limits set by these regulations, the current reading entered into the National Dose Registry with respect to an occupational worker is deemed to be the actual dose received by the occupational worker.

(5) If, in the opinion of a safety officer, the circumstances warrant it, the officer may require an owner to investigate the exposure of an occupational worker to ionizing radiation and report the results of the investigation to the Chief Safety Officer without delay.

Dosimeter

344. If an occupational worker may receive an effective dose greater than 1 millisievert in a one-year period, the owner of the ionizing radiation equipment shall arrange for a thermoluminescent dosimeter to be issued by a dosimetry service provider licensed under the *Radiation Protection Regulations, SOR/2000-203*, made under the *Nuclear Safety and Control Act (Canada)*.

Records of Dose

345. (1) An owner or operator who employs occupational workers or who is in charge of training occupational workers shall maintain a separate cumulative record on a continuous and permanent basis for each occupational worker showing

- (a) all measurements pertaining to the actual dose received, both externally and internally, by the worker for the current one-year and five-year dosimetry periods; and
- (b) the committed doses received from any radioactive substances deposited within the body of the worker that have been determined by any monitoring or sampling procedures followed at the work site or from any bio-assay procedures that have been carried out.

(2) An owner or operator mentioned in subsection (1) shall inform each occupational worker of his or her dose at intervals not exceeding three months.

Pregnancy of Occupational Worker

346. (1) An occupational worker who becomes aware that she is pregnant shall immediately inform the owner or operator of the ionizing radiation installation or of any ionizing radiation equipment that she is pregnant.

(2) An owner or operator of ionizing radiation equipment who employs occupational workers or who is in charge of training occupational workers shall advise those occupational workers

- (a) of their obligation pursuant to subsection (1); and
- (b) that, if an occupational worker suspects she is pregnant, she shall inform immediately the owner or operator.

(3) On being informed by an occupational worker that she is pregnant or suspects she is pregnant, the owner or operator shall, in order to comply with subsection 341(1), reassess and, if necessary, revise the employment duties or educational activities of the worker.

Ionizing Radiation Installation

347. (1) In this section, “substantial alteration” includes

- (a) in respect of any ionizing radiation equipment which emits a primary beam outside the housing of the equipment, any alteration or change of position which causes the equipment to be capable of emitting a primary beam in directions other than those for which approval was granted when the plans for the installation were approved;
- (b) any alteration in the shielding properties of the room or other place in which the ionizing radiation equipment is placed or installed;
- (c) any increase in the maximum generating voltage or maximum beam current of ionizing radiation equipment in an installation; and
- (d) the placement or installation of any units of ionizing radiation equipment in an ionizing radiation installation in excess of the number of units approved when the plans for installation were approved.

(2) No person shall do any of the following, unless a plan of the proposed installation or proposed alteration has been approved in writing by the Chief Safety Officer:

- (a) establish or cause to be established an ionizing radiation installation for any purpose; or
- (b) make or cause to be made any substantial alteration in any ionizing radiation installation.

(3) The Chief Safety Officer may withhold approval of a plan submitted for approval under subsection (2) until satisfied that the ionizing radiation installation will be constructed or altered in such a manner that all reasonable precautions are taken to avoid danger to the health of any person.

(4) No person shall use any mobile ionizing radiation equipment in any location other than one approved by the Chief Safety Officer.

(5) Subsection (4) does not apply to an owner of mobile ionizing radiation equipment used in medical, dental, chiropractic or other health care facilities for the purpose of making a diagnosis on a patient or used exclusively in a veterinary practice.

Periodic Reporting After Alteration or Installation

348. (1) An owner shall, within thirty days of the day of any of the following events, furnish the Chief Safety Officer with a written statement setting forth particulars of that event:

- (a) ionizing radiation equipment comes under the owner’s control;
- (b) ionizing radiation equipment that is under the owner’s control is substantially altered.

(2) An owner of any mobile ionizing radiation equipment shall, if required to do so, furnish the Chief Safety Officer with an itinerary, with updates from time to time, for the equipment containing the following particulars:

- (a) the days on which the equipment will be used;
- (b) the locations where the equipment will be used on those days under subparagraph (i);
- (c) a phone number through which the operator can be contacted on the days of equipment use.

(3) An owner shall, during the month of January in each year, furnish the Chief Safety Officer with a statement, setting forth particulars of all ionizing radiation installations and ionizing radiation equipment then under the owner's control.

Manufacture and Use of Ionizing Radiation Equipment

349. (1) In this section, "owner" includes

- (a) a vendor until the vendor relinquishes control of ionizing radiation equipment or associated apparatus to its purchaser after any installation or testing has been carried out by the vendor, and
- (b) any person who alters, repairs, services, maintains or tests ionizing radiation equipment or associated apparatus.

(2) The owner of ionizing radiation equipment or associated apparatus shall ensure that the equipment or apparatus is manufactured in such a manner that

- (a) no person will be unnecessarily exposed to ionizing radiation from that equipment or apparatus, and
- (b) no person in the vicinity of that equipment or apparatus will be exposed to ionizing radiation from it that exceeds the dose limits set out in subsection 341(1).

(3) An operator of ionizing radiation equipment or associated apparatus shall use the equipment

- (a) in compliance with the manufacturer's or supplier's instructions; and
- (b) in a manner prescribed in paragraph (2)(b).

(4) An operator of ionizing radiation equipment or associated apparatus shall ensure that a competent and qualified person inspects that equipment for safe operating condition and calibration in a manner as set out in the manufacturer's or supplier's instructions.

(5) Nothing in this section limits or extinguishes any liability to which a vendor, manufacturer, owner, employer, operator or any person who alters, repairs, services, maintains or tests ionizing radiation equipment or associated apparatus may be subject.

Qualifications for Management, Control or Operation

350. (1) No person shall manage or control an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings unless the person

- (a) is qualified under an Act to provide persons with care and treatment by means of ionizing radiation equipment; or
- (b) employs an individual who meets the requirements of paragraph (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment.

(2) An owner of an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings shall ensure that each operator is

- (a) a duly qualified medical professional with specialized training in radiography;
- (b) a dentist, dental hygienist or dental therapist as each is defined in the *Dental Profession Act* or the *Dental Auxiliaries Act*;
- (c) a medical radiation technologist or X-ray technician, whose experience and qualifications are approved by the Chief Safety Officer;
- (d) a student who is under the direct supervision of a person who possesses the qualifications set out in paragraphs (a), (b) or (c); or
- (e) a person who

- (i) is trained to carry out the procedures for which the equipment is to be used, and
- (ii) demonstrates to the satisfaction of the Chief Safety Officer that he or she possesses adequate knowledge of the equipment, the biological effects associated with the equipment's use and the necessary safety procedures.

(3) An owner of an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to human beings shall ensure that operators described in paragraphs (2)(c) and (e) perform only examinations for which they have been qualified.

(4) No person shall manage or control an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to animals unless the person

- (a) is entitled to practise veterinary surgery by reason of being registered pursuant to the *Veterinary Profession Act*; or
- (b) employs an individual who meets the requirements of paragraph (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment.

(5) An owner of an ionizing radiation installation or any ionizing radiation equipment used for diagnosis or treatment relating to animals shall ensure that each operator is

- (a) a veterinary surgeon entitled to practise veterinary medicine by reason of being registered pursuant to the *Veterinary Profession Act*; or
- (b) an animal health technician under the direct supervision of a veterinary surgeon;
- (c) a student under the direct supervision of a person who possesses the qualification set out in paragraph (a).

(6) No person shall manage or control an ionizing radiation installation or any ionizing radiation equipment that is used for a purpose other than diagnosis or treatment relating to human beings or animals unless

- (a) the person
 - (i) understands the procedures for which the equipment is to be used, and
 - (ii) possesses the knowledge necessary to adequately manage or control the ionizing radiation installation or ionizing radiation equipment and knowledge of the necessary safety procedures; or
- (b) employs an individual who meets the requirements of paragraph (a) to attend to the operation of the ionizing radiation installation or ionizing radiation equipment.

(7) An owner of an ionizing radiation installation or any ionizing radiation equipment that is used for a purpose other than diagnosis or treatment relating to human beings or animals shall ensure that each operator

- (a) possesses any qualifications or meets any requirements that are set out in a code of practice; and
- (b) is adequately supervised by a person who meets the requirements of paragraphs (6)(a) or (b).

(8) No person shall operate an ionizing radiation installation or any ionizing radiation equipment unless the person possesses the qualifications set out in subsections (2), (5) or (7).

Qualifications of Operators

351. (1) For the purposes of paragraph 350(6)(a), the operator of an ionizing radiation installation, or of ionizing radiation equipment, that is used for industrial radiography shall comply with the requirements of Health Canada, *Radiation Protection and Safety for Industrial X-ray Equipment, Safety Code 34* (2003), as amended from time to time, and must

- (a) have successfully completed the Canadian General Standards Board (CGSB) Canadian Nuclear Safety Commission Exposure Device Operators Examination;
- (b) have successfully completed the equivalent of the CGSB Level 1 Certification Examination in Industrial Radiography; or

- (c) be under the direct supervision and continuous observation of a person who satisfies paragraph (a) or (b).

(2) For the purposes of paragraph 350(6)(a), the operator of an ionizing radiation installation, or of ionizing radiation equipment, that is used for a purpose other than diagnosis or treatment relating to human beings or animals or for industrial radiography must be trained to carry out, in a safe manner, the procedures for which the equipment is to be used, and

- (a) in the case of baggage X-ray equipment, shall be familiar with and adhere to the requirements of Health Canada, *Requirements for the Safe Use of Baggage X-ray Inspection Systems, Safety Code 29*, (1993), as amended from time to time; or
- (b) in the case of analytical X-ray equipment, shall be familiar with and adhere to the requirements of Health Canada, *Safety Requirements and Guidance for Analytical X-ray Equipment, Safety Code 32*, (1994), as amended from time to time.

Maintenance and Inspections

352. (1) An owner of ionizing radiation equipment and associated apparatus that is used in a health care facility, as defined under section 464,, shall arrange for the inspection of that equipment and apparatus by a qualified person to ensure that the equipment and apparatus

- (a) is in safe operating condition; and
- (b) has undergone a radiation calibration.

(2) An owner of the equipment and apparatus referred to in subsection (1) shall ensure that any equipment and apparatus that is not in safe operating condition, or that requires a radiation calibration, is immediately taken out of service or repaired, or calibrated.

(3) An owner shall maintain records of all inspections and maintenance carried out on the equipment and apparatus referred to in this section.

(4) A person who conducts an inspection under subsection (1) shall, within 30 days after completing the inspection, submit to the Chief Safety Officer, in an approved form, details of all tests carried out and measurements made in the course of the inspection.

Frequency of Inspections

353. (1) Subject to subsections (2) to (4), an inspection required under subsection 352(1) must be carried out not less than once per year.

(2) Except in the case of mobile X-ray equipment, an inspection required under subsection 352(1) must be carried out not less than twice per year if the equipment or associated apparatus

- (a) is used to perform 5,000 to 10,000 diagnostic examinations per year;
- (b) is 15 to 19 years of age; or
- (c) is equipment or apparatus that has an image intensifier.

(3) Except in the case of mobile X-ray equipment, an inspection required by subsection 352(1) is to be carried out not less than three times per year if the equipment or associated apparatus

- (a) is used to perform more than 10,000 diagnostic examinations per year; or
- (b) is 20 years old or older.

(4) In the case of mobile X-ray equipment, an inspection required by subsection 352(1) is to be carried out not less than twice per year if the equipment

- (a) is used in a hospital with a capacity greater than 200 beds; or
- (b) is equipped with an image intensifier.

(5) Subject to subsections (6) and (7), an inspection required under subsection 352(1) is to be carried out not less than

- (a) once every three years for dental or chiropractic X-ray equipment; and
- (b) once every five years for veterinary X-ray equipment.

(6) No inspection is required under subsection 352(1) until five years have elapsed since the date of manufacture of the equipment.

(7) In the case of chiropractic X-ray equipment 15 years of age or older, an inspection required under subsection 352(1) must be carried out not less than once per year.

(8) The approval of the Chief Safety Officer is required if two consecutive inspections referred to in this section are to be carried out at intervals of less than 60 days.

Certification of Equipment

354. (1) A supplier of ionizing radiation equipment or associated apparatus shall, after the equipment or apparatus is installed or otherwise placed in the premises of a prospective owner and before the equipment or apparatus is transferred to the control of the prospective owner,

- (a) complete radiological safety tests of the equipment or apparatus to ensure the equipment or apparatus is operating within the written specifications established by the equipment or apparatus manufacturer; and
- (b) complete an inspection of the electrical and mechanical components of the equipment or apparatus to ensure that the equipment or apparatus is operating within the written specifications established by the equipment or apparatus manufacturer.

(2) A supplier referred to in subsection (1) shall notify the Chief Safety Officer within 30 days after completing the inspection, on an approved form, certifying that the equipment or associated apparatus has been properly installed and can be safely used.

(3) Where an owner re-installs non-mobile ionizing radiation equipment or associated apparatus, he or she shall ensure that, on re-installation, the installer completes an inspection of the electrical and mechanical components of the equipment or associated apparatus and ensures that the equipment is operating within the written specifications established by the equipment or apparatus manufacturer.

(4) An installer referred to in subsection (3) shall notify the Chief Safety Officer within 30 days after completing the installation of the inspection, on an approved form, certifying that the equipment or associated apparatus has been properly installed and can be safely used.

Change of Use

355. No owner of ionizing radiation equipment shall cause or permit the equipment to be used for any function or purpose other than the function or purpose for which it is intended or was designed unless the owner first obtains the written approval of a safety officer.

Modifications to Equipment

356. (1) No owner of ionizing radiation equipment shall cause or permit the modification or alteration of the equipment or the structural shielding of the equipment unless the modification or alteration is approved by

- (a) the equipment manufacturer; or
- (b) a safety officer.

(2) An owner of ionizing radiation equipment shall give notice to the Chief Safety Officer of any modification or alteration of the structural shielding, not later than 30 days after the modification or alteration is made.

Display of Radiation Hazard Sign

357. Where ionizing radiation equipment capable of producing dose rates greater than 25 microsieverts per hour is operated, the owner shall ensure that

- (a) in the case of a room used solely for medical diagnosis of patients, a sign bearing the word "X-ray"

- is prominently displayed on each door that gives access to the room;
- (b) in the case of a room that houses analytical, therapy or industrial ionizing radiation equipment, a sign bearing the word "X-ray" or the word "Radiation" and the radiation warning symbol described in section 358 or any other symbol approved by a safety officer is prominently displayed on each door that gives access to the room; and
 - (c) in the case of an open area
 - (i) a mobile barrier is erected to enclose the area in which a dose rate greater than 25 microsieverts per hour may be produced, and
 - (ii) signs bearing the radiation hazard symbols mentioned in paragraph (b) are placed on the barrier so that at least one sign is always clearly visible as the area is approached.

Radiation Warning Symbol

358. (1) In this section, "radiation warning symbol" means the trefoil illustrated in Schedule W.
- (2) Where a person uses a radiation warning symbol, he or she shall
 - (a) display it as prominently as is practicable;
 - (b) ensure that it is of a size that
 - (i) is consistent with the size of the object to which it is attached,
 - (ii) permits the symbol to be recognized from a safe distance, and
 - (iii) maintains the proportions illustrated in Schedule W.
 - (3) Unless the circumstances do not permit, the radiation hazard symbol must be oriented as illustrated in Schedule W.
 - (4) No wording is to be superimposed on the radiation warning symbol.

Exposure Limits to Ultraviolet Radiation General

359. (1) Where an occupational worker may be exposed to ultraviolet radiation from ultraviolet radiation equipment or industrial processes at a work site, the owner of the equipment or process shall ensure that exposure from the equipment or industrial processes is limited to levels listed under "Ultraviolet Radiation" of the *Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices* (2011), published by the American Conference of Governmental Industrial Hygienists (ACGIH), as amended from time to time.
- (2) If the spectral composition of the radiation is not known, the owner of the equipment shall ensure that the total radiant exposure of an occupational worker's unprotected eyes or skin in any period of eight hours does not exceed 30 J/m^2 .
 - (3) For the purposes of subsection (2), an exposure for eight hours to a maximum continuous irradiance of one milliwatt per square metre is deemed to be equal to a total radiant exposure of 30 J/m^2 .

Exposure Limits to Ultraviolet Radiation Photosensitivity

360. (1) If the conditions at a work site may lead to chemically-induced photosensitivity in an occupational worker, the owner of ultraviolet radiation equipment shall ensure that the exposure to ultraviolet radiation of the occupational worker's eyes or skin, in any period of eight hours, does not exceed the values that are recommended by the Chief Safety Officer.
- (2) Values recommended by the Chief Safety Officer for the purposes of subsection (1) must not exceed the values mentioned in section 359.
 - (3) If an owner of ultraviolet radiation equipment knows that an occupational worker shows inherited photosensitivity to ultraviolet radiation or is under treatment with a photosensitizing drug, the owner shall ensure that
 - (a) the worker's exposure to ultraviolet radiation is limited in accordance with the advice of a medical

professional; or

- (b) the worker is issued with any eye and skin protection that is specified by
 - (i) a medical professional; or
 - (ii) a safety officer.

Protection Where Exposure Limits Cannot be Complied With

361. If the exposure limits set out in section 359 and subsection 360(1) cannot be complied with, an owner of ultraviolet radiation equipment shall issue to each occupational worker, whose exposure to ultraviolet radiation may exceed those limits,

- (a) eye and skin protection that is specified by
 - (i) a medical professional; or
 - (ii) a safety officer; and
- (b) if required by a safety officer, a personal monitoring device to evaluate the exposure of the worker to ultraviolet radiation.

Laser Classification

362. The owner of a laser or laser device shall ensure that the laser or laser device is installed, operated, labelled and maintained

- (a) in accordance with American National Standards Institute (ANSI) standard Z136.1-2000, *Safe Use of Lasers*, as amended from time to time;
- (b) in the case of a laser or laser device that is a medical laser in a health care facility as defined in section 464, in accordance with American National Standards Institute (ANSI) standard Z136.3-2004, *Safe Use of Lasers in Health Care Facilities*, as amended from time to time; and
- (c) in the case of a laser or laser device that is part of an optical fibre communication system utilizing laser diode and light emitting diode sources, in accordance with American National Standards Institute (ANSI) standard Z136.2-1997, *Safe Use of Optical Fiber Communication Systems Utilizing Laser Diode and LED Sources*, as amended from time to time.

Radio Frequency Radiation

363. (1) Subject to subsections (2) and (3), an owner of equipment that generates radio frequency fields in the frequency range from 3 kHz to 300 GHz shall ensure that the exposure limits specified in Health Canada, *Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3kHz to 300GHz - Safety Code 6* (2009), as updated from time to time, are not exceeded.

(2) With respect to radio frequency electromagnetic fields from shortwave diathermy devices, the owner shall ensure that exposure is limited to the maximum exposure levels of Health Canada, *Guidelines for Limiting Radiofrequency Exposure - Short-Wave Diathermy - Safety Code 25* (1983), as updated from time to time.

(3) With respect to magnetic fields from magnetic resonance clinical systems, the owner shall ensure that exposure is limited to the maximum exposure levels of Health Canada, *Guidelines on Exposure to Electromagnetic Fields from Magnetic Resonance Clinical Systems - Safety Code 26* (1987), as updated from time to time.

Accidental Radiation Exposure

364. (1) An owner of radiation equipment shall take all reasonable steps to minimize the possibility of unnecessary irradiation of occupational workers, workers and other persons arising from the malfunction of the equipment or any associated apparatus.

(2) If a malfunction of radiation equipment or associated apparatus leads to the possibility of unnecessary irradiation of an occupational worker, worker or other person, the owner shall take all necessary steps to

- (a) minimize the risk of accidental radiation exposure to any individual; and

- (b) terminate the risk as quickly as possible.
- (3) The owner shall notify a safety officer and confirm this notification in writing within 48 hours if the risk described in subsection (2)
 - (a) results in the irradiation
 - (i) of an occupational worker by ionizing radiation to an extent that is equal to or greater than 10 millisieverts, or
 - (ii) of a worker or any other person by ionizing radiation to an extent that is equal to or greater than 0.25 millisievert; and
 - (b) cannot be completely terminated within a period of six hours.
- (4) The owner shall notify a safety officer and confirm this notification in writing within 48 hours if the risk described in subsection (2)
 - (a) results in the irradiation of an occupational worker, worker or any other person by a form of non-ionizing radiation to an extent that is equal to or greater than the exposure limit set out in section 359, 362 or 363 for that form of radiation; and
 - (b) cannot be terminated within a period of six hours.
- (5) If the risk described in subsection (2) has been completely terminated within the six hours, the owner shall, within 10 days after the malfunction, make a full report to the Chief Safety Officer that states
 - (a) the circumstances of the malfunction; and
 - (b) the actions taken to eliminate the risk.
- (6) An owner of radiation equipment shall inform the Chief Safety Officer immediately if an injury to a person is reported to the owner by a medical professional as an injury that is known or suspected to have been caused or exacerbated by exposure of the person to radiation equipment or associated apparatus that is under the control of the owner.

PART 24

ASBESTOS

Interpretation

365. In this Part,

"asbestos" means any manufactured article or other material which contains

- (a) 1% or more asbestos by weight at the time of manufacture, or
- (b) 1% or more asbestos as determined using microscopy, stereo and polarized light, with dispersion staining, pursuant to the *National Institute for Occupational Safety and Health Manual of Analytical Methods, Method 9002, Issue 2*, as amended from time to time;

"asbestos-containing material" means any material that is likely to or contains asbestos;

"asbestos dust" means dust that consists of or contains asbestos fibres that are likely to become airborne;

"asbestos process" means any activity that may release asbestos dust, and includes

- (a) the sawing, cutting or sanding of asbestos-containing materials,
- (b) the repair, maintenance, replacement or removal of asbestos surfaces,
- (c) the cleaning or disposal of asbestos materials,
- (d) the mixing or application of asbestos shorts, cements, grouts, putties or similar compounds,

- (e) the storing or conveyance of materials containing asbestos, and
- (f) the demolition of structures containing asbestos;

"asbestos surface" means the surface of an object that contains asbestos;

"friable" means material that, when dry, is or can be crumbled, pulverized or powdered by hand pressure;

"high risk asbestos process" means an asbestos process as described in Schedule B and includes an asbestos abatement project.

Application of Part

366. This Part applies to any work site where asbestos dust is likely to be released into the atmosphere and workers may be present.

Prohibition of Crocidolite

367. No person shall install crocidolite or any mixture containing crocidolite.

Prohibition of Spraying

368. No person shall spray asbestos-containing materials.

Identification of Asbestos-Containing Materials

369. (1) Subject to subsection (3), an employer shall identify and keep a written record of the following materials that the employer knows or may reasonably be expected to know are present at a work site:

- (a) all friable, exposed asbestos-containing materials;
- (b) all friable, non-exposed accessible asbestos-containing materials;
- (c) all asbestos-containing pipe, boiler and duct insulating materials.

(2) An employer shall immediately identify the presence in at a work site all asbestos-containing material that is damaged or in poor repair and is likely to release asbestos dust into the atmosphere.

(3) The employer shall ensure that the identification of asbestos-containing materials or the determination of materials being asbestos-free is performed only by a competent person.

(4) An employer shall make a copy of the records referred to in subsection (1) available for reference by the Committee or representative and the workers.

Labelling and Placarding

370. (1) Where workers have access to asbestos-containing materials, an employer shall ensure that

- (a) the asbestos-containing materials are clearly and conspicuously labelled as asbestos-containing materials, or as asbestos if identified as asbestos;
- (b) the presence and location of the asbestos-containing materials are clearly indicated on a placard that is posted in a conspicuous location as close as possible to the asbestos-containing materials; and
- (c) the presence and location of the asbestos-containing materials are clearly indicated on a map or plan that is readily available to the workers.

(2) An employer shall ensure that a label, placard, map or plan required by subsection (1) contains a warning of the danger to health from taking asbestos fibres into the body.

(3) An employer shall provide to all persons at the work site all relevant information from the record kept pursuant to subsection 369(1) and any material referred to in subsection 369(2) that is likely to be disturbed and may release asbestos dust.

Inspection

371. (1) An employer shall ensure that all friable asbestos-containing material and all sprayed-on asbestos surfaces are

- (a) regularly inspected by the employer; and
- (b) inspected at least annually by a competent person to confirm that the material is not releasing, and is not likely to release, asbestos dust into the atmosphere.

(2) An employer shall keep a written record of the annual inspection referred to in subsection (1) and make a copy of the record available for reference by the workers.

Asbestos Surfaces

372. An employer shall ensure that

- (a) every asbestos surface is kept in good condition;
- (b) all repairs and sealing necessary to prevent the breaking-off of asbestos or the release of asbestos dust from an asbestos surface are done immediately;
- (c) no asbestos surface is disturbed for the purpose of maintenance, replacement, removal or repair until the surface is thoroughly wetted throughout the entire thickness; and
- (d) where it is not practicable to comply with paragraph (c),
 - (i) the asbestos surface is kept wet while the surface is being disturbed, or
 - (ii) effective means are used to capture, at source, any dust created by the disturbance.

Asbestos Processes

373. (1) An employer shall

- (a) ensure that every asbestos process is carried out in a manner that prevents, to the extent that is practicable, the release into the air of asbestos dust;
- (b) develop, in consultation with the Committee, an asbestos control plan that protects the health and safety of all workers in the event of the dispersal of asbestos dust into the atmosphere at a work site; and
- (c) implement the asbestos control plan developed pursuant to paragraph (b).

(2) A plan developed pursuant to subsection (1) must be in writing and must include

- (a) the emergency procedures to be used in case of an uncontrolled release of asbestos, including
 - (i) the means to protect exposed workers,
 - (ii) the methods to confine and control the release of asbestos, and
 - (iii) the decontamination procedures to be used;
- (b) the asbestos processes that workers may undertake;
- (c) the training of workers in any asbestos process the workers may be required or permitted to undertake;
- (d) the methods to control the release of asbestos dust;
- (e) the personal protective equipment that workers may be required to use;
- (f) the decontamination procedures for
 - (i) the work site, and
 - (ii) the workers who undertake any asbestos process; and
- (g) the inspection and maintenance schedule for all asbestos-containing materials.

(3) An employer shall make a copy of the plan developed pursuant to subsection (1) readily available for

reference by workers.

- (4) Where an asbestos process is undertaken, an employer shall ensure that
 - (a) the area is effectively isolated or otherwise enclosed to prevent the escape of asbestos dust to any other part of the work site;
 - (b) a warning notice is conspicuously displayed indicating that asbestos work is in progress;
 - (c) all asbestos-containing materials removed are placed in appropriate receptacles that are impervious to asbestos and that are clearly labelled "Asbestos"; and
 - (d) the receptacles referred to in paragraph (c) are handled and transported in a manner that will protect them from physical damage.

Ventilation Equipment

374. (1) Where exhaust ventilation equipment is used to contain asbestos dust, an employer shall ensure that the equipment is

- (a) equipped with a HEPA filter;
- (b) inspected regularly for defects;
- (c) maintained; and
- (d) certified by a competent person at least once each year as being able to function safely and effectively.

(2) Where exhaust ventilation equipment will exhaust into the interior of a work site that is occupied by workers, an employer shall ensure that the equipment is tested in an approved manner by a competent person before beginning an asbestos process to ensure that the equipment is able to function safely and effectively.

Personal Protective Equipment

375. (1) Where effective local exhaust ventilation equipment is not used and an asbestos process results in the production of asbestos dust, an employer shall ensure that each worker who may be exposed is provided with and uses

- (a) an approved respiratory protective device that is appropriate to the level of risk of the asbestos process and that meets the requirements of Part 7; and
- (b) approved protective clothing that, when worn, will exclude asbestos dust.

- (2) An employer shall ensure that protective clothing
 - (a) is disposed of as asbestos waste after use pursuant to section 376; or
 - (b) is kept, maintained and cleaned in a safe manner each time it is used.

Asbestos Waste

376. (1) Subject to subsection (3), an employer shall ensure that asbestos waste or dust produced at a work site is cleaned away promptly, and at least once each day, by vacuum cleaning equipment equipped with a HEPA filter to prevent the escape of asbestos dust into the air or, where vacuum cleaning is not practicable, by wet methods.

- (2) An employer shall ensure that the vacuum cleaning equipment
 - (a) is inspected regularly for defects;
 - (b) is maintained; and
 - (c) is certified by a competent person at least once each year as being able to function safely and effectively.

(3) Subsection (1) does not apply to vacuum cleaning equipment used within an effectively isolated enclosure that is being used to control the release of asbestos dust.

- (4) An employer shall ensure that workers who are employed in the disposal of asbestos wastes are

adequately trained in the safe means of handling those wastes and the proper disposal of those wastes in a manner that will not create a hazard to the health or safety of workers at the disposal site.

Warning of Health Risks

377. An employer shall ensure that workers who are likely to be employed in an asbestos process or are likely to be exposed to asbestos dust are informed of the nature and extent of the risk to their health, including a warning that

- (a) the inhalation of asbestos may cause
 - (i) pneumoconiosis,
 - (ii) lung cancer, or
 - (iii) mesothelioma; and
- (b) the risk of injury to health caused by the inhalation of asbestos is increased by smoking.

Training

378. (1) An employer shall ensure that each worker who may be exposed to asbestos dust resulting from an asbestos process is provided with training in the safe handling of asbestos that is appropriate to the level of risk of the asbestos process as set out in Schedule B.

(2) No worker shall work in an asbestos process unless the worker has completed the training referred to in subsection (1).

High Risk Asbestos Processes

379. (1) Where a high risk asbestos process is in progress or has been completed, an employer shall ensure that no worker is required or permitted to enter the affected area without an approved respiratory protective device.

(2) Despite subsection (1), an employer may require or permit a worker to enter the affected area without an approved respirator if a competent person determines that

- (a) there are no visible signs of debris in that area; and
- (b) air monitoring verifies that airborne asbestos fibre concentrations are less than 0.01 fibres per cubic centimetre of air.

Medical Examinations

380. (1) In this section, "worker" means a worker who is regularly employed in an asbestos process.

(2) Not less than once every two years and with consent of the worker, the employer shall

- (a) arrange for the worker to have a medical examination during the worker's normal working hours; and
- (b) reimburse the worker for any part of the cost of the medical examination that the worker cannot recover.

(3) Where a worker cannot attend a medical examination referred to in subsection (2) during the worker's normal working hours, an employer shall credit the worker's attendance at the examination as time at work and ensure that the worker does not lose any pay or other benefits.

(4) A medical examination arranged pursuant to subsection (2) must include

- (a) a comprehensive medical history and physical examination with special attention to the respiratory system;
- (b) lung function tests, including forced vital capacity and forced expiratory volume at one second; and
- (c) any further medical investigations that are necessary for the diagnosis of an asbestos-related disease.

PART 25

SILICA AND ABRASIVE BLASTING

Interpretation

381. In this Part,

"abrasive blasting" means the cleaning, smoothing, roughening or removing of part of the surface of any article by the use of a jet of sand, metal shot, grit or other material;

"blasting enclosure" means a chamber, barrel, cabinet or other similar enclosure designed for the purpose of the abrasive blasting of articles;

"cleaning of castings" means, in connection with the making of metal castings, the freeing of the castings from adherent sand or other substance containing more than 5% uncombined silica, and includes the removal of cores and the general smoothing of the castings where that freeing is done, but does not include the freeing of castings from scale formed during annealing or heat treatment;

"sandblasting" means an abrasive blasting process that uses sand as an abrasive;

"silica flour" means the ground material produced by the milling of siliceous rocks or other siliceous substances;

"silica process" means a process that may release uncombined silica in a crystalline form in concentrations likely to exceed the contamination limits set out in Schedule S, and includes

- (a) sandblasting,
- (b) the cleaning of castings,
- (c) the abrasive blasting, grinding or dressing of any surface that contains more than 5% uncombined silica, including the engraving or abrasive cleaning of gravestones or structures,
- (d) the getting, cutting, splitting, crushing, grinding, milling, drilling, sieving or other mechanical manipulation of gravel or other siliceous stone or rock that contains more than 5% uncombined silica,
- (e) any process in which silica flour is used, and
- (f) the manufacture of silica-containing bricks and the dismantling or repair of silica-containing refractory linings of furnaces;

"siliceous substances" includes diatomite;

"uncombined silica" means silica that is not combined chemically with any other element or compound.

Application of Part

382. This Part applies to a work site where a silica process is used.

Warning of Workers

383. An employer shall warn all workers who are likely to be engaged in a silica process or are likely to be exposed to silica dust of the dangers to health from the inhalation of dust containing silica.

Cleaning of Blasting Equipment

384. An employer shall take all practicable steps to prevent the inhalation of silica dust or the dissemination of

silica dust into the air of the work site during the cleaning or maintenance of any blasting equipment, blasting enclosure, ventilating system or separating equipment.

Cleaning of Work Sites

385. An employer shall ensure that all work sites, where dust from a silica process may affect the health or safety of a worker, are regularly cleaned using a vacuum that has a HEPA filter on the exhaust or, where a vacuum is not practicable, by using wet methods.

Silica Processes Other than Abrasive Blasting

386. (1) Where a silica process other than abrasive blasting is carried on, an employer shall ensure that the entry of dust into the air where workers may be present is prevented, to the extent that is practicable, by the provision of

- (a) total or partial enclosure of the process;
- (b) efficient local exhaust ventilation;
- (c) jets or sprays of a suitable wetting agent; or
- (d) any other method that provides equivalent protection to the workers.

(2) An employer shall ensure that any enclosure, apparatus or exhaust-ventilation equipment provided pursuant to subsection (1) is

- (a) maintained in accordance with subsections 70(2) and (3);
- (b) inspected daily when in use; and
- (c) certified as safe and effective by a competent person at least once each year.

(3) An employer shall ensure that no air discharged from a ventilation system provided pursuant to subsection (1) is recirculated in the work site unless the air is passed through an effective dust removal system equipped with a device that will provide a warning to workers when the system is not working effectively.

Isolation from Air Containing Dust

387. Where it is not practicable to prevent the entry into the air of dust from a silica process, an employer shall, where it is practicable, provide for the isolation of workers from the air containing the dust.

Personal Protective Equipment

388. (1) An employer shall provide, and require a worker to wear, a respiratory protective device and other personal protective equipment that meet the requirements of Part 7 where

- (a) the protective measures required by section 386 or section 387 are not practicable; or
- (b) the worker is employed in cleaning and maintenance work and may be exposed to dust from a silica process.

(2) For workers engaged in abrasive blasting, an employer shall provide and maintain approved blasting hoods supplied with air

- (a) of a volume of not less than 170 L per minute at a pressure of not more than 140 kPa; and
- (b) that is clean and at a reasonable temperature.

(3) For workers who may be exposed to dust resulting from abrasive blasting, an employer shall provide and maintain respiratory protective devices that meet the requirements of Part 7.

Blasting Enclosures

389. (1) An employer shall ensure that a blasting enclosure is

- (a) constructed, operated and maintained to prevent the escape of dust;
- (b) provided with an efficient, dust-extraction system, that is operated continuously whenever the blasting enclosure is in use, whether or not abrasive blasting is actually taking place; and
- (c) provided with efficient equipment for separating the abrasive from the dust, to the extent that is

practicable.

(2) An employer shall ensure that an abrasive is not reintroduced into a blasting apparatus until the abrasive has been separated from the dust pursuant to paragraph (1)(c).

(3) An employer shall ensure that

- (a) a blasting enclosure is inspected daily when in use;
- (b) a blasting enclosure, the equipment connected with the enclosure and the ventilating system associated with the enclosure are thoroughly examined and tested regularly by a competent person; and
- (c) all defects identified pursuant to this section are remedied immediately.

(4) A competent person who carries out examinations and testing pursuant to paragraph (3)(b) shall record the results of those examinations and tests.

Use of Blasting Enclosures

390. An employer shall ensure that

- (a) to the extent that is practicable, no abrasive blasting of articles that are likely to give rise to dust containing uncombined silica is done other than in a blasting enclosure;
- (b) where practicable, no sand or other substance containing more than 1% by weight of uncombined silica is used for abrasive blasting in a blasting enclosure; and
- (c) no work is performed in a blasting enclosure except
 - (i) abrasive blasting and work immediately incidental to abrasive blasting, and
 - (ii) cleaning and maintenance of the blasting enclosure, the equipment associated with the blasting enclosure and the ventilation system.

Sandblasting

391. (1) An employer shall ensure that no sandblasting is done to any article outside a blasting enclosure where it is practicable to introduce the article into a blasting enclosure.

(2) An employer shall ensure that no sandblasting is done inside any structure or confined space without

- (a) obtaining the written permission of the Chief Safety Officer; and
- (b) complying with any conditions that the Chief Safety Officer may specify.

Silica Flour

392. An employer shall ensure that no silica flour is used

- (a) for any purpose for which a less hazardous substance may be substituted; or
- (b) in the manufacture of scouring powder or abrasive soaps or as an abrasive in any process.

Medical Examinations

393. (1) In this section, "worker" means a worker who is regularly employed in a silica process.

(2) Not less than once every two years and with consent of the worker, the employer shall

- (a) arrange for the worker to have a medical examination during the worker's normal working hours; and
- (b) reimburse the worker for any part of the cost of the medical examination that the worker cannot recover.

(3) Where a worker cannot attend a medical examination referred to in subsection (2) during the worker's normal working hours, an employer shall credit the worker's attendance at the examination as time at work and ensure that the worker does not lose any pay or other benefits.

(4) A medical examination arranged pursuant to subsection (2) must include

- (a) a comprehensive medical history and physical examination with special attention to the respiratory system;
- (b) lung function tests, including forced vital capacity and forced expiratory volume at one second; and
- (c) any further medical investigations that are necessary for the diagnosis of a silica-related disease.

PART 26

FIRE AND EXPLOSION HAZARDS

Interpretation

394. In this Part,

"combustible liquid" means a liquid that has a flashpoint at or above 37.8° C and below 93.3° C;

"container" means a stationary or portable vessel that is used to contain a flammable substance, and includes a tank, tank car, tank truck and a cylinder;

"flammable liquid" means a liquid that has a flashpoint below 37.8° C and has a vapour pressure not exceeding 275.8 kPa at 37.8° C;

"flammable substance" means

- (a) a flammable or combustible solid, liquid or gas, or
- (b) dust that is capable of creating an explosive atmosphere when suspended in air in concentrations within the explosive limit of the dust;

"hot work" means work that produces arcs, sparks, flames, heat or other sources of ignition;

"system" means a system into which compressed or liquified gases are delivered and stored and from which the compressed or liquified gas is discharged in the liquid or gaseous form, and includes containers, pressure regulators, pressure relief devices, manifolds, interconnecting piping and controls.

Fire Safety Plan

395. (1) An employer shall

- (a) take all reasonably practicable steps to prevent the outbreak of fire at a work site and to provide effective means to protect workers from any fire that may occur; and
- (b) develop and implement a written fire safety plan that provides for the safety of all workers in the event of a fire.

(2) A plan developed pursuant to subsection (1) must include

- (a) the emergency procedures to be used in case of fire, including
 - (i) sounding the fire alarm,
 - (ii) notifying the fire department, and
 - (iii) evacuating endangered workers, with special provisions for workers with disabilities;
- (b) the quantities, locations and storage methods of all flammable substances present at the work site;
- (c) the designation of persons to carry out the fire safety plan and the duties of the designated persons;
- (d) the training of designated persons and workers in their responsibilities for fire safety;

- (e) the holding of fire drills; and
 - (f) the control of fire hazards.
- (3) An employer shall ensure that
- (a) designated persons and workers who have been assigned fire safety duties are adequately trained in, and implement, the fire safety plan;
 - (b) the fire safety plan is posted in a conspicuous place for reference by workers; and
 - (c) a fire drill is held at least once during each 12-month period.

Fire Extinguishers

396. (1) An employer shall ensure that portable fire extinguishers are selected, located, inspected, maintained and tested so that the health and safety of workers at the work site is protected.

- (2) An employer shall ensure that portable fire extinguishers are placed not more than 9 m away from
- (a) each industrial open-flame portable heating device, tar pot or asphalt kettle that is in use; and
 - (b) each welding or cutting operation that is in progress.

Garbage as Fire Hazard

397. (1) In this section, "garbage" does not include waste that is being processed at a waste disposal facility.

(2) Where garbage that may constitute a fire hazard is present at a work site, an employer shall provide covered receptacles for the garbage that are suitable to the nature of the hazard.

Procedures for Flammable Substances

398. (1) Where a flammable substance is or is intended to be handled, used, stored, produced or disposed of at a work site, an employer shall develop written procedures to ensure the health and safety of workers who

- (a) handle, use, store, produce or dispose of a flammable substance that may spontaneously ignite or ignite when in combination with any other substance; or
- (b) perform hot work where there is a risk of fire.

(2) An employer shall ensure that all workers who are required or permitted to perform work referred to in subsection (1) are trained in, and implement, the procedures developed pursuant to subsection (1).

(3) Workers who perform work referred to in subsection (1) shall implement the procedures developed pursuant to subsection (1).

Receptacles for Materials Contaminated by Flammable Liquids

399. (1) An employer shall ensure that materials contaminated by flammable liquids are placed in receptacles that

- (a) are non-combustible and have close-fitting metal covers;
- (b) are labelled "flammable"; and
- (c) are located at least 1 m away from other flammable liquids.

(2) Where the surface on which a receptacle required by subsection (1) is placed is combustible, an employer shall ensure that the receptacle has a flanged bottom or legs that are not less than 50 mm high.

(3) A worker shall place materials contaminated by flammable liquids and garbage that may constitute a fire hazard into the appropriate receptacle required by this section or by section 397.

Receptacles for Combustible or Flammable Liquids

400. An employer shall ensure that combustible and flammable liquids are kept in receptacles that meet the requirements of the *National Fire Code of Canada 2010* as amended from time to time, respecting the storage of flammable and combustible liquids.

Activities Involving Combustible or Flammable Liquids

401. (1) An employer shall ensure that
- (a) no gasoline is used to start a fire or used as a cleaning agent; and
 - (b) no worker is required or permitted
 - (i) to replenish a tank on a heating device with a combustible or flammable liquid while the device is in operation or is hot enough to ignite the liquid, or
 - (ii) to place a tar pot, while in use, within 3 m of an entrance to or exit from a building.
- (2) A worker shall not
- (a) use gasoline to start a fire or use gasoline as a cleaning agent; or
 - (b) replenish a tank on a heating device with a flammable or combustible liquid while the device is in operation or is hot enough to ignite the liquid.

Control of Ignition Sources and Static Charges

402. An employer shall ensure that
- (a) suitable procedures are developed and implemented to prevent the ignition of flammable liquids or explosive dusts that are present at a work site;
 - (b) all sources or potential sources of ignition are eliminated or controlled where an explosive atmosphere exists or is likely to exist; and
 - (c) static charge accumulations during transfer of flammable liquids or explosive substances from one container to another are prevented by electrically bonding the containers.

Flammable Liquids, Gases or Explosive Substances in Vehicles

403. (1) An employer shall ensure that no worker undertakes any servicing or maintenance of a vehicle while a flammable liquid or gas or an explosive substance
- (a) is loaded into or unloaded from the vehicle; or
 - (b) is present in the vehicle in any place other than the fuel tank.
- (2) Where reasonably practicable, a worker who operates a vehicle that contains a flammable liquid or gas or an explosive substance shall ensure that the engine of the vehicle is shut off during the connection or disconnection of the lines for the loading or unloading of the flammable liquid, gas or explosive substance.

Flammable or Explosive Substance in Atmosphere

404. (1) Where a flammable or explosive substance is present in the atmosphere of a work site at a level that is more than 20% of the lower explosive limit of that substance, an employer shall not require or permit a worker to enter or work at the work site.
- (2) Subsection (1) does not apply to
- (a) a fire fighter who has been trained pursuant to section 480; or
 - (b) a competent worker who meets the requirements of subsection (3) and who is acting in an emergency situation at the work site.
- (3) An employer shall ensure that
- (a) the competent worker referred to in paragraph (2)(b) is trained, equipped and works according to an approved standard;
 - (b) the training required by paragraph (a) is provided by a competent person; and
 - (c) a written record is kept of all training delivered to a worker pursuant to paragraph (a).

Hot Work

405. (1) Where a flammable substance is or may be present, an employer shall ensure that no hot work is

performed until

- (a) suitable tests have been conducted that
 - (i) indicate whether the atmosphere contains a flammable substance in a quantity sufficient to create an explosive atmosphere, and
 - (ii) confirm that the work may be safely performed; and
- (b) the work procedures developed pursuant to paragraph 398(1)(b) have been implemented to ensure continuous safe performance of the work.

(2) While hot work is being performed, an employer shall conduct tests described in paragraph (1)(a) at intervals appropriate to the work being performed and record the results.

(3) An employer shall not require or permit any hot work to be performed in the vicinity of a material that may constitute a fire hazard until suitable steps have been taken to reduce the risk of fire.

(4) An employer shall ensure that a container or piping that contains or has contained a flammable substance is purged using an effective method to remove the flammable substance from the container or piping before any hot work is begun on that container or piping.

(5) An employer shall not require or permit any welding or cutting of metal that has been cleaned with a flammable or combustible liquid until the metal has thoroughly dried.

Compressed and Liquified Gas Systems

406. (1) An employer shall

- (a) develop and implement written procedures for the safe installation, use and maintenance of a system;
- (b) make readily available for reference by workers the procedures developed pursuant to paragraph (a) before requiring or permitting the use of the system; and
- (c) ensure that all workers are trained in and implement the procedures developed pursuant to paragraph (a).

(2) The workers shall implement the procedures developed pursuant to paragraph (1)(a).

(3) An employer shall ensure

- (a) that a system
 - (i) is not exposed to temperatures that may result in the failure of the system or explosion of the contents of the system,
 - (ii) is maintained in a clean state, free from oil, grease or other contaminant that may cause a failure of the system or that may burn or explode if the contaminant comes into contact with the contents of the system, and
 - (iii) is located, guarded and handled during filling, transportation, use and storage so that the system is protected from damage;
- (b) that service valve outlets and the extensions of service valve outlets of containers that are not connected to any apparatus are capped; and
- (c) where equipment is designed for use with a particular compressed or liquified gas or gases, that
 - (i) only those gases are used in the equipment, and
 - (ii) the equipment is clearly labelled as being only for that use.

(4) A worker shall

- (a) take all reasonable steps to ensure that sparks, flames or other sources of ignition do not come into contact with a system;
- (b) maintain a system in a clean state, free from oil, grease or any other contaminant; and
- (c) secure the cap in place before transporting a container.

Oxygen

407. (1) An employer shall ensure that no oil, grease or other contaminant contacts a cylinder, valve, regulator or any other fitting of an oxygen-using apparatus or an oxygen distribution or generating system.
- (2) An employer shall ensure that oxygen is not used as a substitute for compressed air
- (a) in pneumatic tools;
 - (b) to create pressure;
 - (c) for ventilating purposes; or
 - (d) to blow out a pipeline.
- (3) A worker shall not use oxygen as a substitute for compressed air
- (a) in pneumatic tools;
 - (b) to create pressure;
 - (c) for ventilating purposes; or
 - (d) to blow out a pipeline.

Gas Burning and Welding Equipment

408. (1) Where gas burning or welding equipment is in use, an employer shall ensure that
- (a) approved flashback devices are installed on both hoses at the regulator end; and
 - (b) acetylene and liquified gas containers are used and stored in an upright position.
- (2) A worker shall shut off the container valve and release the pressure in the hose of any gas burning or welding equipment where the worker
- (a) is not likely to use the equipment; or
 - (b) leaves the equipment unattended.

Piping

409. (1) Where workers are required or permitted to work on piping that may contain harmful substances or substances under pressure, an employer, in consultation with the Committee, shall develop written procedures to protect the workers from contact with those substances.
- (2) The procedures developed pursuant to subsection (1) must include
- (a) the installation of a blank that is appropriate for the proper pressure in the piping;
 - (b) the closing of two blocking valves installed in the piping and the opening of a bleed-off valve installed between the blocking valves;
 - (c) the installation of an approved safety device; or
 - (d) where the procedures referred to in paragraphs (a), (b) and (c) are not reasonably practicable, any other procedures that are adequate to protect the health and safety of the workers.
- (3) An employer shall ensure that all workers are trained in and implement the procedures developed pursuant to subsection (1).
- (4) An employer shall ensure that
- (a) the piping referred to in paragraph (2)(a) is clearly marked to indicate that a blank has been installed; or
 - (b) the two blocking valves referred to in paragraph (2)(b) or the approved safety device referred to in paragraph (2)(c)
 - (i) are locked in the closed position and the bleed-off valve is locked in the open position, and
 - (ii) are tagged to indicate that the valves must not be activated until the tags are removed by a worker designated by the employer for that purpose.

- (5) An employer shall ensure that a worker designated pursuant to subparagraph (4)(b)(ii)
- (a) monitors the valves to ensure that they are not activated while a worker is working on the piping; and
 - (b) records on the tag referred to in subparagraph (4)(b)(ii) the date and time of each monitoring and signs the tag each time the worker monitors the valves.
- (6) An employer shall ensure that any valve installed on piping referred to in this section is clearly marked to indicate the open and closed positions.

Pigging and Testing of Pipelines

410. (1) A person who is not directly involved in a pigging and testing operation shall not be in the immediate area of piping exposed during the operation.
- (2) An employer shall ensure that
- (a) a pigcatcher on a pipeline is isolated from the pipeline and depressurized before the pig is removed, and
 - (b) there are no workers at the end of the pipe or in the immediate vicinity of the pigcatcher if the pipe or pigcatcher is under pressure during the operation.

PART 27

EXPLOSIVES

Application of Part

411. Nothing in this Part derogates from any provision in the *Explosives Use Act* or regulations made under that Act.

Qualifications of Workers

412. (1) An employer who plans to conduct blasting activities shall ensure that a worker who is to undertake a blasting operation
- (a) has been thoroughly trained in
 - (i) the estimation of the amount of explosives required, and in placing, priming and initiating the charge,
 - (ii) the appropriate procedures to be followed to ensure the safety of other workers,
 - (iii) the procedures to be followed in the event of a misfire, and
 - (iv) the examination of the site after blasting to ensure that it is safe to return to the work site;
 - (b) has demonstrated competence to carry out the procedures referred to in paragraph (a);
 - (c) has a thorough knowledge of all federal and territorial statutes, regulations and codes of practice pertaining to the safe use of explosives that are relevant to the blasting operation in question; and
 - (d) holds a written authorization to blast signed by the worker's employer.
- (2) A worker shall not undertake a blasting activity until the worker
- (a) possesses written authorization to blast signed by the worker's employer issued under paragraph (1)(d);
 - (b) is the holder of a valid permit under the *Explosives Use Act*; and
 - (c) is a competent supervisor or is under the supervision of a competent supervisor, who also holds a valid permit under the *Explosives Use Act*.

Written Procedures

413. (1) An employer shall ensure that appropriate written procedures are provided to a worker who conducts a blasting operation to ensure the safety of the worker and any other person in the vicinity of the blasting

operation.

(2) A worker who undertakes a blasting activity shall follow the procedures provided by the employer pursuant to subsection (1).

Equipment

414. An employer shall provide a worker who is to undertake a blasting operation with suitable testing and detonating equipment.

Storage and Transportation of Explosives

415. (1) An employer shall ensure that all explosives are stored or transported

- (a) in suitable sealed containers that are conspicuously marked "Danger - Explosives"; and
- (b) in a manner that prevents the explosives from coming into contact with any flammable substance or other agent that may cause the explosives to detonate.

(2) An employer shall ensure that all explosives are kept in a secure location that is accessible only to authorized workers.

PART 28 DEMOLITION WORK

Interpretation

416. In this Part, "demolition" means the tearing down, destroying, breaking up or razing of a structure, and includes the demolition of any major part of a structure that involves outer walls or principal supporting members.

Before Demolition Begins

417. (1) Before a demolition begins, an employer shall ensure that

- (a) all chemical or biological substances that may be hazardous to workers during demolition are removed from the structure or the part of the structure that is being demolished;
- (b) all glass is removed from the structure or the part of the structure that is being demolished; and
- (c) subject to subsection (2), all gas, electrical, telecommunications, sewer and water services connected to the structure or the part of the structure that is being demolished are disconnected.

(2) Where power is required for illumination or other purposes, an employer shall provide a suitably located temporary power service.

Stability of Adjacent Structures

418. Where a demolition of a structure may affect the stability of an adjoining structure, an employer shall ensure that

- (a) the demolition is carried out in accordance with procedures certified in writing by a professional engineer to safeguard the stability of the adjoining structure; and
- (b) a copy of the procedures required by paragraph (a) is kept at the work site during demolition.

Duties of Employer

419. During a demolition, an employer

- (a) shall appoint a competent supervisor to be in charge of the demolition at all times that the work is in progress;
- (b) shall ensure that all workers or equipment are located clear of any falling material; and
- (c) where a worker is or may be present in a building during its demolition, shall ensure that the demolition is performed floor by floor from the top downward.

Demolition Procedures

420. In a demolition, an employer shall ensure that

- (a) dust from the demolition is controlled to the extent that is reasonably practicable;
- (b) materials and debris are not allowed to accumulate in any area to the extent that the materials and debris cause overloading of a structure that could result in the collapse of all or part of the structure;
- (c) any opening or hole in a floor, roof or other surface on which workers are required or permitted to walk or stand is guarded or covered as required by section 129;
- (d) a free-standing scaffold is used in the demolition of a building shaft from the inside;
- (e) steel structures are dismantled column length by column length and tier by tier from the top downward; and
- (f) no wall or other part of the structure being demolished is left in an unstable condition or in danger of accidental collapse except during the actual demolition of that wall or part of the structure.

Material Chutes

421. (1) An employer shall ensure that a material chute steeper than 45° from the horizontal is constructed to enclose the material placed in the chute.

(2) Where a material chute presents a danger to workers, an employer shall ensure that a guardrail is installed around the top of the chute to prevent workers from falling into the chute.

Structural Members

422. (1) An employer shall ensure that structural members that are being removed are not under any stress other than the member's own weight and are secured or supported to prevent any unexpected movement.

(2) Where a structural member is being hoisted by a crane or other similar lifting device from a structure being demolished or from the demolition rubble, an employer shall ensure that the hoisting line is in a vertical position and is over the centre of gravity of the load in a manner that will reduce the danger to workers from a swinging or uncontrolled load.

Use of Powered Mobile Equipment

423. (1) Before powered mobile equipment is placed on a floor, roof or other surface on which workers are required or permitted to walk or stand for the purpose of demolishing a structure, an employer shall ensure that the floor, roof or other surface is capable of supporting the load that may be placed on the floor, roof or other surface.

(2) Where powered mobile equipment is used for the purpose of demolishing a structure, an employer shall ensure that safe work procedures are developed and implemented.

Use of Explosives

424. Where a structure is to be demolished by explosives, an employer shall

- (a) ensure that a competent person develops a demolition procedure to protect the health and safety of workers;
- (b) submit a copy of the demolition procedure to the Chief Safety Officer not less than 30 days before the proposed date of the demolition; and
- (c) ensure that the worker who undertakes the blasting activity meets all the requirements of section 412.

PART 29

FORESTRY AND MILL OPERATIONS

Interpretation

425. In this Part,

"bucking" means sawing a log or felled tree into smaller lengths;

"*chicot*" means a dead or damaged tree or a dead or damaged limb of a tree;

"cutting" includes felling, limbing and bucking;

"felling" means cutting a tree from the tree's stump and bringing the tree to the ground;

"forestry operation" means the cutting or harvesting of trees, and includes the transporting of logs and the preparing of sites for tree planting and seeding;

"limbing" means removing limbs from a tree that has been felled;

"lodged tree" means a tree that has not fallen to the ground after being partly or wholly separated from the tree's stump or displaced from the tree's natural position;

"mill operation" means the operation of a pulp mill, paper mill, sawmill, plywood mill, wafer-board mill or strand-board mill, and includes the operation of equipment that is designed to manufacture or process wood products;

"skidder operator" means a worker who operates a skidder or who operates any other powered mobile equipment to perform the work of a skidder;

"skidding" means moving logs or trees by pulling the logs or trees across the terrain;

"snag" means any material or object that may interfere with the safe movement of a tree or log or that may endanger a worker;

"stake" means a wooden or metal post or a post made of other material of equivalent strength that is used to support and prevent the lateral movement of logs;

"windfall" means a tree blown down by wind;

"wood products" includes pulp, pulpwood, paper, veneer, plywood, lumber, timber, poles, posts, chips, wafers, sawdust and other products resulting from a forestry operation.

Application of Part

426. This Part applies to all forestry operations and mill operations.

First Aid Attendant

427. Despite section 57, where a worker is cutting or skidding, an employer shall ensure that a first aid attendant who holds at least a Level 2 qualification as set out in Schedule G, is readily available at all times.

Cutting and Skidding - General Requirements

428. (1) During cutting and skidding operations, an employer shall ensure that
- (a) workers who do not have duties associated with cutting and skidding are not permitted to enter the area where those operations are carried out while they are being carried out;
 - (b) a worker fells all timber that is adjacent to a proposed landing or other place where workers will work and that may create a hazard to workers before the landing or other place is used;
 - (c) no worker fells a tree within range of a travelled road unless effective means are taken to stop traffic until the tree has been felled and the tree and all debris that creates a risk to the health or safety of a worker have been removed from the road; and
 - (d) a worker closely limbs trees
 - (i) before the trees are placed on a rollway, or
 - (ii) where the limbs may create a risk to the health or safety of a worker.
- (2) An employer shall ensure that:
- (a) no person enters a felling area unless the worker engaged in felling has advised the person entering the area that it is safe to enter;
 - (b) workers are instructed in, and comply with, the duties set out in subsection (3), subsection 153(4), sections 429 and 430, subsections 431(3), 433(3) and 434(2), section 436 and subsection 437(11);
 - (c) every worker engaged in conventional logging has, within six months after commencing employment, successfully completed an approved course in conventional logging safety; and
 - (d) a worker who has completed an approved course as required by paragraph (c) maintains any designation or certification that is earned through completing that course.
- (3) A worker shall not work on a hillside below a cutting or skidding operation where a danger may exist from a tree or log rolling or moving downhill towards the worker.

Cutting

429. During cutting operations, a worker shall
- (a) remove any *chicot* or any other hazard to the worker or any other worker in the vicinity before any other tree is felled;
 - (b) remain at a safe distance from, and not fell a tree onto, any tree that is lodged or may be dangerous for any other reason; and
 - (c) move quickly to a predetermined safe position when a tree starts to fall.

Felling

430. (1) Before starting to fell a tree, a worker shall
- (a) clear away adjacent brush to provide sufficient room to work and to provide a path at a 45° angle from the direction opposite to the planned direction of fall to a safe position; and
 - (b) ensure that no other worker is located closer than 60 m to the tree being felled.
- (2) Before a felling cut is begun on a tree with a trunk that has a diameter of 15 cm or more, a worker shall
- (a) undercut the trunk to control the direction of the fall; and
 - (b) ensure that
 - (i) the depth of the undercut is at least one third of the diameter of the tree trunk at that point, and
 - (ii) both cuts that form the undercut meet at that depth.

- (3) After making an undercut, a worker shall
 - (a) remove the wood from the undercut before the back cut is started and leave sufficient holding wood in the back cut side to control the direction of the fall of the tree; and
 - (b) ensure that the back cut is above the undercut at a distance that does not exceed 100 mm from the undercut.
- (4) Where a worker cannot safely complete the felling of a tree or a tree that a worker is felling has become unsafe, the worker shall
 - (a) remain in the area in a safe location; and
 - (b) do no further work until a skidder operator fells the tree.

Partially Cut Trees

431. (1) Subject to subsection (2), where a tree is partially cut, an employer shall ensure that the worker immediately completes the felling of the tree.

(2) If a partially cut tree cannot be completely felled or sits back on the stump, an employer shall ensure that the worker remains in the area in a safe location and does no further work until a skidder operator assists the worker to fell the tree safely.

(3) A worker shall not fell a tree or undertake any other activity until every partially cut tree in the vicinity and every tree in the vicinity that sits back on its stump has been felled.

Lodged Trees

432. (1) Where there is a lodged tree, an employer shall ensure that

- (a) the tree is felled immediately by a skidder operator;
- (b) the tree is not climbed by a worker;
- (c) a worker does not lower the tree by felling another tree onto the lodged tree; and
- (d) a worker does not remove the lodged tree by cutting the supporting tree.

(2) An employer shall ensure that no worker, other than the worker who is felling a lodged tree, enters the felling area until it is safe to do so.

Mechanized Fellers and Limbers

433. (1) An employer shall ensure that

- (a) a mechanized feller or limber is provided with
 - (i) adequate protection for the operator, including protection against any falling tree or part of a tree, and
 - (ii) a cab for the operator with at least two exits through which the operator can readily escape; and
- (b) a mechanized feller is designed and equipped to direct the fall of the tree away from the mechanized feller.

(2) An employer shall ensure that

- (a) no worker operates a mechanized feller or limber in a location where the stability of the machine cannot be assured; and
- (b) no worker operates a mechanized feller within 60 m of a worker who may be endangered by a falling tree or part of a tree.

(3) A worker shall not

- (a) operate a mechanized feller or limber in a location where the stability of the machine cannot be assured; or
- (b) operate a mechanized feller within 60 m of a worker who may be endangered by a falling tree or

part of a tree.

Bucking and Limbing

434. (1) Where a worker is bucking or limbing, an employer shall ensure that the worker
- (a) clears away any brush or object that may create a hazard to the worker;
 - (b) does not move forward while limbing a tree or log unless the worker is limbing on the side of the tree or log that is opposite to the side of the tree or log on which the worker is located;
 - (c) remains at least 60 m from any tree being felled;
 - (d) remains in a location safe from any tree or log being skidded or otherwise moved; and
 - (e) works only on the uphill side of any log that is lying on an incline.
- (2) While bucking or limbing, a worker
- (a) shall clear away any brush or object that may create a hazard to the worker;
 - (b) shall not move forward while limbing a tree or log unless the worker is limbing on the side of the tree or log that is opposite to the side of the tree or log on which the worker is located;
 - (c) shall remain at least 60 m from any tree being felled;
 - (d) shall remain in a location safe from any tree or log being skidded or otherwise moved; and
 - (e) shall work only on the uphill side of any log that is lying on an incline.

Employer's Responsibilities During Skidding

435. (1) During skidding operations, an employer shall ensure that
- (a) every snag, *chicot*, lodged tree or windfall that may be hazardous and that is located along or adjacent to a skid trail, haul road or landing is removed; and
 - (b) a skidder operator pulls down any tree that is lodged or is dangerous for any other reason immediately when the lodged or dangerous tree is reported to the skidder operator.
- (2) An employer shall ensure that a winching machine is equipped with suitable safeguards to protect the operator from flying objects.
- (3) An employer shall ensure that
- (a) no worker other than a skidder operator is required or permitted to ride on any skidder except where the skidder is provided with a second seat that is adequately protected;
 - (b) a skidder operator is required to discontinue operating when the operation of the skidder may endanger another worker until it is possible for the operation to proceed without danger to the other worker;
 - (c) a skidder operator does not operate a skidder within 60 m of a worker who is felling a tree until the worker has signalled that it is safe to operate the skidder; and
 - (d) a skidder operator does not operate a skidder near the edge of a bank, fill, excavation, incline or any other place where the skidder cannot safely be controlled.
- (4) An employer shall ensure that the skidder operator applies the brakes and, where the terrain is uneven, lowers the blade to the ground when the skidder operator temporarily gets off the skidder.
- (5) When a skidder operator parks a skidder, an employer shall ensure that the skidder operator parks the skidder on even ground and lowers the blade to the ground.

Skidder Operators' Responsibilities

436. (1) A skidder operator shall
- (a) remove every snag, *chicot*, lodged tree or windfall that may be hazardous or that is located along or adjacent to any skid trail, haul road or landing; and
 - (b) where advised that a tree is lodged or otherwise dangerous, immediately remove the tree.

- (2) A skidder operator shall not operate the winch at an angle that may cause the skidder to overturn.
- (3) A skidder operator shall
 - (a) keep any loose winch cable wound up on the winch drum and any choker clear of the ground during travel;
 - (b) ensure that no worker is located under or near the winch cable or choker cables or in a position to be struck by a winch cable or choker cable if the cable breaks or comes loose; and
 - (c) attach any choker cable applied to a log no farther from the end of the log than 1 m.
- (4) Before moving a log, a skidder operator shall ensure that no other worker may be endangered by moving the log.
- (5) A skidder operator
 - (a) shall not operate the skidder winch except from the seat provided unless a remote control device is provided and used from a safe winching position; and
 - (b) shall operate the skidder at a speed and in a manner that will prevent the skidder overturning.
- (6) When skidding logs to a landing, a skidder operator shall winch the drag up tight to the rear of the skidder to prevent uncontrolled movement of the logs.
- (7) Where a worker is attaching a choker to a log on sloping ground, a skidder operator shall lower the blade of the skidder to the ground.
- (8) When temporarily getting off a skidder, a skidder operator shall apply the brakes and, where the terrain is uneven, lower the blade to the ground.
- (9) When parking a skidder, a skidder operator shall park the skidder on even ground and lower the blade to the ground.

Loading, Unloading and Hauling Logs

437. (1) Where a worker is loading or unloading logs, an employer shall ensure that the loading and unloading areas are suitably graded and maintained appropriately for the equipment that is being used.
- (2) Where a worker is loading or unloading logs with a crane or other type of mechanical loader, an employer shall ensure that no worker is required or permitted to stand or work under the path of the bucket, grapple or load.
 - (3) Where a worker is or may be at risk from logs suspended over or near the cab of a vehicle, an employer shall ensure that the worker is not required or permitted to remain in the cab.
 - (4) An employer shall ensure that a worker who is not actively engaged in a loading or unloading operation
 - (a) remains at a safe distance from the operation in clear view of the operator; or
 - (b) if the hazard referred to in subsection (3) does not exist, remains in the cab of the vehicle.
 - (5) Where a worker is operating a loader equipped with a clam, an employer shall ensure that the jaws of the clam secure the entire load.
 - (6) Where a loader is equipped with a fork, an employer shall ensure that rear stoppers are provided that are designed and sufficiently strong to prevent any log from falling back on the operator.
 - (7) An employer shall ensure that
 - (a) a log yard is constructed, arranged, maintained and operated so that a worker may work without exposure to danger from any moving log or equipment; and
 - (b) a worker does not build a log pile to a height greater than a height that can be safely handled by the equipment used in the stacking and breaking down of the log deck.
 - (8) An employer shall ensure that no worker is required or permitted to work on, under or beside the haul

unit during loading or unloading.

(9) Where an operator does not have a clear view of the entire loading or unloading operation, an employer shall ensure that a signaller with a clear view of the operation and visible to the operator is designated pursuant to section 137 to give all signals necessary to ensure the safety of a worker involved in the loading or unloading operation.

(10) An employer shall ensure that a worker

- (a) restrains the top log on the outside edge of a vehicle by at least two stakes; and
- (b) secures the log load on a vehicle
 - (i) to the vehicle body with tie-downs of sufficient size and strength to restrain the logs,
 - (ii) between each set of stakes, and
 - (iii) by at least two tie-downs at the rear of the load.

(11) A worker who is engaged in loading or unloading logs shall

- (a) before shutting down and leaving the loader, lower the clam or forks, put the loader in neutral and apply the brakes;
- (b) while manually loading, unloading, decking or breaking piles, work only at the end of the logs; and
- (c) while loading or unloading logs, work in a safe position in clear view of the operator or signaller.

Vehicles Used to Haul Logs

438. An owner of a vehicle used to haul logs shall ensure that

- (a) the vehicle is equipped with a bulkhead installed between the cab and the load that is of sufficient size and strength to resist any impact caused by a shifting load;
- (b) stakes used to restrain logs on the vehicle are designed, constructed and installed to safely support any load placed against the stakes; and
- (c) stake extensions are of a strength equivalent to the strength of the stake and positively secured to the stake to prevent inadvertent detachment.

Log Carriages

439. (1) Where sawmill log carriages are used, an employer shall ensure that no worker is required or permitted to ride on a log carriage.

(2) Where the area immediately behind a log carriage is used as a walkway, an employer shall ensure that a guardrail is installed between the walkway and the carriage for the full extent of the carriage travel.

(3) An employer shall ensure that

- (a) suitable devices are installed to stop a log carriage at the end of the carriage's travel in each direction;
- (b) a log carriage is equipped with a suitable headblock that is equipped with suitable dogs that are used to secure the log during the sawing operation;
- (c) a log carriage is provided with a safety device that will ensure that the headblock cannot be moved to a position within 30 mm of the saw blade;
- (d) sweepers are provided in front and at the back of a log carriage to remove all obstructions from the track;
- (e) a power-driven log carriage is propelled by a wire rope that is
 - (i) of sufficient strength to propel the log carriage safely, and
 - (ii) maintained in safe operating condition;
- (f) the sawyer's lever operating the carriage drive mechanism is designed and installed so that the movement of the lever is in the opposite direction to the carriage travel, except when the sawyer's position and controls are enclosed or isolated from the hazards of the carriage; and

(g) means are provided to securely lock the sawyer's log turning and carriage control levers.

(4) An employer shall ensure that the sawyer engages the carriage control lever lock before leaving the sawyer's position.

Sawmill Head Rigs

440. (1) In this section, "husk" means a head saw framework on a circular mill.

(2) Where a sawmill head rig is operated, an employer shall ensure that

- (a) a circular blade sawmill is equipped with suitable saw guides that can only be adjusted from outside the husk;
- (b) husks are completely enclosed and are provided with a substantial, securely hinged cover;
- (c) a solid splitter is provided that
 - (i) has a leading edge that is adjacent to and conforms to the curvature of the saw blade, and
 - (ii) extends above the carriage deck a distance of not less than one-quarter of the diameter of the saw blade in use;
- (d) a substantial safeguard is provided over the lower portion of the head saw blade under the carriage tracks and extends at least 15 cm below the bottom of the largest size saw blade in use;
- (e) a substantial heavy-mesh screen or other suitable material is securely placed between the saw blade and the sawyer's position to protect the sawyer from any throw-backs from the saw;
- (f) mesh screens required by paragraph (e) are backed by a small-mesh screen or other effective safeguard located on the sawyer's side of the heavy screen to protect the sawyer from small flying particles;
- (g) a power unit driving a sawmill is equipped with an emergency stopping device located within immediate reach of the sawyer; and
- (h) the yard end of an elevated log deck rollway is equipped with a device that will prevent logs from rolling back into the mill yard.

(3) An employer shall ensure that the support structure for a top saw is of sufficient size and strength to withstand any forces imposed on the saw.

Trimmer Saws

441. An employer shall ensure that a trimmer saw blade is equipped with a safeguard that allows the passage of material being cut, exposes a minimum amount of the saw blade and protects workers from flying debris.

Edgers

442. (1) An employer shall ensure that

- (a) the top of an edger is covered effectively to control flying debris;
- (b) the roll of an edger is kept in contact with the material being cut; and
- (c) an edger is equipped with an effective kickback device to protect workers from material thrown from either end of the edger.

(2) An employer shall ensure that an overhead or double arbour saw edger is provided with a safeguard to protect workers from material thrown from the infeed rolls or the outfeed rolls.

Bandsaws

443. An employer shall ensure that

- (a) the saw blades of a bandsaw are enclosed or guarded between the top guideroll and the table, except on the working side of the blade;
- (b) bandsaw wheels are fully enclosed; and
- (c) bandsaw machines are provided with an effective automatic tension control device.

Feedrolls of Resaws

444. An employer shall ensure that the feedrolls of a resaw are protected with semi-cylindrical metal guards to prevent the hands of a worker from coming in contact with the roll.

Dry Kilns

445. An employer shall ensure that

- (a) before the heating process is begun, no worker remains in a dry kiln; and
- (b) a dry kiln is equipped with a readily identifiable escape door or kick out panel that measures not less than 600 mm by 600 mm.

PART 30**ADDITIONAL PROTECTION FOR ELECTRICAL WORKERS**

Interpretation

446. (1) In this Part,

"approved" means as approved under the *Electrical Protection Regulations*;

"electrical equipment" means electrical equipment as defined in subsection 1(1) of the *Electrical Protection Act*;

"electrical worker" means,

- (a) in the case of electrical work as defined in subsection 1(1) of the *Electrical Protection Act*, that is regulated by that Act, a qualified electrical worker as defined in subsection 1(1) of that Act, or
- (b) in the case of any work with electrical equipment that is not regulated by the *Electrical Protection Act*, a competent worker for that work;

"guarded" means covered, shielded, fenced, enclosed or otherwise protected by suitable covers, casings, barriers, rails, screens, mats, platforms or other equally effective means;

"high voltage" means any voltage over 750 V;

"lamp" means an artificial source of electric light;

"luminaire" means a complete lighting unit that is designed to accommodate a lamp and to connect the lamp to an electrical power supply;

"readily accessible" means capable of being reached quickly for operation, renewal, or inspection, without requiring a worker to climb over or remove obstacles or to resort to portable means of access.

(2) Nothing in this Part shall be construed as authorizing

- (a) the performance of work by a person if it is unlawful for the person to perform that work because of the *Electrical Protection Act* or the regulations made pursuant to that Act or any other Act or regulation;
- (b) the use of electrical equipment if it is unlawful to use that equipment because of the *Electrical Protection Act*, the regulations made pursuant to that Act or any other Act or regulation; or
- (c) the performance of work in a particular manner if it is unlawful to perform the work in that manner because of the *Electrical Protection Act*, the regulations made pursuant to that Act or any other Act or regulation.

(3) This Part does not apply to any electrical work carried on by an electrical worker

- (a) in power houses, substations or other facilities

- (i) in which electricity is produced or from which electricity is distributed, and
- (ii) from which some or all of the electricity mentioned in paragraph (a) is sold;
- (b) on railway cars or locomotives or street railway cars or locomotives; or
- (c) on transmission lines and distribution systems of electric utilities.

Electrical Workers

447. (1) Subject to subsection (2), an employer shall permit only electrical workers to construct, install, alter, repair or maintain electrical equipment.

- (2) An employer may permit a competent worker
 - (a) to operate powered mobile equipment and perform non-electrical work on or near de-energized electrical equipment;
 - (b) to extend a portable power cable for routine advancement by interconnection of approved cord connectors, cord caps or similar devices;
 - (c) to change light bulbs or tubes;
 - (d) to insert or replace an approved fuse, to a maximum of 750 V, that controls circuits or equipment; or
 - (e) to connect portable electrical equipment that operates at less than 750 V to supply circuits by means of attachment plugs, where the connection does not overload the circuit conductors, or to use or operate portable electrical equipment that is connected in that way.

Electrical Equipment

448. (1) An employer shall ensure that only approved electrical equipment is used by workers and that the electrical equipment is

- (a) approved for its intended use and location;
 - (b) maintained in proper working condition and capable of safe operation; and
 - (c) tested in accordance with the manufacturer's recommendations.
- (2) Where defects or unsafe conditions have been identified in electrical equipment, an employer
- (a) shall ensure that
 - (i) steps are taken immediately to inform and protect the health and safety of any worker who may be at risk until the defects are repaired or the unsafe conditions are corrected, and
 - (ii) the defects are repaired or the unsafe conditions are corrected as soon as is reasonably practicable; or
 - (b) shall ensure that the electrical equipment is disconnected and removed from use.

Covers for Switches, Receptacles and Connections

449. An employer shall ensure that

- (a) all switches, receptacles, luminaires and junction boxes are fitted with a cover that is approved for the intended use and location of the cover;
- (b) all wire joints or connections are
 - (i) fitted with an approved cap or other approved cover,
 - (ii) enclosed in an approved box, or
 - (iii) where the wire joints or connections are not permanently installed, protected from damage by another approved means; and
- (c) all dead, abandoned or disused electrical conductors or equipment are removed from the work site or disconnected and secured to prevent inadvertent energization.

Electrical Equipment in Tunnel or Manhole

450. Where electrical equipment is installed in a tunnel or manhole, an employer shall ensure, where reasonably, that

- (a) the tunnel or manhole is kept clear of water; and
- (b) the electrical equipment is protected from physical or mechanical damage.

Luminaires

451. An employer shall ensure that a luminaire that is located at a height of less than 2.1 m above a working or walking surface is protected against physical or mechanical damage by installation of a safeguard or the location of the luminaire.

Extension and Power Supply Cords

452. An employer shall ensure that an electrical extension or power supply cord used for supplying energy to any electrical equipment

- (a) is approved for the intended use and location of the electrical extension or power supply cord;
- (b) is fitted with approved cord end attachment devices that are installed in an approved manner;
- (c) is provided with a grounding conductor; and
- (d) is maintained and protected from physical or mechanical damage.

Portable Power Cables and Cable Couplers

453. (1) An employer shall ensure that every portable power cable and cable coupler is

- (a) protected from physical or mechanical damage; and
- (b) inspected by a competent person at intervals that are sufficient to protect the health and safety of workers.

(2) An employer shall ensure that

- (a) where any unsafe condition is identified in a portable power cable or cable coupler, the portable power cable or the cable coupler is repaired or taken out of service; and
- (b) every splice in a portable power cable is sufficiently strong and adequately insulated to retain the mechanical and dielectric strength of the original cable.

(3) A worker shall take all reasonably practicable steps not to drive equipment over, or otherwise damage, a portable power cable or cable coupler.

Portable Luminaires

454. (1) Where a portable luminaire is used, an employer shall ensure that

- (a) the electrical extension cord and fittings are approved for the intended use and location of the extension cord and fittings and are properly maintained; and
- (b) the electrical extension cord is not used to supply power to any equipment other than the portable luminaire unless the cord meets the requirements of section 452.

(2) An employer shall ensure that a portable luminaire used in a damp location or in a metallic enclosure, including a drum, tank, vessel or boiler

- (a) is operated at a potential of not more than 12 V; or
- (b) is supplied by a circuit that is protected by a Class A ground fault circuit interrupter.

Exposed Metal Parts

455. An employer shall ensure that every exposed metal part of portable electrical equipment that is not designed to carry electrical current is connected to ground unless

- (a) the electrical equipment is of an approved, double-insulated type and is clearly marked as such;
- (b) power is supplied to the equipment through an isolating transformer having a non-grounded secondary of not more than 50 V potential;

- (c) power is supplied to the equipment through a Class A ground fault circuit interrupter; or
- (d) power is supplied to the equipment from a battery of not over 50 V potential.

Portable Electric Power Plants

456. (1) An employer or supplier shall ensure that
- (a) a portable electric power plant that is operated at voltages exceeding 240 V to ground or is rated in excess of 12.0 kVA is connected to ground in a manner approved pursuant to the *Electrical Protection Act*; and
 - (b) all electrical equipment connected to an ungrounded portable electric power plant
 - (i) is of the double insulated type; and
 - (ii) is clearly marked as being of the double insulated type or is supplied from a Class A ground fault interrupting device.
- (2) Subsection (1) does not apply if the electrical energy is used for electric arc welding.

Electrical Panels

457. An employer shall ensure that every electrical panel is
- (a) approved for the intended use and location of the electrical panel;
 - (b) protected from physical or mechanical damage;
 - (c) readily accessible; and
 - (d) fitted with an approved cover that has an approved filler in any unused opening.

High Voltage Switchgear and Transformers

458. (1) An employer shall ensure that a place where electrical switchgear or transformers operating at high voltage are housed is
- (a) guarded;
 - (b) kept free of extraneous material; and
 - (c) adequately ventilated.
- (2) Where high voltage switchgear or transformers are housed, an employer shall post a warning sign that
- (a) indicates the highest voltage in use; and
 - (b) states that access is restricted to authorized persons only.

Fire Extinguishers

459. An employer shall ensure that a fire extinguisher approved for Class C fires is readily available to workers working on or near energized high voltage electrical equipment.

Grounding of Equipment Before Work Begins

460. Before any work, other than work to which subsection 461(7) applies, begins on an electrical conductor or electrical equipment and during the progress of that work, an employer shall ensure that
- (a) the electrical conductor or electrical equipment is isolated, locked out and connected to ground; or
 - (b) other effective procedures are taken to ensure the safety of the workers.

Proximity to Exposed Energized High Voltage Electrical Conductors

461. (1) In this section,

"electrical worker" means

- (a) an electrical worker as defined in section 446, or
- (b) for the purpose of design, calibrating of equipment, inspection, monitoring, testing, and commissioning of equipment in high voltage installations, electrical engineers;

"utility tree trimmer" means a person who has successfully completed a course that has been approved for the purposes of this section.

(2) An employer shall ensure that an electrical worker who is exposed to energized high voltage electrical conductors has had approved training in high voltage safety.

(3) No electrical worker shall undertake high voltage electrical work unless the worker

(a) has written proof of approved training in high voltage electrical safety; and

(b) has that written proof of approved training readily accessible at all times while working near energized high voltage electrical conductors.

(4) Except as otherwise provided in this section, an employer shall ensure that no worker works, no material is piled, stored or handled, no scaffold is erected or dismantled and no equipment or powered mobile equipment is used or operated within the minimum distance from any exposed energized electrical conductor set out in column 1 of Schedule X.

(5) Subsection (4) does not apply to a worker who is undertaking a specific one-time activity under the direct supervision of an electrical worker.

(6) An employer shall ensure that no worker who is at ground potential approaches an exposed energized electrical conductor closer than the minimum distance set out in column 2 of Schedule X.

(7) An employer shall ensure that only an electrical worker works closer to an exposed energized electrical conductor than the minimum distance set out in column 2 of Schedule X.

(8) Where an electrical worker works closer to an exposed energized electrical conductor than the minimum distance set out in column 2 of Schedule X, an employer shall ensure that

(a) the electrical worker

(i) performs the work in accordance with written instructions for a safe work procedure that have been developed and signed by a competent person who has been appointed by the employer for that purpose;

(ii) uses equipment that is approved for its intended use; and

(iii) uses personal protective equipment that meets the requirements of Part 7; or

(b) the conductor is operating at 25 kV or less and is fitted with rubber and rubber-like insulating barriers that meet the requirements of an approved standard.

(9) An employer shall ensure that no part of a vehicle is operated on a public road, highway, street, lane or alley within the minimum distance from an exposed energized electrical conductor set out in column 3 of Schedule X and that no part of a vehicle's load comes within the minimum distance.

(10) An employer shall ensure that no utility tree trimmer works within the minimum distance from an exposed energized electrical conductor set out in

(a) column 4 of Schedule X for utility tree trimmers using conducting objects exposed to energized parts;

(b) column 5 of Schedule X for utility tree trimmers using rated tools exposed to energized parts;

(c) column 6 of Schedule X for utility tree trimmers using rated insulating booms.

Exposed Energized Electrical Conductors Operating at Certain Voltages

462. Where work is being carried out in proximity to exposed energized electrical conductors operating at 31 to 750 V, an employer shall ensure that the work is carried out so that accidental contact with the energized electrical conductor by any worker is prevented.

Emergency Program

463. (1) Where an electrical worker may come in contact with an exposed energized electrical conductor and that contact may affect the health or safety of the worker, an employer shall develop and implement an

emergency program that sets out the procedures to be followed in the event of that contact.

- (2) An emergency program developed pursuant to subsection (1) must include procedures
- (a) to rescue a worker who has come into contact with a live conductor;
 - (b) to administer first aid to a worker who has sustained an electric shock; and
 - (c) to obtain medical assistance.

(3) An employer shall ensure that the workers are adequately trained to implement the emergency program.

PART 31

ADDITIONAL PROTECTION FOR HEALTH CARE WORKERS

Interpretation

464. In this Part

"contaminated laundry" means laundry that has been contaminated by waste;

"health care facility" means

- (a) a "health care facility" as defined in subsection 1(1) of the *Workers' Compensation Act*,
- (b) a "health facility" as defined in section 1 of the *Hospital Insurance and Health and Social Services Administration Act*,
- (c) a "hospital" as defined in subsection 1(1) of the *Territorial Hospital Insurance Regulations*,
- (d) a laboratory facility that is located in, or that provides services to a health care facility,
- (e) any other work site that provides testing, diagnosis, treatment or care to a patient, resident or client for the purpose of improving or maintaining the physical or mental health of the patient, resident or client,
- (f) a laundry facility that is located in, or that provides services to a health care facility,
- (g) an ambulance service,
- (h) an air ambulance service,
- (i) a medical office or medical clinic,
- (j) a dental office or dental clinic,
- (k)
- (k) a veterinary office or clinic where veterinary surgery as defined in the *Veterinary Profession Act*, or castration, spaying, vaccinating or dehorning of animals occurs,
- (l) a post-mortem facility for humans or animals, or
- (m) a facility that processes human anatomical waste, including a funeral home or crematorium;

"waste" means any biomedical or pharmaceutical material or substance that may be hazardous to the health or safety of a worker and that requires special handling precautions, decontamination procedures or disposal, and includes

- (a) human anatomical waste,
- (b) animal anatomical waste,
- (c) microbiological laboratory waste,
- (d) blood and body fluid waste, and
- (e) used or contaminated needles, syringes, blades, clinical glass and other clinical items that are capable of causing a cut or puncture.

Application of Part

465. This Part applies to health care facilities.

Patient Moving and Handling

466. (1) Where workers are required or permitted to lift, hold, turn or transfer patients, residents or clients, an employer

- (a) shall, in consultation with the Committee, develop a written program specifying
 - (i) the procedures to be used in assessing whether a patient, resident or client requires assistance to move, and
 - (ii) the procedures and techniques that workers must use when lifting, holding, turning or transferring a patient, resident or client under all reasonably foreseeable circumstances;
- (b) shall implement the program developed pursuant to paragraph (a);
- (c) shall make readily available for reference by workers a copy of the program developed pursuant to paragraph (a);
- (d) shall, where the program developed pursuant to paragraph (a) requires the use of mechanical devices, provide mechanical devices, sufficient in quantity and quality, to protect the health and safety of workers to assist with lifting, holding, turning or transferring patients, residents or clients;
- (e) shall ensure that workers use and maintain the mechanical devices provided pursuant to paragraph (d) according to the manufacturer's recommendations; and
- (f) shall ensure that workers
 - (i) are instructed in the causes of injuries resulting from lifting, holding, turning or transferring patients, residents or clients and the means to prevent those injuries,
 - (ii) are trained in, and use, the procedures and techniques of lifting, holding, turning and transferring patients, residents or clients, and
 - (iii) are trained in the use of the mechanical devices provided pursuant to paragraph (d).

(2) Where a patient, resident or client has been assessed as requiring assistance to move, an employer shall ensure that the status of the patient, resident or client and the appropriate techniques to lift, hold, turn or transfer the patient, resident or client are clearly identified in writing or by other visual means at or near the location of the patient, resident or client.

(3) An employer, in consultation with the Committee or representative or workers, shall review all injuries resulting from lifting, holding, turning or transferring patients, residents or clients to determine the causes of the injuries.

(4) An employer shall take appropriate action to prevent the occurrence of injuries similar to an injury reviewed pursuant to subsection (3).

(5) Where a program developed pursuant to paragraph (1)(a) specifies the use of a mechanical device or the assistance of another worker, no employer shall require or permit a worker to lift, hold, turn or transfer a patient, resident or client without the use of the device or the assistance of the other worker.

Cytotoxic Drugs

467. (1) In this section, "cytotoxic drugs" means drugs that

- (a) inhibit or prevent the functions of cells; and
- (b) are manufactured, sold or represented for use in treating neoplastic or other conditions.

(2) An employer shall take all practicable steps to minimize the exposure of workers to cytotoxic drugs or to materials or equipment contaminated with cytotoxic drugs.

(3) Where workers prepare parenteral cytotoxic drugs on a frequent and continuing basis, an employer shall provide and maintain an approved biological safety cabinet in accordance with subsection (4) and ensure

that workers use the cabinet safely.

- (4) A biological safety cabinet must be
 - (a) inspected and certified by a competent person at least annually and when the biological safety cabinet is moved; and
 - (b) used and maintained according to an approved procedure or the manufacturer's recommendations.
- (5) Where workers are required to prepare, administer, handle or use cytotoxic drugs or are likely to be exposed to cytotoxic drugs, an employer, in consultation with the Committee, shall develop a written program to protect the health and safety of workers who may be exposed to cytotoxic drugs or to materials or equipment contaminated with cytotoxic drugs.
- (6) A program developed pursuant to subsection (5) must include
 - (a) the measures to be taken to identify, store, prepare, administer, handle, use, transport and dispose of cytotoxic drugs and materials contaminated with cytotoxic drugs;
 - (b) the emergency steps to be followed in the event of
 - (i) a spill or leak of a cytotoxic drug, or
 - (ii) worker exposure to cytotoxic drugs by a puncture of the skin, absorption through the skin, contact with an eye, inhalation of drug dust or ingestion of a contaminated substance;
 - (c) the methods to be followed in maintaining and disposing of equipment contaminated with cytotoxic drugs;
 - (d) the use to be made of engineering controls, work practices, hygiene practices and facilities, approved respiratory protective devices, approved eye or face protectors and other personal protective equipment and decontamination materials and equipment that are appropriate in the circumstances; and
 - (e) the use to be made of an approved biological safety cabinet for the preparation of cytotoxic drugs and the methods to be followed in maintaining the cabinet.
- (7) An employer shall
 - (a) implement the program developed pursuant to subsection (5);
 - (b) ensure that all workers who may be exposed to cytotoxic drugs or to materials or equipment contaminated with cytotoxic drugs are trained in the program; and
 - (c) make a copy of the program readily available for reference by workers.

Waste

468. (1) Where exposure to waste is likely to endanger the health or safety of a worker, an employer shall develop and implement a process that ensures that the waste
- (a) is segregated at the place where the waste is located or produced;
 - (b) is contained in a secure, clearly labelled package or container that holds the contents safely until it is cleaned, decontaminated or disposed of; and
 - (c) is cleaned, decontaminated or disposed of in a manner that will not endanger the health or safety of any worker.
- (2) An employer shall ensure that
- (a) a worker who generates, collects, transports, cleans, decontaminates or disposes of waste or launders contaminated laundry is trained in safe work practices and procedures;
 - (b) a worker in paragraph (a) is provided with personal protective equipment, that is appropriate to the risks associated with the worker's work; and
 - (c) a worker described in paragraph (a) uses the safe work practices and procedures and the personal protective equipment referred to in that paragraph.

Equipment Contaminated with Waste

469. An employer shall ensure that, where reasonably practicable, any equipment that has been contaminated with waste is inspected and decontaminated before it is repaired or shipped for repair.

Waste Needles

470. (1) An employer shall provide readily accessible containers for waste needles, syringes, blades, clinical glass and any other clinical items that are capable of causing a cut or puncture and shall ensure that workers use those containers.

- (2) The containers required by subsection (1) must
- (a) have a fill line;
 - (b) be clearly identified as containing hazardous waste; and
 - (c) be sturdy enough to resist puncture under normal conditions of use and handling until the containers are disposed of.
- (3) An employer shall ensure that workers do not manually clip, bend, break or recap waste needles.

Contaminated Laundry

471. (1) An employer shall ensure that workers handle contaminated laundry as little as possible to prevent gross microbial contamination of the air and of any worker handling the laundry.

(2) At a laundry facility that is established or extensively renovated after the coming into force of these regulations, an employer shall ensure that the area where contaminated laundry is sorted is separated from the clean laundry area by one or more of the following:

- (a) a physical barrier;
- (b) a negative air pressure system in the contaminated laundry area;
- (c) a positive air flow from the clean laundry area through the contaminated laundry area.

Selecting Needle-Safe Devices

472. (1) In this section and in section 473,

"contaminated" means contaminated with

- (a) human blood,
- (b) fluids containing visible amounts of human blood, or
- (c) any of the following potentially infectious human bodily fluids:
 - (i) semen,
 - (ii) vaginal secretions,
 - (iii) cerebrospinal fluid,
 - (iv) synovial fluid,
 - (v) pleural fluid,
 - (vi) pericardial fluid,
 - (vii) peritoneal fluid,
 - (viii) amniotic fluid,
 - (ix) saliva,
 - (x) breast milk,
 - (xi) fluids from any unfixed tissue or organ, other than intact skin, from a human, living or dead,
 - (xii) cell, tissue or organ cultures, or other solutions, that may contain a human blood-borne infectious organism, or
 - (xiii) fluids from tissues of experimental animals infected with a blood-borne infectious organism

from a human source;

"needles with engineered sharps injury protections" means hollow bore needles or devices with hollow bore needles that

- (a) are commercially available,
- (b) are approved as medical devices by Health Canada under the *Food and Drugs Act* (Canada),
- (c) have a built-in safety feature or mechanism that eliminates or minimizes the risk of a percutaneous injury, and
- (d) are used for purposes that include
 - (i) withdrawing bodily fluids,
 - (ii) accessing a vein or artery, and
 - (iii) administering medications or other fluids;

"needleless system" means a commercially available device approved as a medical device by Health Canada under the *Food and Drugs Act* (Canada) and that replaces a hollow bore needle for use in

- (a) the collection of bodily fluids,
- (b) the withdrawal of bodily fluids after initial venous or arterial access is established,
- (c) the administration of medication or fluids, or
- (d) any other procedure in which it is reasonably anticipated that a worker could incur a percutaneous injury with a contaminated hollow bore needle;

"percutaneous" means a route of entry that is through the skin or mucous membrane, and includes subcutaneous, intramuscular and intravascular routes of entry;

"public health emergency" means an "emergency" as defined in section 1 of the *Civil Emergency Measures Act* or a "public welfare emergency" as defined in section 5 of the *Emergencies Act* (Canada) and which involves

- (a) an epidemic or pandemic disease, or
- (b) a novel, highly fatal infectious agent or associated biological toxin.

(2) This section and section 473 apply

- (a) to all health care facilities;
- (b) to a correctional centre as defined in section 1 of the *Corrections Act*, and
- (c) to a youth custody facility as defined in subsection 2(1) of the *Youth Criminal Justice Act* (Canada).

(3) Subject to subsection (4), for tasks and procedures in which it is reasonably anticipated that a worker may incur a percutaneous injury from a contaminated hollow bore needle, the employer shall

- (a) identify, evaluate and select needles with engineered sharps injury protections or needleless systems, in consultation with the Committee or representative; and
- (b) ensure that the needles with engineered sharps injury protections and needleless systems selected pursuant to paragraph (a) are used.

(4) Subsection (3) does not apply

- (a) if the employer can demonstrate that needles with engineered sharps injury protections or needleless systems pose an additional risk to the patient or worker;
- (b) to any biological or antibiotic product in an injection-ready needle device that is present in Nunavut on the day on which this section comes into force;
- (c) to any needles or needle devices that are obtained during a public health emergency for use in that emergency;
- (d) to needles or needle devices for use in a public health emergency that are stockpiled for use in a

public health emergency and are present in Nunavut on the day on which this section comes into force; or

- (e) if a needle with engineered sharps injury protections or a needleless system requires Health Canada's approval for use in a national program, including blood collection and vaccination programs, until the day on which Health Canada approves a needle with engineered sharps injury protections or a needleless system for use in a national program.

Injury Log

473. (1) An employer shall maintain an injury log for all exposures involving a percutaneous injury with a sharp.
- (2) Entries in the injury log maintained pursuant to subsection (1) must
- (a) protect the confidentiality of the exposed worker; and
 - (b) contain at least the following information:
 - (i) the type and brand of the device involved in the exposure incident;
 - (ii) the department or work area in which the exposure occurred;
 - (iii) an explanation of how the exposure occurred.

Anaesthetic Gases

474. Where workers are required to handle or use anaesthetic gases and vapours or are likely to be exposed to anaesthetic gases and vapours, an employer shall
- (a) develop safe work practices and procedures to eliminate or reduce the concentration of anaesthetic gases and vapours in the air of the room during the administration of the anaesthetic gases;
 - (b) train workers in the safe work practices and procedures developed pursuant to paragraph (a) and ensure that the workers use those safe work practices and procedures;
 - (c) ensure that all anaesthetic gas hoses, connections, tubing, bags and associated equipment are inspected for leakage before each use and at least weekly;
 - (d) ensure that any room where anaesthetic gases are administered is, where reasonably practicable, ventilated at a rate of 15 air changes per hour;
 - (e) on or before handling or use, install an effective waste anaesthetic gas scavenging system to collect, remove and dispose of waste anaesthetic gases and vapours;
 - (f) ensure that leakage from a waste anaesthetic gas scavenging system installed pursuant to paragraph (e) is less than 100 mL per minute when tested according to an approved standard; and
 - (g) ensure that the waste anaesthetic gas scavenging system and the equipment used to administer anaesthetic gases are maintained.

Ethylene Oxide Sterilizers

475. (1) In this section, "CSA installation standard" means the Canadian Standards Association standard CAN/CSA-Z314.9-09 *Installation, Ventilation, and Safe Use of Ethylene Oxide Sterilizers in Health Care Facilities*, as amended from time to time.

(2) An employer shall ensure, to the extent that is practicable, that all ethylene oxide sterilizers at a work site are operated and maintained in accordance with the CSA installation standard.

- (3) An employer, in consultation with the Committee or representative or workers, shall develop
- (a) safe work practices and policies that meet the requirements of the CSA installation standard; and
 - (b) an emergency response program to detect, control and respond to any leak or spill of ethylene oxide that meets the requirements of the CSA installation standard.

(4) An employer shall

- (a) implement the safe work practices and policies and the emergency response program developed

pursuant to subsection (3); and

- (b) ensure that workers who operate ethylene oxide sterilizers and workers who may come into contact with ethylene oxide
 - (i) are trained in accordance with the CSA installation standard, and
 - (ii) follow the safe work practices and policies and the emergency response program developed pursuant to subsection (3).

(5) An employer shall ensure that all areas where ethylene oxide is used or stored are posted with clearly legible signs that state "Ethylene Oxide Area, Potential Cancer and Reproductive Hazard, Authorized Personnel Only".

(6) An employer shall ensure that all records of equipment maintenance and accidental ethylene oxide leakages are kept for five years in a log book located in the ethylene oxide sterilization area.

(7) An employer shall ensure that an ethylene oxide sterilizer purchased after the coming into force of these regulations

- (a) is constructed in accordance with the Canadian Standards Association standard CAN/CSA-Z314.1-09 *Ethylene Oxide Sterilizers for Health Care Facilities*, as amended from time to time;
- (b) is installed in accordance with and meets the ventilation requirements of the CSA installation standard; and
- (c) where reasonably practicable, is a sterilizer with in-chamber aeration that allows sterilization and aeration to take place without manually transferring the items that are being sterilized and aerated from one piece of equipment to another.

(8) An employer shall ensure that portable ethylene oxide sterilizers are operated in a fume cabinet or placed in a self-contained room that is unoccupied during the sterilization process and is ventilated clear of the work site at a minimum rate of 10 air changes per hour to prevent the accumulation of the gas in the room.

Review of Programs

476. An employer, in consultation with the Committee or representative or workers, shall ensure that all programs, training, work practices, procedures and policies developed pursuant to this Part are reviewed and, where necessary, revised at least every three years and whenever there is a change of circumstances that may affect the health or safety of workers.

PART 32

ADDITIONAL PROTECTION FOR FIREFIGHTERS

Interpretation

477. In this Part,

"emergency incident" means the circumstances giving rise to specific emergency operations;

"emergency medical care" means the provision of ambulance services or treatment to patients, including first aid, cardiopulmonary resuscitation, basic life support, advanced life support and other medical procedures that occur before arriving at a hospital or other health care facility as defined in section 464;

"emergency operation" means the activities relating to rescue, fire suppression, emergency medical care and special operations, and includes the response to the scene of an incident and all functions performed at the scene;

"evolution" means a set of standard operating procedures that results in an effective response to an emergency incident;

"firefighter" means a worker whose duties include:

- (a) emergency operations, fire inspection and fire investigation, or
- (b) training for the activities mentioned in paragraph (a);

"firefighting vehicle" means a specialized vehicle that carries an assortment of tools and equipment for use by firefighters in emergency operations;

"Fire Marshal" means the Fire Marshal as defined in section 1 of the *Fire Prevention Act*;

"fire suppression" means the activities involved in controlling and extinguishing fires, including all activities performed at the scene of a fire incident or training exercise that expose firefighters to the dangers of heat, flame, smoke and other products of combustion, explosion, or structural collapse;

"rescue" means activities directed at locating endangered persons at an emergency incident and removing those persons from danger, and includes treating the injured;

"special operations" means emergency incidents to which firefighters respond that require specific and advanced training and specialized tools and equipment, and includes water rescue, confined space entry, high-angle rescue and incidents involving hazardous materials;

"standard operating procedure" means an operational directive prepared by an employer that establishes a standard course of action for the emergency incidents to which a firefighter is required to respond;

"structural firefighting" means the activities of rescue, fire suppression and property conservation involving buildings, enclosed structures, vehicles, vessels, aircraft or other large objects that are involved in a fire or emergency incident.

Application of Part

478. (1) This Part applies to fire fighters who are engaged in emergency operations or in training.

(2) The Chief Safety Officer may, on the application of a Fire Marshal, exempt a volunteer fire department from being required to comply with any provision of this Part.

(3) Where an exemption is given under subsection (2), it shall expire one year after the exemption is given.

Plan for Response to Emergency Incident

479. (1) An employer, in consultation with the Committee or representative or workers, shall develop a written plan that establishes the procedures to be followed by firefighters in response to an emergency incident.

(2) A plan required by subsection (1) must include

- (a) identification of standard firefighting functions or evolutions, including functions or evolutions that must be performed simultaneously;
- (b) the minimum number of firefighters required to perform safely each identified firefighting function or evolution, based on written standard operating procedures;
- (c) the number and types of firefighting vehicles and firefighters required for the initial response to each type of emergency incident to which the firefighters will be expected to respond;
- (d) the total complement of firefighting vehicles and firefighters to be dispatched for each type of emergency incident;
- (e) a description of a typical emergency operations, including alarm time, response time, arrival sequence, responsibility for initiating standard operating procedures necessary to protect the health and safety of firefighters;
- (f) an incident management system; and
- (g) a personnel accountability system.

- (3) An employer shall
 - (a) ensure that the plan developed pursuant to subsection (1) is implemented; and
 - (b) make a copy of the plan readily available for reference by firefighters.

Training of Firefighters

480. (1) An employer shall ensure that
- (a) all firefighters receive the training necessary to ensure that the firefighter is able to carry out safely any emergency operations that the firefighter will be expected to carry out;
 - (b) the training required by paragraph (a) is provided by competent persons; and
 - (c) a written record is kept of all training delivered to firefighters pursuant to this Part.
- (2) An employer shall ensure that every firefighting vehicle is operated by a competent operator.

General Standards for Vehicles and Equipment

481. An employer shall ensure that all firefighting vehicles and all equipment for use in emergency operations are designed, constructed, operated, maintained, inspected and repaired so as to protect adequately the health and safety of firefighters.

Securing of Equipment in Vehicles

482. Where equipment or personal protective equipment is carried within a seating area of a firefighting vehicle, an employer shall ensure that
- (a) the items of equipment are secured
 - (i) by a positive mechanical means of holding the item in a stowed position, or
 - (ii) in a compartment with a positive latching door; and
 - (b) the compartment referred to in subparagraph (a)(ii) is designed to minimize injury to firefighters in the seating area of the vehicle.

Inspection of Firefighting Vehicles and Equipment

483. An employer shall ensure that
- (a) all firefighting vehicles and firefighting equipment are inspected by a competent person for defects and unsafe conditions as often as is necessary to ensure that the vehicles and equipment are capable of safe operation;
 - (b) where a defect or unsafe condition that may create a hazard to a firefighter is identified in a firefighting vehicle or firefighting equipment
 - (i) steps are taken immediately to protect the health and safety of any firefighter who may be at risk until the defect is repaired or the unsafe condition is corrected, and
 - (ii) as soon as is reasonably practicable, the defect is repaired or the unsafe condition is corrected; and
 - (c) a written record
 - (i) is kept of all inspections carried out pursuant to paragraph (a),
 - (ii) is signed by the competent person who performs the inspection, and
 - (iii) is kept at the work site and is made readily available to the Committee or representative and the firefighters.

Repair of Firefighting Vehicles

484. An employer shall ensure that
- (a) all repairs to firefighting vehicles of defects or unsafe conditions that may put at risk the health or safety of firefighters are made in accordance with the vehicle manufacturer's instructions and by qualified persons experienced with the type of vehicle or the type of work to be performed; and

- (b) a written record
 - (i) is kept of all repairs made to a firefighting vehicle, and
 - (ii) is kept at the work site and is made readily available to the Committee or representative and the firefighters.

Transportation of Firefighters

485. (1) Subject to subsection (3), an employer shall ensure that
- (a) all firefighting vehicles are provided with safe crew accommodations within the body of the vehicle and are equipped with properly secured seats and seat belts;
 - (b) while a firefighting vehicle is transporting firefighters, every firefighter is seated and uses a seat belt when the vehicle is in motion; and
 - (c) no firefighter rides on the tailstep, side steps, running boards or in any other exposed position on a firefighting vehicle.

(2) Where there is an insufficient number of seats available for the number of firefighters who are assigned to or expected to ride on a firefighting vehicle, an employer shall ensure that there is a safe alternate means of transportation for those firefighters.

(3) Paragraphs (1)(b) and (c) do not apply where a firefighter is fighting a forest, prairie, grassland or crop fire, and the employer ensures that

- (a) a restraining device is used to prevent the firefighter from falling from the firefighting vehicle;
- (b) an effective means of communication between the firefighter and the operator of the firefighting vehicle is provided; and
- (c) a firefighter does not operate the firefighting vehicle at a speed that exceeds 20 km/h.

Personal Protective Equipment

486. An employer shall provide to a firefighter who engages in or is exposed to the hazards of emergency operations, and ensure that the firefighter uses approved personal protective equipment, that is appropriate to the nature of the risk to which the firefighter will be exposed and that is adequate to protect the health and safety of the firefighter.

Interior Structural Firefighting

487. (1) In this section,

"incipient stage fire" means a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus;

"Interior structural fire fighting" means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage.

(2) Where firefighters are required or permitted to engage in interior structural firefighting, an employer shall ensure that

- (a) the firefighters work in teams; and
- (b) a suitably equipped rescue team is readily available outside the structure to rescue an endangered firefighter if the firefighter's SCBA fails or the firefighter becomes incapacitated for any other reason.

Personal Alert Safety System

488. (1) An employer shall provide each firefighter who enters a structure during firefighting with an approved

personal alert safety system device and ensure that the firefighter uses the device.

(2) An employer shall ensure that each personal alarm safety system device is tested at least monthly and before each use, and maintained in accordance with the manufacturer's instructions.

Safety Ropes, Harnesses and Hardware

489. An employer shall provide for use by a firefighter approved safety ropes, harnesses and hardware that are appropriate to the nature of the risk to which the firefighter will be exposed and adequate to protect the health and safety of the firefighter, and ensure that the firefighter uses them.

PART 33

TRANSITIONAL

490. These regulations come into force on September 1, 2013.

Repeal

491. The following are repealed:

- (a) the *Asbestos Safety Regulations*, established by regulation numbered R-016-92, as duplicated for Nunavut by section 29 of the *Nunavut Act (Canada)*;
- (b) the *Environmental Tobacco Smoke Work site Regulations*, established by regulation numbered R-027-2003;
- (c) the *General Safety Regulations*, R.R.N.W.T. 1990,c.S-1, as duplicated for Nunavut by section 29 of the *Nunavut Act (Canada)*;
- (d) the *Silica Sandblasting Safety Regulations*, established by regulation numbered R-015-92, as duplicated for Nunavut by section 29 of the *Nunavut Act (Canada)*;
- (e) *Work Site Hazardous Materials Information System Regulations*, R.R.N.W.T. 1990,c.S-2, as duplicated for Nunavut by section 29 of the *Nunavut Act (Canada)*.

Schedules

SCHEDULE A

(Section 1)

Activities that Constitute High Hazard Work

1. Building construction
2. Power line construction and maintenance
3. Quarrying and crushing of rocks
4. Local and territorial transporting and hauling
5. Road construction, earthwork, tunnelling and trenching
6. Iron and steel processing, fabrication and erection
7. Logging
8. Manufacturing of concrete block, brick, artificial stone and other clay and cement products
9. Sawmilling.

SCHEDULE B

(Subsection 7(2) and sections 365 and 378)

Asbestos Processes

Part A - High Risk Asbestos Processes

1. The removal, encapsulation, enclosure or disturbance of anything but minor amounts of friable asbestos-containing material during the repair, alteration, maintenance, demolition, or dismantling of any part of a plant.
2. The cleaning, maintenance or removal of air-handling equipment in buildings where sprayed fireproofing asbestos-containing materials have been applied to the airways or ventilation ducts.
3. The dismantling or the major alteration or repair of a boiler, furnace, kiln or similar device, or part of a boiler, furnace, kiln or similar device, that is made of asbestos-containing materials
4. The use of power tools not equipped with HEPA filtration to grind, cut or abrade any asbestos-containing surface or product.

Part B - Moderate Risk Asbestos Processes

1. The use of a power tool equipped with HEPA filtration to cut, shape or grind any asbestos-containing surface or product.
2. The removal of a false ceiling or part of a false ceiling where friable asbestos-containing material is, or is likely to be, lying on the surface of the false ceiling.
3. The removal, the encapsulation or enclosure or the disturbance of minor amounts of friable asbestos-containing material during the repair, alteration, maintenance, demolition, or dismantling of a structure, machine or equipment or part of a structure, machine or equipment.

Part C - Low Risk Asbestos Processes

1. The installation or removal of manufactured asbestos-containing products where sanding, cutting or similar disturbance is not required.
2. The use of hand tools to cut, shape, drill or remove a manufactured asbestos-containing product.
3. The removal of drywall material where asbestos joint filling compounds have been used.
4. The use of personal protective equipment made of asbestos-containing textiles.
5. The transporting or handling of asbestos-containing materials in sealed containers.
6. The cleaning or disposing of minor amounts of asbestos debris that has come loose or fallen from a friable surface.
7. The removal of small samples of asbestos-containing material for the purpose of identification.

SCHEDULE C

(Subsection 10(2))

Notifiable Medical Conditions Resulting from Occupational Exposure

1. Acute, sub-acute or chronic disease of an organ resulting from exposure to lead, arsenic, beryllium, phosphorus, manganese, cadmium or mercury or their compounds or alloys
2. Neoplasia of the skin or mucous membrane resulting from exposure to tar, pitch, bitumen, mineral or cutting oils or arsenic or their compounds, products or residue
3. Neoplasia of the renal tract in a worker employed in rubber compounding, in dyestuff manufacture or mixing or in a laboratory
4. Pneumoconiosis resulting from exposure to silica or silicate, including asbestos, talc, mica or coal
5. Toxic jaundice resulting from exposure to tetrachloroethane or nitro- or amidoderivatives of benzene or other hepato-toxic or haemato-toxic substances
6. Neoplasia or any form of sickness resulting from internal or external exposure to ionizing radiation or electro-magnetic radiation
7. Poisoning by the anti-cholinesterase action of an organophosphorous or carbamate compound
8. Any form of decompression illness
9. Toxic anaemia resulting from exposure to trinitrotoluene, or any other haematogenic poison, including chronic poisoning by benzene
10. Mesothelioma of the pleura or peritoneum
11. Angiosarcoma of the liver
12. Malignant neoplasm of the nasal cavities resulting from exposure to chromium or its compounds, wood dust or formaldehyde
13. Malignant neoplasm of the scrotum resulting from exposure to petroleum products
14. Malignant neoplasm of lymphatic or haematopoietic tissue resulting from exposure to benzene
15. Cataract resulting from exposure to ionizing radiation, electro-magnetic radiation or nitrophenols
16. Male infertility resulting from exposure to glycol ethers, lead or pesticides
17. Spontaneous abortion resulting from exposure to ethylene oxide or antineoplastic drugs
18. Inflammatory and toxic neuropathy resulting from exposure to organic solvents
19. Asthma resulting from exposure to isocyanates, red cedar, amines, acid anhydride, epoxy resin systems, reactive dyes, metal fumes or salts, enzymes or bisulphites

20. Extrinsic allergic alveolitis resulting from exposure to mould or organic dust.

SCHEDULE D

(Subsections 57(1) and 57(4))

Summary of First Aid Requirements

Minimum: Every work site must have a first aid box containing standard supplies as set out in Schedule I, a manual, a register and emergency information. Additional requirements are listed below:

Number of Workers at Work Site	Close (1/2 hour or less to medical facility)	Distant (1/2 - 2 hours to medical facility)	Isolated (More than 2 hours' by surface transport to medical facility or by aircraft if normal mode of transport is by aircraft)
1	minimum	minimum	minimum
2 - 4	minimum	minimum plus <ul style="list-style-type: none"> blankets, stretcher and splints First aid attendant with Level 1 qualification and supplies for high hazard work 	minimum plus <ul style="list-style-type: none"> blankets, stretcher and splints First aid attendant with Level 1 qualification and supplies for high hazard work
5 - 9	minimum plus <ul style="list-style-type: none"> First aid attendant with Level 1 qualification and supplies for high hazard work 	minimum plus <ul style="list-style-type: none"> First aid attendant with Level 1 qualification and supplies blankets, stretcher and splints 	minimum plus <ul style="list-style-type: none"> First aid attendant with Level 1 qualification and supplies blankets, stretcher and splints
10 - 20	minimum plus <ul style="list-style-type: none"> First aid attendant with Level 1 qualification and supplies 	minimum plus <ul style="list-style-type: none"> First aid attendant with Level 1 qualification and supplies blankets, stretcher and splints 	minimum plus <ul style="list-style-type: none"> First aid attendant with Level 1 qualification and supplies blankets, stretcher and splints

<p>21 - 40</p>	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid attendant with Level 1 qualification and supplies 	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid attendant with Level 1 qualification and supplies • blankets, stretcher and splints 	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid attendant with Level 2 qualification and supplies for high hazard work • First aid attendant with Level 1 qualification and supplies for other work • blankets, stretcher and splints
<p>41 - 99</p>	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid attendant with Level 1 qualification and supplies 	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid attendant with Level 2 qualification and supplies for high hazard work • First aid attendant with Level 1 qualification and supplies for work that is not high hazard work • blankets, stretcher and splints 	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid attendant with Level 1 qualification for low hazard work • EMT for high hazard work • First aid attendant with Level 2 qualification and supplies for other work • blankets, stretcher and splints
<p>100 +</p>	<p>minimum plus</p> <ul style="list-style-type: none"> • 2 First aid attendants with Level 1 qualification and supplies 	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid room • 1 EMT and 1 First aid attendant with Level 2 qualification and supplies for high hazard work • 2 First aid attendants with Level 1 qualification and supplies for work that is not high hazard work • blankets, stretcher and splints 	<p>minimum plus</p> <ul style="list-style-type: none"> • First aid room • 1 EMT and 1 First aid attendant with Level 2 qualification and supplies for high hazard work • 2 First aid attendants with Level 1 qualification and supplies for work that is low hazard work • 2 First aid attendants with Level 2 qualification and supplies for other work • blankets, stretcher and splints

SCHEDULE E

(Sections 1 and 57(2))

Minimum Requirements for Level 1 First Aid Qualification

A. First aid training course:

I. Course duration 14-16 hours

II. Course Content:

The role of the first aid attendant
 Interaction with higher-level trained personnel and with medical care agencies
 Medico-legal aspects of first aid
 Responsibilities of the first aid attendant
 Knowledge of the ambulance system
 Basic anatomy and physiology: how the body systems work
 Patient assessment: primary and secondary surveys
 Assessment and monitoring of basic vital signs
 Respiratory emergencies: respiratory system review, management of airways
 Chest injuries: pneumothorax, flail chest, sucking chest wound
 Circulatory system review, heart attack, stroke
 Bleeding: wounds, control of bleeding and bandaging
 Barrier devices to prevent the transmission of pathogens
 Shock: signs and symptoms
 Abdominal injuries: system review by quadrant
 Stabilization: head, spine and pelvis injuries
 Upper and lower extremity injuries
 Medical emergencies: epilepsy, diabetes
 Assessment and treatment of burns
 Assessment and treatment of poisonings and acute effects of abused drugs
 Problems of heat and cold
 Emotional problems
 Movement of a casualty
 Situation simulations, reporting on the patient to higher-level trained personnel
 Understanding of and familiarity with relevant provisions of the Safety Act

B. Cardiopulmonary resuscitation training course:

I. Course duration: 4-6 hours

II. Course Content:

Risk factors
 Signals and actions of heart attack and stroke
 Airway obstruction: prevention, causes, recognition
 Entrance into the emergency medical services system
 One rescuer cardiopulmonary resuscitation (adult)
 Treatment of an adult with an obstructed airway
 Turning of the casualty into the recovery position.

SCHEDULE F

(Section 1)

First Aid Services Authorized by a Level 1 Qualification

Primary and secondary assessment

Cardiopulmonary resuscitation

Bandaging and splinting

Monitoring vital signs

Basic management of medical emergencies

Spine stabilization

Any other service for which the holder of the Level 1 qualification has acquired additional training from an approved agency

SCHEDULE G

(Sections 1 and 427, and subsection 57(2))

Minimum Requirements for Level 2 First Aid Qualification

A. First aid training course:

I. Course duration 60-80 hours

It is recommended that the review and practice time should be at least 20 hours.

II. Course Content:

Roles and responsibility: knowledge of emergency medical system, the place of the first aid attendant in the system, and other skill levels in the system

The different phases of emergency medical care

Adequate training in the use of first aid equipment

Primary and secondary survey of the casualty

Monitoring and assessment of vital signs

Bleeding: wounds, control of bleeding and bandaging

Barrier devices to prevent the transmission of pathogens

Airway management and use of relevant equipment (e.g. bag valve, mask resuscitator, oxygen equipment)

Assessment and treatment of common medical emergencies

Assessment and treatment of shock

Trauma to head, spine, chest, abdomen and pelvis

Injuries to extremities

Environmental emergencies

Crisis intervention: provision of psychological support

First on the scene management skills, triage

Assessment and treatment of burns

Obstetrics: emergency delivery and post-partum haemorrhage

Recognition of the acute signs and symptoms of drug abuse and treatment of the casualty

Assessment and treatment of the acute (e.g. distended or tender) abdomen

Basic extrication of the casualty from immediate danger

Record keeping: preservation of information necessary for subsequent action

Understanding of and familiarity with relevant provisions of the Safety Act

B. Cardiopulmonary resuscitation training course:

I. Course duration: 8-10 hours

II. Course Content:

Risk factors

Signals and actions of heart attack and stroke

Airway obstruction: prevention, causes, recognition

Entrance into the emergency medical services system

One rescuer cardiopulmonary resuscitation

Two rescuer cardiopulmonary resuscitation

Treatment of an adult with an obstructed airway

Mouth-to-mask resuscitation

Spinal injuries

Turning of the casualty into the recovery position.

SCHEDULE H

(Section 1)

First Aid Services Authorized by a Level 2 Qualification

Primary and secondary assessment

Cardiopulmonary resuscitation

Bandaging and splinting

Monitoring vital signs

Basic management of medical emergencies

Airway management, the use of suction devices and bag-valve mask

Proper procedures and conditions for the administration of oxygen

Use of spinal immobilization devices

Psychological support measures

Any other service for which the holder of the Level 2 qualification has acquired additional training from an approved agency

SCHEDULE I

*(Subsection 57(4),
paragraph 59(1)(a) and section 62)*

Required Contents of First Aid Box

Amounts or quantities of the following supplies and equipment adequate for the expected emergencies, contained in a well-marked container:

- Antiseptic, wound solution or antiseptic swabs
- Bandage - triangular, 100 cm folded, and safety pins
- Bandage - gauze roller, various sizes
- Bandage - adhesive strips and hypoallergenic adhesive tape
- Disposable latex or vinyl gloves
- Dressing - sterile and wrapped gauze pads and compresses, various sizes including abdominal pad size
- Dressing - self-adherent roller, various sizes
- Forceps - splinter
- Pad with shield or tape for eye
- Pocket mask with disposable one-way re-breathe valves
- Scissors - bandage
- Soap

SCHEDULE J

(Subsection 57(4) and paragraph 63(2)(a))

Additional Supplies and Equipment - Level 1 Qualification

- Bag - ice or cold water
- Bag - hot water or hot pack
- Bandage - elastic, 5 cm and 10 cm widths
- Sterile burn sheet
- Any other first aid supplies and equipment that are appropriate to the dangers and other circumstances of the work site and commensurate with the training of the first aid attendant

SCHEDULE K

(Subsection 57(4) and paragraph 63(2)(b))

Additional Supplies and Equipment - Level 2 Qualification

- Bag - hot water or hot pack
- Bag - ice or cold water
- Bag valve and mask resuscitator
- Bandage - elastic, 5 cm and 10 cm widths
- Emergency oxygen system
- Sphygmomanometer
- Sterile burn sheet
- Stethoscope with a bell
- Thermometer
- Where there are potential causes of spinal injury, short and long spine boards with adequate restraining straps and medium and large cervical collars
- Any other first aid supplies and equipment that are appropriate to the dangers and other circumstances of the work site and commensurate with the training of the first aid attendant.

SCHEDULE L

(Subsection 74(2))

Minimum Number of Toilets

Number of Workers	Number of Toilets
1 to 10	1
11 to 25	2
26 to 50	3
51 to 75	4
76 to 100	5
Add one toilet for each additional unit of 30 workers	

SCHEDULE M

(Section 183(1))

Minimum Dimensions of Members of Light Duty Wooden¹ Scaffolds
(Height less than 6 m)

Dimensions of Members of Single-pole Scaffolds

1	Uprights	38 mm x 89 mm
2	Bearers	2 - 19 mm x 140 mm
3	Ledgers	19 mm x 140 mm
4	Braces	19 mm x 140 mm

Dimensions of Members of Double-pole Scaffolds

1	Uprights	38 mm x 89 mm
2	Bearers	2 - 19 mm x 140 mm
3	Ledgers	19 mm x 140 mm
4	Braces	19 mm x 140 mm

Dimensions of Members of Bracket Scaffolds

1	Uprights	38 mm x 89 mm
2	Bearers	38 mm x 89 mm
3	Braces	38 mm x 89 mm
4	Gusset ²	19 mm plywood

¹ Number 1 structural grade spruce lumber or material of equivalent or greater strength.

² "Gusset" means a brace or angle bracket that is used to stiffen a corner or angular piece of work.

SCHEDULE N

(Section 209(1))

Minimum Training Requirements for Competent Operator of a Crane

I. Course Content:

A. *Occupational Health and Safety Regulations, Related to Cranes:*

- Duties of employers and operators
- Protection of workers
- Approved standards for cranes
- Operation of cranes
- Maintenance of cranes
- Signalling

B. Types of Cranes:

- Terminology
- Types of cranes
- Specific design of crane to be operated
- Basic geometry of cranes, including effect of configuration changes and operating in different quadrants

C. Site Evaluation:

- Check route of travel, clearances and ground conditions, including the presence of structures, power lines or other equipment that may constitute a hazard
- Check site of operation, including the nature of ground, gradients, stabilizers, tire pressure and blocking under outriggers
- Identify potentially dangerous situations and the appropriate response

D. Crane Controls:

- Identify and use controls
- Pre-start check
- Start-up
- Shut-down
- Post-operating check
- Perform operating adjustments

E. Operation of Crane:

- Movement to location
- Set-up; extend stabilizers and outriggers
- Change configuration; insert boom sections; extensions; jibs; counterweights
- Check for safety of other persons before movement
- Safety precautions while crane is unattended, in storage or in transit

F. Load Estimation

- Load gauge incorporated in the crane
- Calculation of load from material density and volume
- Incorporate weight of attachments, hook, block and headache ball

G. Establish Capability of Crane:

- Implications of moments, leverage and mechanical advantage on capability
- Use of load charts to determine capability
- Effect of boom length, angle and load radius
- Effect of configuration changes, boom extension and jib
- Centre of gravity
- Abnormal loading; wind velocity
- Multi-crane hoists

H. Rigging:

- Inspection of ropes and rigging equipment
- Reeving: sheaves; spools; drums; wire ropes
- Rigging loads: hooks; safety catches; shackles; end fittings and connections
- Rigging slings: configurations; angles; safe working loads
- Safety factors for loads and workers

I. Signalling:

- Designated signaller: position; visibility; number
- Methods of signalling: hand; radio
- Standard hand signals

J. Maintenance of Crane:

- Maintenance schedule; planned preventative maintenance
- Inspection and repair procedures
- Blocking and the safe position of parts during maintenance
- Wire rope inspection and maintenance

K. Log Books:

- Record inspections, maintenance, calibrations and work activities
- Hours of service
- Signed by employer and person performing inspection, maintenance and calibration

II. Course Duration:

- A. Overhead travelling crane or hoist: 40 hours, classroom and practical.
- B. Tower or mobile crane: 100 hours, classroom and practical.

- C. Crane used to raise or lower a worker in a personnel-lifting unit on a hoist line: 20 hours of classroom and 200 hours of practical experience operating the crane in addition to the requirements set out in items A and B.

SCHEDULE O

(Paragraphs 268(2)(a) and 269(2)(a))

Excavation and Trench Shoring

Trench or Excavation Depth	Soil Type	Uprights	Braces				Wales
			Width of Excavation or Trench at Brace Location		Brace Spacing		
			1.8 m to 3.6 m	Up to 1.8 m	Vertical	Horizontal	
3.0 m or less	1	50 mm x 200 mm at 1.2 m o/c*	200 mm x 200 mm	150 mm x 150 mm	1.2 m	2.4 m	**200 mm x 200 mm
	2	50 mm x 200 mm at 1.2 m o/c*	200 mm x 200 mm	150 mm x 150 mm	1.2 m	2.4 m	**200 mm x 200 mm
	3	50 mm x 200 mm at 10 mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2 m	2.4 m	250 mm x 250 mm
	4	75 mm x 200 mm at 10 mm gap	250 mm x 250 mm	200 mm x 200 mm	1.2 m	2.4 m	300 mm x 300 mm
Over 3.0 m to 4.5 m	1	50 mm x 200 mm at 10 mm gap	200 mm x 200 mm	150 mm x 150 mm	1.2 m	2.4 m	200 mm x 200 mm
	2	50 mm x 200 mm at 10 mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2 m	2.4 m	250 mm x 250 mm
	3	50 mm x 200 mm at 10 mm gap	250 mm x 250 mm	250 mm x 250 mm	1.2 m	2.4 m	250 mm x 250 mm
Over 3.0 m to 4.0 m***	4	75 mm x 200 mm at 10 mm gap	300 mm x 300 mm	300 mm x 300 mm	1.2 m	2.4 m	300 mm x 300 mm
Over 4.5 m to 6.0 m***	1	50 mm x 200 mm at 10 mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2 m	2.4 m	200 mm x 200 mm
	2	50 mm x 200 mm at 10 mm gap	200 mm x 200 mm	250 mm x 250 mm	1.2 m	2.4 m	250 mm x 250 mm
	3	50 mm x 200 mm at 10 mm gap	200 mm x 200 mm	300 mm x 300 mm	1.2 m	2.4 m	300 mm x 300 mm

* Note: "o/c" means or closer.

** Note: for excavations and trenches to 3 m depth in soil types 1 and 2, the wales can be omitted if the braces are used at 1.2 m horizontal spacings.

*** For depths greater than 4 m for soil type 4 and depths greater than 6 m for other soil types, see subsection 269(3).

SCHEDULE P

(Section 288)

Hours of Work and Rest Periods for Work in Compressed and Rarefied Air

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Air pressure for one working period	max. hours of work per 24 hours	max. hours of work, 1st period	min hours of rest, 1st period	max hours of work, 2nd period	min. hours of rest, 2nd period
Less than 96 kPa (rarefied air)	7.5	3.75	1.25	3.25	0.25
96 kPa or more but less than 138 kPa	6	3	2.25	3	0.75
138 kPa or more but less than 180 kPa	4	2	3.5	2	1.5
180 kPa or more but less than 220 kPa	3	1.5	4.5	1.5	1.5
220 kPa or more but less than 262 kPa	2	1	5	1	2
262 kPa or more but less than 303 kPa	1.5	0.75	5.5	0.75	2
303 kPa or more but less than 345 kPa	1	0.5	6	0.5	2

SCHEDULE Q

(Section 312 and subsection 318(1))

Notifiable Chemical and Biological Substances

A. Any of the following chemical substances or any mixture containing more than 1% of any of them:

CAS Number	Chemical Substance
92-67-1	4-Aminobiphenyl
492-80-8	Auromine
92-87-5	Benzidine
542-88-1	bis (Chloromethyl) ether
119-94-1	o-Dianisidine
91-94-1	3,3'-Dichlorobenzidine
107-30-2	Methyl chloromethyl ether
50-60-2	Mustard gas
91-59-8	2-Naphtylamine
92-93-3	4-Nitrobiphenyl
75-01-4	Vinyl chloride

B. Any of the following biological substances

Genetically modified¹ micro-organisms²

¹"genetically modified" means genetic combinations not known to occur naturally.

²"micro-organisms" means any organism or consortium of organisms of microscopic size, including bacteria, protozoa, fungi, algae and viruses.

SCHEDULE R

(Sections 313 and 318)

Designated Chemical and Biological Substances

1. Any mixture containing less than 1% of any chemical substance listed in Schedule Q.
2. Any of the following chemical substances:

CAS* NUMBER	CHEMICAL SUBSTANCE
75-07-0	Acetaldehyde
60-35-5	Acetamide
79-06-1	Acrylamide
107-13-1	Acrylonitrile
1402-68-2	Aflatoxins
60-09-3	para-Aminoazobenzene
97-56-3	ortho-Aminoazotoluene
712-68-5	2-Amino-5(5-nitro-2-furyl)-1,3, 4-thiadiazole
61-82-5	Amitrole
90-04-0	ortho-Anisidine
1309-64-4	Antimony trioxide
7440-38-2	Arsenic and arsenic mixtures
1332-21-4	Asbestos
1912-24-9	Atrazine
151-56-4	Aziridine
98-87-3	Benzal chloride
71-43-2	Benzene
-	Benzidine-based dyes
271-89-6	Benzofuran
98-07-7	Benzotrichloride
98-88-4	Benzoyl chloride
100-44-7	Benzyl chloride
1694-09-3	Benzyl violet 4B
-	Beryllium and beryllium compounds
75-27-4	Bromodichloromethane
3296-90-0	2,2-bis(bromomethyl)propane-1,3,-diol
106-99-0	1,3-Butadiene
3068-88-0	beta-Butyrolactone
25013-16-5	Butylated hydroxyanisole
-	Cadmium and cadmium compounds
2425-06-1	Captafol

CAS* NUMBER	CHEMICAL SUBSTANCE
56-23-5	Carbon tetrachloride
9000-07-01	Carrageenan, degraded
-	Chlordane isomers
115-28-6	Chlorendic acid
-	Chlorinated paraffins
106-47-8	para-chloroaniline
67-66-3	Chloroform
95-57-8	2-Chlorophenol
108-43-0	3-Chlorophenol
106-48-9	4-Chlorophenol
95-83-0	4-Chloro-ortho-phenylenediamine
95-69-2	para-Chloro-ortho-toluidine
1897-45-6	Chlorothalonil
-	Chromium compounds, hexavalent
6459-94-5	CI Red 114
569-61-9	CI Basic Red 9
2429-74-5	CI Direct Blue 15
6358-53-8	Citrus Red 2
8007-45-2	Coal-tar pitches
8007-45-2	Coal-tars
-	Cobalt and cobalt compounds
8001-58-9	Creosotes
120-71-8	para-Cresidine
14901-08-7	Cycasin
-	DDT and isomers
613-35-4	N,N'-Diacetylbenzidine
615-05-4	2,4-Diaminoanisole
101-80-4	4,4'-Diaminodiphenyl ether
95-80-7	2,4-Diaminotoluene
334-88-3	Diazomethane
226-36-8; 224-42-0	Dibenzacridine
96-12-8	1,2-Dibromo-3-chloropropane
79-43-6	Dichloroacetic acid
106-46-7	para-Dichlorobenzene
764-41-0	1,4-Dichloro-2-butene
107-06-2	1,2-Dichloroethane
75-09-2	Dichloromethane

CAS* NUMBER	CHEMICAL SUBSTANCE
542-75-6	1,3-Dichloropropene (technical grade)
62-73-7	Dichlorovos
1464-53-5	Diepoxybutane
117-81-7	Di(2-ethylhexyl)phthalate
-	Diesel engine exhaust
1615-80-1	1,2-Diethylhydrazine
64-67-5	Diethyl sulphate
101-90-6	Diglycidyl resorcinol ether
2973-10-6	Diisopropyl sulphate
79-44-7	Dimethylcarbamoyl chloride
68-12-2	Dimethylformamide
57-14-7	1,1-Dimethylhydrazine
540-73-8	1,2-Dimethylhydrazine
77-78-1	Dimethyl sulphate
-	Dinitropyrenes
25321-14-6	Dinitrotoluene
123-91-1	1,4-Dioxane
2475-48-8	Disperse blue
106-89-8	Epichlorohydrin
106-88-7	1,2-Epoxybutane
66733-21-9	Erionite
140-88-5	Ethyl acrylate
74-96-4	Ethyl bromide
106-93-4	Ethylene dibromide
75-21-8	Ethylene oxide
96-45-7	Ethylene thiourea
62-50-0	Ethyl methanesulphonate
759-73-9	N-Ethyl-N-nitrosourea
50-00-0	Formaldehyde
3570-75-0	2-(2-Formylhydrazino)-4(5-nitro-2-furyl)thiazole
-	Gasoline
765-34-4	Glycidaldehyde
2784-94-3	HC Blue 1
76-44-8	Heptachlor
118-74-1	Hexachlorobenzene
87-68-3	Hexachlorobutadiene
608-73-1	Hexachlorocyclohexanes
67-72-1	Hexachloroethane

CAS* NUMBER	CHEMICAL SUBSTANCE
680-31-9	Hexamethylphosphoramide
302-01-2	Hydrazine
22398-80-7	Indium phosphide
193-39-5	Indone[1,2,3-cd]pyrene
78-79-5	Isoprene
143-50-0	Kepone
-	Lead (compounds), inorganics
632-99-5	Magenta (contains CI Basic Red 9)
-	Marine diesel fuels
484-20-8	5-Methoxypsoralen
75-55-8	2-Methylaziridine
101-14-4	4,4'-Methylene bis(2-chloroaniline)
838-88-0	4,4'-Methylene bis(2-methylaniline)
101-77-9	4,4'-Methylene dianiline
60-34-4	Methyl hydrazine
74-88-4	Methyl iodide
-	Methylmercury Compounds
66-27-3	Methyl methanesulphonate
129-15-7	2-Methyl-1-nitroanthraquinone
684-93-5	N-Methyl-N-nitrosourea
615-53-2	N-Methyl-N-nitrosourethane
8012-95-1	Mineral oils, untreated and mildly treated
2385-85-5	Mirex
50-60-2	Mustard gas
-	Nickel (compounds)
12035-72-2	Nickel subsulphide
-	Nitrilotriacetic acid and its salts
1836-75-5	Nitrofen (technical grade)
607-57-8	2-Nitrofluorene
555-84-0	1-[(5-Nitrofurfurylidene)amino]2-imidazolidinone
51-75-2	Nitrogen mustard
79-46-9	2-Nitropropane
5522-43-0; 57835-92-4	Nitropyrene isomers
924-16-3	N-Nitrosodi-n-butylamine
1116-54-7	N-Nitrosodiethanolamine
55-18-5	N-Nitrosodiethylamine
62-75-9	N-Nitrosodimethylamine

CAS* NUMBER	CHEMICAL SUBSTANCE
621-64-7	N-Nitrosodi-N-propylamine
4549-40-0	N-Nitrosomethylvinylamine
59-89-2	N-Nitrosomorpholine
16543-55-8	N-Nitrososarcosine
100-75-4	N-Nitrosopiperidine
930-55-2	N-Nitrosopyrrolidine
13256-22-9	N-Nitrososarcosine
2646-17-5	Oil orange SS
12174-11-7	Palygorskite (attapulgitite) (long fibres, > 5 microns)
-	Penta/hexa cyclic unsubstituted aromatic hydrocarbons
135-88-6	N-Phenyl-beta-naphthylamine
95-54-5	o-Phenylenediamine
122-60-1	Phenylglycidyl ether
100-63-0	Phenylhydrazine
36355-01-8	Polybrominated biphenyls
1336-36-3	Polychlorinated biphenyls
3564-908; 3761-53-3	Ponceau 3R
7758-01-2	Potassium bromate
1120-71-4	1,3-Propane sultone
57-57-8	β-Propiolactone
75-55-8	Propylene imine
75-56-9	Propylene oxide
-	Refractory ceramic fibres
-	Residual fuel oils (heavy fuel oils)
94-59-7	Safrole
68308-34-9	Shale-oils
-	Silica crystalline (respirable size)
409-21-2	Silicon carbide, fibrous (including whiskers)
132-27-4	Sodium ortho-phenylphenate
-	Soots from pyrolysis of heating fuels
100-42-5	Styrene
96-09-3	Styrene-7,8-oxide
95-06-7	Sulphallate
-	Sulphuric acid (strong acid mist exposure, only)
1746-01-6	2,3,7,8-Tetrachlorodibenzo-para-dioxin
127-18-4	Tetrachloroethylene

CAS* NUMBER	CHEMICAL SUBSTANCE
116-14-3	Tetrafluoroethylene
509-14-8	Tetranitromethane
62-55-5	Thioacetamide
139-65-1	Thiodianiline
141-90-2	Thiouracil
62-56-6	Thiourea
119-93-7	ortho-Tolidine
584-84-9	Toluene diisocyanates
95-53-4	ortho-Toluidine
106-49-0	para-Toluidine
8001-35-2	Chlorinated camphene
52-24-4	Tris(1-aziridinyl)phosphine sulphide
126-72-7	Tris(2,3-dibromopropyl)phosphate
72-57-1	Trypan Blue
-	Uranium, (natural) soluble and insoluble compounds
51-79-6	Urethane
108-05-4	Vinyl acetate
593-60-2	Vinyl bromide
100-40-3	4-Vinyl cyclohexene
106-87-6	Vinyl cyclohexene dioxide
75-02-5	Vinyl fluoride
-	Wood dusts (Oak, Beech, Birch, Mahogany, Teak and Walnut)
13530-65-9; 11103-86-9; 37300-23-5	Zinc chromates
1300-73-8	Xylidine isomers

*"CAS" means the Chemical Abstracts Service Division of the American Chemical Society

SCHEDULE S

(Sections 314, 316 and 381)

Contamination Limits

Also check Schedules Q and R for substances
(such as asbestos and benzene) with additional requirements

CAS Number	Substance	8 hour average contamination limit mg/m ³ ** or ppm*	15 minute average contamination limit mg/m ³ ** or ppm*	Notation+
75-07-0	Acetaldehyde	**C25 ppm		Schedule R
64-19-7	Acetic acid	10 ppm	15 ppm	
108-24-7	Acetic anhydride	5 ppm	10 ppm	
67-64-1	Acetone	500 ppm	750 ppm	
75-86-5	Acetone cyanohydrin, as CN	**C5 mg/m ³		Skin
75-05-8	Acetonitrile	20 ppm	30 ppm	Skin
98-86-2	Acetophenone	10 ppm	15 ppm	
79-27-6	Acetylene tetrabromide	1 ppm	3 ppm	
50-78-2	Acetylsalicylic acid	5 mg/m ³	10 mg/m ³	
107-02-8	Acrolein	**C0.1 ppm		Skin
79-06-1	Acrylamide (inhalable fraction and vapour)	0.03 mg/m ³	0.09 mg/m ³	Schedule R, Skin
79-10-7	Acrylic acid	2 ppm	4 ppm	Skin
107-13-1	Acrylonitrile	2 ppm	4 ppm	Skin, Schedule R
124-04-9	Adipic acid	5 mg/m ³	10 mg/m ³	
111-69-3	Adiponitrile	2 ppm	4 ppm	Skin
309-00-2	Aldrin	0.25 mg/m ³	0.75 mg/m ³	Skin
	Aliphatic hydrocarbon gases, Alkane [C1-C4]	1000 ppm	1250 ppm	
107-18-6	Allyl alcohol	0.5 ppm	1.5 ppm	Skin
107-05-1	Allyl chloride	1 ppm	2 ppm	
106-92-3	Allyl glycidyl ether (AGE)	1 ppm	3 ppm	
2179-59-1	Allyl propyl disulphide	0.5 ppm	1.5 ppm	SEN
7429-90-5	Aluminum and compounds (as Al):			
-	Metal dust	10 mg/m ³	20 mg/m ³	
-	Pyro powders	5 mg/m ³	10 mg/m ³	
-	Soluble salts	2 mg/m ³	4 mg/m ³	
-	Alkyls, not otherwise specified	2 mg/m ³	4 mg/m ³	
1344-28-1	Aluminum oxide	10 mg/m ³	20 mg/m ³	
504-29-0	2-Aminopyridine	0.5 ppm	1.0 ppm	
61-82-5	Amitrole	0.2 mg/m ³	0.6 mg/m ³	Schedule R
7664-41-7	Ammonia	25 ppm	35 ppm	
12125-02-9	Ammonium chloride fume	10 mg/m ³	20 mg/m ³	
3825-26-1	Ammonium perfluorooctanoate	0.01 mg/m ³	0.03 mg/m ³	Skin
7773-06-0	Ammonium sulphamate	10 mg/m ³	20 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
	(Ammate)			
994-05-8	tert-Amyl methyl ether (TAME)	20 ppm	30 ppm	
62-53-3	Aniline	2 ppm	4 ppm	Skin
90-04-0	o-Anisidine	0.5 mg/m ³	1.5 mg/m ³	Skin, Schedule R
104-94-9	p-Anisidine	0.5 mg/m ³	1.5 mg/m ³	Skin
7440-36-0	Antimony and compounds, (as Sb)	0.5 mg/m ³	1.5 mg/m ³	
86-88-4	ANTU (alpha-Naphthyl thiourea)	0.3 mg/m ³	0.9 mg/m ³	
7440-38-2	Arsenic, and inorganic compounds, (as As)	0.01 mg/m ³	0.03 mg/m ³	Schedule R
7784-42-1	Arsine	0.05 ppm	0.15 ppm	
8052-42-4	Asphalt (bitumen) fume, as benzene soluble aerosol (inhalable fraction)	0.5 mg/m ³	1.5 mg/m ³	
1912-24-9	Atrazine	5 mg/m ³	10 mg/m ³	Schedule R
86-50-0	Azinphos-methyl (inhalable fraction and vapour)	0.2 mg/m ³	0.6 mg/m ³	Skin; SEN
7440-39-3	Barium and soluble compounds, (as Ba)	0.5 mg/m ³	1.5 mg/m ³	
7727-43-7	Barium sulphate	10 mg/m ³	20 mg/m ³	
17804-35-2	Benomyl	10 mg/m ³	20 mg/m ³	
98-07-7	Benzotrichloride	**C0.1 ppm		Skin, Schedule R
98-88-4	Benzoyl chloride	**C0.5 ppm		Schedule R
94-36-0	Benzoyl peroxide	5 mg/m ³	10 mg/m ³	
140-11-4	Benzyl acetate	10 ppm	20 ppm	
100-44-7	Benzyl chloride	1 ppm	2 ppm	Schedule R
7440-41-7	Beryllium and compounds, (as Be)	0.002 mg/m ³	0.01 mg/m ³	Schedule R
92-52-4	Biphenyl (diphenyl)	0.2 ppm	0.6 ppm	
3033-62-3	Bis (2-dimethylaminoethyl)ether (DMAEE)	0.05 ppm	0.15 ppm	Skin
1304-82-1	Bismuth telluride			
-	Undoped	10 mg/m ³	20 mg/m ³	
-	Se-doped, as Bi ₂ Te ₃	5 mg/m ³	10 mg/m ³	
1330-43-4; 1303-96-4; 10043-35-3; 12179-04-3	Borate compounds, inorganic (inhalable fraction)	2 mg/m ³	6 mg/m ³	
1303-86-2	Boron oxide	10 mg/m ³	20 mg/m ³	
10294-33-4	Boron tribromide	**C1 ppm		
7637-07-2	Boron trifluoride	**C1 ppm		
314-40-9	Bromacil	10 mg/m ³	20 mg/m ³	
7726-95-6	Bromine	0.1 ppm	0.2 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
7789-30-2	Bromine pentafluoride	0.1 ppm	0.3 ppm	
74-97-5	Bromochloromethane (Chlorobromomethane)	200 ppm	250 ppm	
75-25-2	Bromoform	0.5 ppm	1.5 ppm	Skin
106-94-5	1-Bromopropane	10 ppm	20 ppm	
106-99-0	1,3-Butadiene	2 ppm	4 ppm	Schedule R
106-97-8; 75-28-5	Butane, All isomers	See Aliphatic hydrocarbon gases [C1-C4]		
111-76-2	2-Butoxyethanol (Butyl Cellosolve or EGBE)	20 ppm	30 ppm	
112-07-2	2-Butoxyethyl acetate (EGBEA)	20 ppm	30 ppm	
123-86-4	n-Butyl acetate	150 ppm	200 ppm	
105-46-4	sec-Butyl acetate	200 ppm	250 ppm	
540-88-5	tert-Butyl acetate	200 ppm	250 ppm	
141-32-2	n-Butyl acrylate	2 ppm	4 ppm	SEN
71-36-3	n-Butyl alcohol (n-butanol)	20 ppm	30 ppm	
78-92-2	sec-Butyl alcohol (sec-butanol)	100 ppm	125 ppm	
75-65-0	tert-Butyl alcohol (tert-butanol)	100 ppm	125 ppm	
109-73-9	n-Butylamine	**C5 ppm		Skin
1189-85-1	tert-Butyl chromate, (as CrO ₃)	**C0.1 mg/m ³		Skin
2426-08-6	n-Butyl glycidyl ether (BGE)	3 ppm	6 ppm	Skin, SEN
138-22-7	n-Butyl lactate	5 ppm	10 ppm	
109-79-5	n-Butyl mercaptan	0.5 ppm	1.5 ppm	
89-72-5	o-sec-Butylphenol	5 ppm	7 ppm	Skin
98-51-1	p-tert-Butyltoluene	1 ppm	2 ppm	
7440-43-9	Cadmium, and compounds, (as Cd):			Schedule R
-	(total fraction)	0.01 mg/m ³	0.03 mg/m ³	
-	(respirable fraction)	0.002 mg/m ³	0.006 mg/m ³	
1317-65-3	Calcium carbonate	10 mg/m ³	20 mg/m ³	
13765-19-0	Calcium chromate, (as Cr)	0.001 mg/m ³	0.003 mg/m ³	
156-62-7	Calcium cyanamide	0.5 mg/m ³	1.5 mg/m ³	
1305-62-0	Calcium hydroxide	5 mg/m ³	10 mg/m ³	
1305-78-8	Calcium oxide	2 mg/m ³	4 mg/m ³	
1344-95-2	Calcium silicate, synthetic nonfibrous	10 mg/m ³	20 mg/m ³	
76-22-2	Camphor, synthetic	2 ppm	3 ppm	
105-60-2	Caprolactam (inhalable fraction and vapour)	5 mg/m ³	10 mg/m ³	
2425-06-1	Captafol	0.1 mg/m ³	0.3 mg/m ³	Skin, Schedule R
133-06-2	Captan (inhalable fraction)	5 mg/m ³	10 mg/m ³	SEN
63-25-2	Carbaryl	5 mg/m ³	10 mg/m ³	
1563-66-2	Carbofuran (inhalable fraction)	0.1 mg/m ³	0.3 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
	and vapour)			
1333-86-4	Carbon black	3.5 mg/m ³	7 mg/m ³	
124-38-9	Carbon dioxide	5000 ppm	30,000 ppm	
75-15-0	Carbon disulphide	10 ppm	15 ppm	Skin
630-08-0	Carbon monoxide	25 ppm	190 ppm	
558-13-4	Carbon tetrabromide	0.1 ppm	0.3 ppm	
75-44-5	Carbonyl chloride (Phosgene)	0.1 ppm	0.3 ppm	
353-50-4	Carbonyl fluoride	2 ppm	5 ppm	
120-80-9	Catechol (Pyrocatechol)	5 ppm	7.8 ppm	Skin
9004-34-6	Cellulose (paper fibre)	10 mg/m ³	20 mg/m ³	
21351-79-1	Cesium hydroxide	2 mg/m ³	4 mg/m ³	
57-74-9	Chlordane	0.5 mg/m ³	1.5 mg/m ³	Skin
8001-35-2	Chlorinated camphene	0.5 mg/m ³	1 mg/m ³	Skin, Schedule R
31242-93-0	o-Chlorinated diphenyl oxide	0.5 mg/m ³	1.5 mg/m ³	
7782-50-5	Chlorine	0.5 ppm	1 ppm	
10049-04-4	Chlorine dioxide	0.1 ppm	0.3 ppm	
7790-91-2	Chlorine trifluoride	**C 0.1 ppm		
107-20-0	Chloroacetaldehyde	**C1 ppm		
78-95-5	Chloroacetone	**C1 ppm		Skin
532-27-4	alpha-Chloroacetophenone (Phenacyl chloride)	0.05 ppm	0.15 ppm	
79-04-9	Chloroacetyl chloride	0.05 ppm	0.15 ppm	Skin
108-90-7	Chlorobenzene (Monochlorobenzene)	10 ppm	15 ppm	
2698-41-1	o-Chlorobenzylidene malononitrile	**C0.05 ppm		Skin
126-99-8	2-Chloro-1,3-butadiene (beta-Chloroprene)	10 ppm	15 ppm	Skin
75-45-6	Chlorodifluoromethane	1000 ppm	1250 ppm	
53469-21-9	Chlorodiphenyl (42% chlorine)	1 mg/m ³	3 mg/m ³	Skin
11097-69-1	Chlorodiphenyl (54% chlorine)	0.5 mg/m ³	1.5 mg/m ³	Skin
107-07-3	2-Chloroethanol (Ethylene chlorohydrin)	**C1.0 ppm		Skin
600-25-9	1-Chloro-1-nitropropane	2 ppm	4 ppm	
76-15-3	Chloropentafluoroethane	1000 ppm	1250 ppm	
76-06-2	Chloropicrin	0.1 ppm	0.3 ppm	
127-00-4; 78-89-7	1-Chloro-2-propanol and 2-Chloro-1-propanol	1 ppm	3 ppm	Skin
598-78-7	2-Chloropropionic acid	0.1 ppm	0.3 ppm	Skin
2039-87-4	o-Chlorostyrene	50 ppm	75 ppm	
95-49-8	o-Chlorotoluene	50 ppm	65 ppm	
2921-88-2	Chlorpyrifos, (inhalable fraction and vapour)	0.1 mg/m ³	0.3 mg/m ³	Skin
7440-47-3	Chromium metal and inorganic compounds, (as Cr):			

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
	Metal and Cr (III) compounds	0.5 mg/m ³	1.5 mg/m ³	
-	Water soluble Cr (VI) compounds	0.05 mg/m ³	0.15 mg/m ³	Schedule R
-	Insoluble Cr (VI) compounds	0.01 mg/m ³	0.03 mg/m ³	Schedule R
14977-61-8	Chromyl chloride	0.025 ppm	0.07 ppm	
2971-90-6	Clopidol	10 mg/m ³	20 mg/m ³	
-	Coal dust:			
-	Anthracite (respirable fraction)	0.4 mg/m ³	1.2 mg/m ³	
-	Bituminous (respirable fraction)	0.9 mg/m ³	2.7 mg/m ³	
65996-93-2	Coal tar pitch volatiles, as benzene soluble aerosol (See Particulate polycyclic aromatic hydrocarbons)	0.2 mg/m ³	0.6 mg/m ³	Schedule R
7440-48-4	Cobalt and inorganic compounds, (as Co)	0.02 mg/m ³	0.06 mg/m ³	Schedule R
10210-68-1	Cobalt carbonyl, (as Co)	0.1 mg/m ³	0.3 mg/m ³	
16842-03-8	Cobalt hydrocarbonyl, (as Co)	0.1 mg/m ³	0.3 mg/m ³	
7440-50-8	Copper, (as Cu):			
-	fume	0.2 mg/m ³	0.6 mg/m ³	
-	dusts and mists	1 mg/m ³	3 mg/m ³	
-	Cotton dust, raw	0.2 mg/m ³	0.6 mg/m ³	
1319-77-3	Cresol, all isomers	5 ppm	10 ppm	Skin
4170-30-3	Crotonaldehyde	**C 0.3 ppm		Skin
299-86-5	Crufomate	5 mg/m ³	10 mg/m ³	
98-82-8	Cumene	50 ppm	74 ppm	
420-04-2	Cyanamide	2 mg/m ³	4 mg/m ³	
460-19-5	Cyanogen	10 ppm	15 ppm	
506-77-4	Cyanogen chloride	**C0.3 ppm		
110-82-7	Cyclohexane	100 ppm	150 ppm	
108-93-0	Cyclohexanol	50 ppm	62 ppm	Skin
108-94-1	Cyclohexanone	20 ppm	50 ppm	Skin
110-83-8	Cyclohexene	300 ppm	375 ppm	
108-91-8	Cyclohexylamine	10 ppm	15 ppm	
121-82-4	Cyclonite (RDX)	0.5 mg/m ³	1.5 mg/m ³	Skin
542-92-7	Cyclopentadiene	75 ppm	94 ppm	
287-92-3	Cyclopentane	600 ppm	900 ppm	
13121-70-5	Cyhexatin	5 mg/m ³	10 mg/m ³	
94-75-7	2,4-D (2,4-Dichlorophenoxy-acetic acid)	10 mg/m ³	20 mg/m ³	
50-29-3	DDT (Dichlorodiphenyltrichloroethane)	1 mg/m ³	3 mg/m ³	Schedule R
17702-41-9	Decaborane	0.05 ppm	0.15 ppm	Skin
8065-48-3	Demeton (inhalable fraction and vapour)	0.05 mg/m ³	0.15 mg/m ³	Skin

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
919-86-8	Demeton-S-methyl, (inhalable fraction and vapour)	0.05 mg/m ³	0.15 mg/m ³	Skin, SEN
123-42-2	Diacetone alcohol (4-hydroxy-4methyl-2-pentanone)	50 ppm	60 ppm	
333-41-5	Diazinon, (inhalable fraction and vapour)	0.01 mg/m ³	0.03 mg/m ³	Skin
334-88-3	Diazomethane	0.2 ppm	0.6 ppm	Schedule R
19287-45-7	Diborane	0.1 ppm	0.3 ppm	
102-81-8	2-N-Dibutylaminoethanol	0.5 ppm	1 ppm	Skin
2528-36-1	Dibutyl phenyl phosphate	0.3 ppm	0.6 ppm	Skin
107-66-4	Dibutyl phosphate	1 ppm	2 ppm	
84-74-2	Dibutyl phthalate	5 mg/m ³	10 mg/m ³	
79-43-6	Dichloroacetic acid	0.5 ppm	1.5 ppm	Skin, Schedule R
7572-29-4	Dichloroacetylene	**C0.1 ppm		
95-50-1	o-Dichlorobenzene	25 ppm	50 ppm	
106-46-7	p-Dichlorobenzene	10 ppm	15 ppm	Schedule R
764-41-0	1,4-Dichloro-2-butene	0.005 ppm	0.015 ppm	Skin, Schedule R
75-71-8	Dichlorodifluoromethane	1000 ppm	1250 ppm	
118-52-5	1,3-Dichloro-5, 5-dimethyl hydantoin	0.2 mg/m ³	0.4 mg/m ³	
75-34-3	1,1-Dichloroethane	100 ppm	125 ppm	
540-59-0; 156-59-2; 156-60-5	1,2-Dichloroethylene, all isomers	200 ppm	250 ppm	
111-44-4	Dichloroethyl ether	5 ppm	10 ppm	Skin
75-43-4	Dichlorofluoromethane	10 ppm	15 ppm	
75-09-2	Dichloromethane	50 ppm	75 ppm	Schedule R
594-72-9	1,1-Dichloro-1-nitroethane	2 ppm	4 ppm	
542-75-6	1,3-Dichloropropene	1 ppm	2 ppm	Skin, Schedule R
75-99-0	2,2-Dichloropropionic acid, (inhalable fraction)	5 mg/m ³	10 mg/m ³	
76-14-2	Dichlorotetrafluoroethane	1000 ppm	1250 ppm	
62-73-7	Dichlorvos (DDVP), (inhalable fraction and vapour)	0.1 mg/m ³	0.3 mg/m ³	Skin, SEN, Schedule R
141-66-2	Dicrotophos, (inhalable fraction and vapour)	0.05 mg/m ³	0.15 mg/m ³	Skin
77-73-6	Dicyclopentadiene	5 ppm	8 ppm	
102-54-5	Dicyclopentadienyl iron	10 mg/m ³	20 mg/m ³	
60-57-1	Dieldrin	0.25 mg/m ³	0.75 mg/m ³	Skin
683334-30-5; 68476-30-2; 68476-31-3; 68476-34-6;	Diesel fuel as total hydrocarbons, (vapour)	100 mg/m ³	150 mg/m ³	Skin

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
77650-28-3				
111-42-2	Diethanolamine	2 mg/m ³	4 mg/m ³	Skin
109-89-7	Diethylamine	5 ppm	15 ppm	Skin
100-37-8	2-Diethylaminoethanol	2 ppm	4 ppm	Skin
111-40-0	Diethylene triamine	1 ppm	2 ppm	Skin
96-22-0	Diethyl ketone	200 ppm	300 ppm	
84-66-2	Diethyl phthalate	5 mg/m ³	10 mg/m ³	
75-61-6	Difluorodibromomethane	100 ppm	125 ppm	
2238-7-5	Diglycidyl ether (DGE)	0.1 ppm	0.3 ppm	
108-83-8	Diisobutyl ketone	25 ppm	30 ppm	
108-18-9	Diisopropylamine	5 ppm	7 ppm	Skin
127-19-5	N,N-Dimethylacetamide	10 ppm	15 ppm	Skin
124-40-3	Dimethylamine	5 ppm	15 ppm	
121-69-7	Dimethylaniline (N,N-Dimethylaniline)	5 ppm	10 ppm	Skin
14857-34-2	Dimethylethoxysilane	0.5 ppm	1.5 ppm	
68-12-2	Dimethylformamide	10 ppm	15 ppm	Skin, Schedule R
57-14-7	1,1-Dimethylhydrazine	0.01 ppm	0.03 ppm	Skin, Schedule R
131-11-3	Dimethylphthalate	5 mg/m ³	10 mg/m ³	
77-78-1	Dimethyl sulphate	0.1 ppm	0.3 ppm	Skin, Schedule R
75-18-3	Dimethyl sulphide	10 ppm	20 ppm	
148-1-6	Dinitolmide	5 mg/m ³	10 mg/m ³	
528-29-0; 99-65-0; 100-25-4; 25154-54-5	Dinitrobenzene (all isomers)	0.15 ppm	0.30 ppm	Skin
534-52-1	Dinitro-o-cresol	0.2 mg/m ³	0.6 mg/m ³	Skin
25321-14-6	Dinitrotoluene	0.2 mg/m ³	0.6 mg/m ³	Skin, Schedule R
123-91-1	1,4-Dioxane	20 ppm	30 ppm	Skin, Schedule R
78-34-2	Dioxathion (inhalable fraction and vapour)	0.1 mg/m ³	0.3 mg/m ³	Skin
646-06-0	1,3-Dioxolane	20 ppm	30 ppm	
122-39-4	Diphenylamine	10 mg/m ³	20 mg/m ³	
34590-94-8	Dipropylene glycol methyl ether (DPGME)	100 ppm	150 ppm	Skin
123-19-3	Dipropyl ketone	50 ppm	60 ppm	
2764-72-9; 85-00-7; 6385-62-2	Diquat: (inhalable fraction) (respirable fraction)	0.5 mg/m ³ 0.1 mg/m ³	1.5 mg/m ³ 0.3 mg/m ³	Skin Skin
117-81-7	Di-sec, octyl phthalate (Di-2ethylhexyl phthalate or DEHP)	5 mg/m ³	10 mg/m ³	Schedule R

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97-77-8	Disulphiram	2 mg/m ³	4 mg/m ³	
298-04-4	Disulphoton, (inhalable fraction and vapour)	0.05 mg/m ³	0.15 mg/m ³	Skin
128-37-0	2,6-Di-tert-butyl-p-cresol (butylated hydroxytoluene or BHT) (inhalable fraction and vapour)	2 mg/m ³	4 mg/m ³	
330-54-1	Diuron	10 mg/m ³	20 mg/m ³	
1321-74-0	Divinyl benzene	10 ppm	15 ppm	
112-55-0	Dodecyl mercaptan	0.1 ppm	0.3 ppm	SEN
1302-74-5	Emery	10 mg/m ³	20 mg/m ³	
115-29-7	Endosulphan	0.1 mg/m ³	0.3 mg/m ³	Skin
72-20-8	Endrin	0.1 mg/m ³	0.3 mg/m ³	Skin
13838-16-9	Enflurane	75 ppm	100 ppm	
106-89-8	Epichlorohydrin	0.5 ppm	1.5 ppm	Skin, Schedule R
2104-64-5	EPN (inhalable fraction)	0.1 mg/m ³	0.3 mg/m ³	Skin
74-84-0	Ethane	See Aliphatic hydrocarbon gases [C1-C4]		
64-17-5	Ethanol	1000 ppm	1250 ppm	
141-43-5	Ethanolamine	3 ppm	6 ppm	
563-12-2	Ethion, (inhalable fraction and vapour)	0.05 mg/m ³	0.15 mg/m ³	Skin
110-80-5	2-Ethoxyethanol (Glycol monoethyl ether)	5 ppm	7 ppm	Skin
111-15-9	2-Ethoxyethyl acetate (Cellosolve acetate)	5 ppm	8 ppm	Skin
141-78-6	Ethyl acetate	400 ppm	500 ppm	
140-88-5	Ethyl acrylate	5 ppm	15 ppm	Schedule R
75-04-7	Ethylamine	5 ppm	15 ppm	Skin
541-85-5	Ethyl amyl ketone (5-Methyl-3heptanone)	25 ppm	30 ppm	
100-41-4	Ethyl benzene	100 ppm	125 ppm	Schedule R
74-96-4	Ethyl bromide	5 ppm	7 ppm	Skin
637-92-3	Ethyl tert-butyl ether	5 ppm	10 ppm	
106-35-4	Ethyl butyl ketone (3-Heptanone)	50 ppm	75 ppm	
75-00-3	Ethyl chloride	100 ppm	125 ppm	Skin
7085-85-0	Ethyl cyanoacrylate	0.2 ppm	0.6 ppm	
74-85-1	Ethylene	200 ppm	250 ppm	
107-15-3	Ethylenediamine	10 ppm	15 ppm	Skin
107-06-2	Ethylene dichloride	10 ppm	20 ppm	
107-21-1	Ethylene glycol, (as an aerosol)	**C 100 mg/m ³		
628-96-6	Ethylene glycol dinitrate (EGDN)	0.05 ppm	0.15 ppm	Skin

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75-21-8	Ethylene oxide	1 ppm	2 ppm	Schedule R
151-56-4	Ethylenimine	0.5 ppm	1.5 ppm	Skin, Schedule R
60-29-7	Ethyl ether	400 ppm	500 ppm	
109-94-4	Ethyl formate	100 ppm	150 ppm	
149-57-5	2-Ethylhexanoic acid, (inhalable fraction and vapour)	5 mg/m ³	10 mg/m ³	
16219-75-3	Ethylidene norbornene	**C5 ppm		
75-08-1	Ethyl mercaptan	0.5 ppm	1.5 ppm	
100-74-3	N-Ethylmorpholine	5 ppm	8 ppm	Skin
78-10-4	Ethyl silicate	10 ppm	15 ppm	
22224-92-6	Fenamiphos	0.1 mg/m ³	0.3 mg/m ³	Skin
115-90-2	Fensulphothion (inhalable fraction and vapour)	0.01 mg/m ³	0.03 mg/m ³	Skin
55-38-9	Fenthion	0.2 mg/m ³	0.6 mg/m ³	Skin
14484-64-1	Ferbam	10 mg/m ³	20 mg/m ³	
12604-58-9	Ferrovandium dust	1 mg/m ³	3 mg/m ³	
-	Flour dust	3 mg/m ³	6 mg/m ³	SEN
-	Fluoride, (as F)	2.5 mg/m ³	5 mg/m ³	
7782-41-4	Fluorine	1 ppm	2 ppm	
944-22-9	Fonofos	0.1 mg/m ³	0.3 mg/m ³	Skin
50-00-0	Formaldehyde	**C0.3 ppm		SEN, Schedule R
75-12-7	Formamide	10 ppm	15 ppm	Skin
64-18-6	Formic acid	5 ppm	10 ppm	
98-01-1	Furfural	2 ppm	4 ppm	Skin
98-00-0	Furfuryl alcohol	10 ppm	15 ppm	Skin
1303-00-0	Gallium arsenide (respirable fraction)	0.0003 mg/m ³	0.0009 mg/m ³	
86290-81-5	Gasoline	300 ppm	500 ppm	
7782-65-2	Germanium tetrahydride	0.2 ppm	0.6 ppm	
111-30-8	Glutaraldehyde, activated and inactivated	**C0.05 ppm		SEN
56-81-5	Glycerin mist	10 mg/m ³	20 mg/m ³	
556-52-5	Glycidol	2 ppm	4 ppm	
107-22-2	Glyoxal, (inhalable fraction and vapour)	0.1 mg/m ³	0.3 mg/m ³	SEN
-	Grain dust (oat, wheat, barley)	4 mg/m ³	8 mg/m ³	
7782-42-5	Graphite, natural-all forms except graphite fibres (respirable fraction)	2 mg/m ³	4 mg/m ³	
7778-18-9	Gypsum (Calcium sulphate)	10 mg/m ³	20 mg/m ³	
7440-58-6	Hafnium and compounds, (as Hf)	0.5 mg/m ³	1.5 mg/m ³	
151-67-7	Halothane	50 ppm	60 ppm	
76-44-8;	Heptachlor and Heptchlor	0.05 mg/m ³	0.15 mg/m ³	Skin,

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1024-57-3	epoxide			Schedule R
142-82-5	Heptane (n-Heptane)	400 ppm	500 ppm	
118-74-1	Hexachlorobenzene	0.002 mg/m ³	0.006 mg/m ³	Skin, Schedule R
87-68-3	Hexachlorobutadiene	0.02 ppm	0.06 ppm	Skin, Schedule R
77-47-4	Hexachlorocyclopentadiene	0.01 ppm	0.03 ppm	
67-72-1	Hexachloroethane	1 ppm	2 ppm	Skin, Schedule R
1335-87-1	Hexachloronaphthalene	0.2 mg/m ³	0.6 mg/m ³	Skin
684-16-2	Hexafluoroacetone	0.1 ppm	0.3 ppm	Skin
85-42-7; 13149-00-3; 14166-21-3	Hexahydrophthalic anhydride, (inhalable fraction and vapour), all isomers	**C0.005 mg/m ³		SEN
822-06-0	Hexamethylene diisocyanate	0.005 ppm	0.015 ppm	
110-54-3	Hexane (n-Hexane)	50 ppm	62.5 ppm	Skin
-	Hexane (other isomers)	500 ppm	1000 ppm	
124-09-4	Hexanediamine	0.5 ppm	1.0 ppm	
592-41-6	1-Hexene	50 ppm	75 ppm	
108-84-9	sec-Hexyl acetate	50 ppm	60 ppm	
107-41-5	Hexylene glycol	**C25 ppm		
302-01-2	Hydrazine	0.01 ppm	0.03 ppm	Skin, Schedule R
61788-32-7	Hydrogenated terphenyls (nonirradiated)	0.5 ppm	1.5 ppm	
10035-10-6	Hydrogen bromide	**C2 ppm		
7647-01-0	Hydrogen chloride	**C2 ppm		
-	Hydrogen cyanide and cyanide salts, (as CN):			
74-90-8	Hydrogen cyanide	**C4.7 ppm		Skin
592-01-8; 151-50-8; 143-33-9	Cyanide salts	**C 5 mg/m ³		Skin
7664-39-3	Hydrogen fluoride, (as F)	0.5 ppm	**C 2 ppm	
7722-84-1	Hydrogen peroxide	1 ppm	2 ppm	
7783-07-5	Hydrogen selenide, (as Se)	0.05 ppm	0.15 ppm	
7783-06-4	Hydrogen sulphide	10 ppm	15 ppm	
123-31-9	Hydroquinone	2 mg/m ³	4 mg/m ³	
999-61-1	2-Hydroxypropyl acrylate	0.5 ppm	1 ppm	Skin, SEN
95-13-6	Indene	10 ppm	15 ppm	
7440-74-6	Indium and Compounds, (as In)	0.1 mg/m ³	0.3 mg/m ³	Schedule R (Indium pho-sphide)
7553-56-2	Iodine	**C0.1 ppm		
75-47-8	Iodoform	0.6 ppm	1.2 ppm	
1309-37-1	Iron oxide fume, (dust and	5 mg/m ³	10 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
	fume) (Fe ₂ O ₃ , as Fe)			
13463-40-6	Iron pentacarbonyl, (as Fe)	0.1 ppm	0.2 ppm	
	Iron salts, soluble, (as Fe)	1 mg/m ³	3 mg/m ³	
123-51-3	Isoamyl alcohol	100 ppm	125 ppm	
110-19-0	Isobutyl acetate	150 ppm	188 ppm	
78-83-1	Isobutyl alcohol	50 ppm	60 ppm	
542-56-3	Isobutyl nitrite, (inhalable fraction and vapour)	**C1 ppm		
26952-21-6	Isooctyl alcohol	50 ppm	60 ppm	Skin
78-59-1	Isophorone	**C5 ppm		
4098-71-9	Isophorone diisocyanate	0.005 ppm	0.015 ppm	
109-59-1	2-Isopropoxyethanol	25 ppm	38 ppm	Skin
108-21-4	Isopropyl acetate	100 ppm	200 ppm	
67-63-0	Isopropyl alcohol	200 ppm	400 ppm	
75-31-0	Isopropylamine	5 ppm	10 ppm	
768-52-5	N-Isopropylaniline	2 ppm	4 ppm	Skin
108-20-3	Isopropyl ether	250 ppm	310 ppm	
4016-14-2	Isopropyl glycidyl ether (IGE)	50 ppm	75 ppm	
1332-58-7	Kaolin (respirable fraction)	2 mg/m ³	4 mg/m ³	
8008-20-6; 64742-81-0	Kerosene /Jet fuels, as total hydrocarbon vapour	200 mg/m ³	250 mg/m ³	Skin
463-51-4	Ketene	0.5 ppm	1.5 ppm	
7439-92-1	Lead and inorganic compounds, (as Pb)	0.05 mg/m ³	0.15 mg/m ³	Schedule R
3687-31-8	Lead arsenate, (as Pb ₃ (AsO ₄) ₂)	0.15 mg/m ³	0.45 mg/m ³	
7758-97-6	Lead chromate, (as Pb)	0.05 mg/m ³	0.15 mg/m ³	Schedule R
7758-97-6	Lead chromate, (as Cr)	0.012 mg/m ³	0.036 mg/m ³	Schedule R
1317-65-3; 471-34-1	Limestone (calcium carbonate)	10 mg/m ³	20 mg/m ³	
58-89-9	Lindane	0.5 mg/m ³	1.5 mg/m ³	Skin
7580-67-8	Lithium hydride	0.025 mg/m ³	0.075 mg/m ³	
68476-85-7	L.P.G. (liquified petroleum gas)	See Aliphatic hydrocarbon gases [C1-C4]		
546-93-0	Magnesite	10 mg/m ³	20 mg/m ³	
1309-48-4	Magnesium oxide (inhalable fraction)	10 mg/m ³	20 mg/m ³	
121-75-5	Malathion, (inhalable fraction and vapour)	1 mg/m ³	3 mg/m ³	Skin
108-31-6	Maleic anhydride	0.1 ppm	0.3 ppm	SEN
7439-96-5	Manganese and inorganic compounds, (as Mn)	0.2 mg/m ³	0.6 mg/m ³	
12079-65-1	Manganese cyclopentadienyl tricarbonyl, (as Mn)	0.1 mg/m ³	0.3 mg/m ³	Skin
7439-97-6	Mercury, (as Hg):			
-	Alkyl compounds	0.01 mg/m ³	0.03 mg/m ³	Skin

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-	Aryl compounds	0.1 mg/m ³	0.3 mg/m ³	Skin
-	Inorganic forms, including metallic mercury	0.025 mg/m ³	0.075 mg/m ³	Skin
141-79-7	Mesityl oxide	15 ppm	25 ppm	
79-41-4	Methacrylic acid	20 ppm	30 ppm	
74-82-8	Methane	See Aliphatic hydrocarbon gases [C1-C4]		
16752-77-5	Methomyl	2.5 mg/m ³	5 mg/m ³	
72-43-5	Methoxychlor	10 mg/m ³	20 mg/m ³	
109-86-4	2-Methoxyethanol (Methylcellosolve-EGME)	5 ppm	8 ppm	Skin
110-49-6	2-Methoxyethyl acetate (Methyl cellosolve acetate-EGMEA)	5 ppm	8 ppm	Skin
150-76-5	4-Methoxyphenol	5 mg/m ³	10 mg/m ³	
79-20-9	Methyl acetate	200 ppm	250 ppm	
74-99-7	Methyl acetylene	1000 ppm	1250 ppm	
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)	1000 ppm	1250 ppm	
96-33-3	Methyl acrylate	2 ppm	4 ppm	Skin, SEN
126-98-7	Methylacrylonitrile	1 ppm	2 ppm	Skin
109-87-5	Methylal (dimethoxy methane)	1000 ppm	1250 ppm	
67-56-1	Methyl alcohol (methanol)	200 ppm	250 ppm	Skin
74-89-5	Methylamine	5 ppm	15 ppm	
110-43-0	Methyl n-amyl ketone (2-Heptanone)	50 ppm	60 ppm	
100-61-8	N-Methylaniline	0.5 ppm	1 ppm	Skin
74-83-9	Methyl bromide	1 ppm	3 ppm	Skin
1634-04-4	Methyl tert-butyl ether (MTBE)	50 ppm	75 ppm	
591-78-6	Methyl n-butyl ketone	5 ppm	10 ppm	Skin
74-87-3	Methyl chloride	50 ppm	100 ppm	Skin
137-05-3	Methyl 2-cyanoacrylate	0.2 ppm	0.6 ppm	
108-87-2	Methylcyclohexane	400 ppm	500 ppm	
25639-42-3	Methylcyclohexanol	50 ppm	60 ppm	
583-60-8	o-Methylcyclohexanone	50 ppm	75 ppm	Skin
12108-13-3	2-Methylcyclopentadienyl manganese tricarbonyl, (as Mn)	0.2 mg/m ³	0.6 mg/m ³	Skin
8022-00-2	Methyl demeton	0.5 mg/m ³	1.5 mg/m ³	Skin
101-68-8	Methylene bisphenyl isocyanate (MDI)	0.005 ppm	0.015 ppm	
101-14-4	4,4'-Methylene bis (2-chloroaniline) (MBOCA, MOCA)	0.01 ppm	0.03 ppm	Skin, Schedule R
5124-30-1	Methylene bis (4-cyclohexylisocyanate)	0.005 ppm	0.015 ppm	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
75-09-2	Methylene choride (dichloromethane)	50 ppm	63 ppm	
101-77-9	4,4'-Methylene dianiline	0.1 ppm	0.3 ppm	Skin, Schedule R
78-93-3	Methyl ethyl ketone (MEK)	200 ppm	300 ppm	
1338-23-4	Methyl ethyl ketone peroxide	**C0.2 ppm		
107-31-3	Methyl formate	100 ppm	150 ppm	
60-34-4	Methyl hydrazine	0.01 ppm	0.03 ppm	Skin, Schedule R
74-88-4	Methyl iodide	2 ppm	4 ppm	Skin, Schedule R
110-12-3	Methyl isoamyl ketone	50 ppm	60 ppm	
108-11-2	Methyl isobutyl carbinol	25 ppm	40 ppm	Skin
108-10-1	Methyl isobutyl ketone	50 ppm	75 ppm	
624-83-9	Methyl isocyanate	0.02 ppm	0.06 ppm	Skin
563-80-4	Methyl isopropyl ketone	200 ppm	250 ppm	
74-93-1	Methyl mercaptan	0.5 ppm	1.5 ppm	
80-62-6	Methyl methacrylate	50 ppm	100 ppm	SEN
298-00-0	Methyl parathion	0.2 mg/m ³	0.6 mg/m ³	Skin
107-87-9	Methyl propyl ketone	200 ppm	250 ppm	
681-84-5	Methyl silicate	1 ppm	2 ppm	
98-83-9	alpha-Methyl styrene	50 ppm	100 ppm	
78-94-4	Methyl vinyl ketone	**C0.2 ppm		Skin, SEN
21087-64-9	Metribuzin	5 mg/m ³	10 mg/m ³	
7786-34-7	Mevinphos (inhalable fraction and vapour)	0.01mg/m ³	0.03 mg/m ³	Skin
12001-26-2	Mica (respirable fraction)	3 mg/m ³	6 mg/m ³	
7439-98-7	Molybdenum, (as Mo):			
-	Soluble compounds, (respirable fraction)	0.5 mg/m ³	1.5 mg/m ³	
-	Metal and insoluble compounds, (inhalable fraction)	10 mg/m ³	20 mg/m ³	
-	Metal and insoluble compounds, (respirable fraction)	3 mg/m ³	6 mg/m ³	
6923-22-4	Monocrotophos (inhalable fraction and vapour)	0.05 mg/m ³	0.15 mg/m ³	Skin
110-91-8	Morpholine	20 ppm	30 ppm	Skin
300-76-5	Naled, (inhalable fraction and vapour)	0.1 mg/m ³	0.3 mg/m ³	Skin, SEN
91-20-3	Naphthalene	10 ppm	15 ppm	Skin
8006-14-2	Natural gas	See Aliphatic hydrocarbon gases: Alkane [C1-C4]		

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
9006-04-6	Natural rubber latex (as total proteins), (inhalable fraction)	0.001 mg/m ³	0.003 mg/m ³	Skin, SEN
7440-02-0	Nickel, (as Ni):			
-	Elemental (inhalable fraction)	1.5 mg/m ³	3 mg/m ³	Schedule R
-	Soluble inorganic compounds, (not otherwise specified) (inhalable fraction)	0.1 mg/m ³	0.3 mg/m ³	
-	Insoluble inorganic, (as not otherwise specified) (inhalable fraction)	0.2 mg/m ³	0.6 mg/m ³	
12035-72-2	Nickel subsulphide, (as Ni), (inhalable fraction)	0.1 mg/m ³	0.3 mg/m ³	Schedule R
13463-39-3	Nickel carbonyl, (as Ni)	0.05 ppm	0.15 ppm	
54-11-5	Nicotine	0.5 mg/m ³	1.5 mg/m ³	Skin
1929-82-4	Nitrapyrin	10 mg/m ³	20 mg/m ³	
7697-37-2	Nitric acid	2 ppm	4 ppm	
10102-43-9	Nitric oxide	25 ppm	38 ppm	
100-01-6	p-Nitroaniline	3 mg/m ³	6 mg/m ³	Skin
98-95-3	Nitrobenzene	1 ppm	2 ppm	Skin
100-00-5	p-Nitrochlorobenzene	0.1 ppm	0.3 ppm	Skin
79-24-3	Nitroethane	100 ppm	125 ppm	
10102-44-0	Nitrogen dioxide	3 ppm	5 ppm	
7783-54-2	Nitrogen trifluoride	10 ppm	20 ppm	
55-63-0	Nitroglycerin (NG)	0.05 ppm	0.15 ppm	Skin
75-52-5	Nitromethane	20 ppm	30 ppm	
108-03-2	1-Nitropropane	25 ppm	40 ppm	
79-46-9	2-Nitropropane	10 ppm	20 ppm	Schedule R
88-72-2; 99-08-1; 99-99-0	Nitrotoluene isomers	2 ppm	3 ppm	Skin
10024-97-2	Nitrous oxide	50 ppm	75 ppm	
111-84-2	Nonane, all isomers	200 ppm	250 ppm	
2234-13-1	Octachloronaphthalene	0.1 mg/m ³	0.3 mg/m ³	Skin
111-65-9	Octane, all isomers	300 ppm	375 ppm	
8012-95-1	Oil mist, mineral	5 mg/m ³	10 mg/m ³	
20816-12-0	Osmium tetroxide, (as Os)	0.0002 ppm	0.0006 ppm	
144-62-7	Oxalic acid	1 mg/m ³	2 mg/m ³	
80-51-3	p,p'-Oxybis(benzenesulphonyl hydrazide), (inhalable fraction)	0.1 mg/m ³	0.3 mg/m ³	
7783-41-7	Oxygen difluoride	**C0.05 ppm		
10028-15-6	Ozone	0.05 ppm	0.15 ppm	
8002-74-2	Paraffin wax fume	2 mg/m ³	4 mg/m ³	
4685-14-7	Paraquat, total dust	0.5 mg/m ³	1.5 mg/m ³	
-	Paraquat, (respirable fraction)	0.1 mg/m ³	0.3 mg/m ³	
56-38-2	Parathion, (inhalable fraction and vapour)	0.05 mg/m ³	0.15 mg/m ³	Skin

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
-	Particulate polycyclic aromatic hydrocarbons (PPAH), as benzene solubles, See Coal tar pitch volatiles	0.2 mg/m ³	0.6 mg/m ³	Schedule R
-	Particles (Insoluble or Poorly Soluble) Not Otherwise Specified:			
-	Inhalable fraction	10 mg/m ³	20 mg/m ³	
-	Respirable fraction	3 mg/m ³	6 mg/m ³	
19624-22-7	Pentaborane	0.005 ppm	0.015 ppm	
1321-64-8	Pentachloronaphthalene	0.5 mg/m ³	1.5 mg/m ³	Skin
82-68-8	Pentachloronitrobenzene	0.5 mg/m ³	1.5 mg/m ³	
87-86-5	Pentachlorophenol	0.5 mg/m ³	1.5 mg/m ³	Skin
115-77-5	Pentaerythritol	10 mg/m ³	20 mg/m ³	
78-78-4; 109-66-0; 463-82-1	Pentane, all isomers	600 ppm	750 ppm	
628-63-7; 626-38-0; 123-92-2; 625-16-1; 624-41-9; 620-11-1	Pentyl acetate, all isomers	50 ppm	100 ppm	
594-42-3	Perchloromethyl mercaptan	0.1 ppm	0.3 ppm	
7616-94-6	Perchloryl fluoride	3 ppm	6 ppm	
19430-93-4	Perfluorobutyl ethylene	100 ppm	150 ppm	
382-21-8	Perfluoroisobutylene	**C0.01 ppm		
93763-70-3	Perlite	10 mg/m ³	20 mg/m ³	
-	Persulphates, as persulphate	0.1 mg/m ³	0.3 mg/m ³	
108-95-2	Phenol	5 ppm	7.5 ppm	Skin
92-84-2	Phenothiazine	5 mg/m ³	10 mg/m ³	Skin
95-54-5; 108-45-2; 106-50-3	Phenylene diamine isomers	0.1 mg/m ³	0.3 mg/m ³	
101-84-8	Phenyl ether (vapour)	1 ppm	2 ppm	
122-60-1	Phenyl glycidyl ether (PGE)	0.1 ppm	0.3 ppm	Skin, SEN, Schedule R
100-63-0	Phenyl hydrazine	0.1 ppm	0.3 ppm	Skin, Schedule R
108-98-5	Phenyl mercaptan	0.1 ppm	0.3 ppm	Skin
638-21-1	Phenylphosphine	**C0.05 ppm		
298-02-2	Phorate (inhalable fraction and vapour)	0.05 mg/m ³	0.2 mg/m ³	Skin
75-44-5	Phosgene (Carbonyl chloride)	0.1 ppm	0.3 ppm	
7803-51-2	Phosphine	0.3 ppm	1 ppm	
7664-38-2	Phosphoric acid	1 mg/m ³	3 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
12185-10-3	Phosphorus (yellow)	0.1 mg/m ³	0.3 mg/m ³	
10025-87-3	Phosphorous oxychloride	0.1 ppm	0.3 ppm	
10026-13-8	Phosphorous pentachloride	0.1 ppm	0.3 ppm	
1314-80-3	Phosphorous pentasulphide	1 mg/m ³	3 mg/m ³	
7719-12-2	Phosphorous trichloride	0.2 ppm	0.5 ppm	
85-44-9	Phthalic anhydride	1 ppm	2 ppm	SEN
626-17-5	m-Phthalodinitrile	5 mg/m ³	10 mg/m ³	
1918-02-1	Picloram	10 mg/m ³	20 mg/m ³	
88-89-1	Picric acid	0.1 mg/m ³	0.3 mg/m ³	
83-26-1	Pindone	0.1 mg/m ³	0.3 mg/m ³	
142-64-3	Piperazine dihydrochloride	5 mg/m ³	10 mg/m ³	
7778-18-9	Plaster of Paris (Calcium sulphate)	10 mg/m ³	20 mg/m ³	
7440-06-4	Platinum:			
-	metal	1 mg/m ³	3 mg/m ³	
-	soluble salt, (as Pt)	0.002 mg/m ³	0.006 mg/m ³	
65997-15-1	Portland cement	10 mg/m ³	20 mg/m ³	
1310-58-3	Potassium hydroxide	**C2 mg/m ³		
74-98-6	Propane	See Aliphatic hydrocarbon gases [C1-C4]		
107-19-7	Propargyl alcohol	1 ppm	3 ppm	Skin
57-57-8	beta-Propiolactone	0.5 ppm	1 ppm	Schedule R
123-38-6	Propionaldehyde	20 ppm	30 ppm	
79-09-4	Propionic acid	10 ppm	15 ppm	
114-26-1	Propoxur	0.5 mg/m ³	1.5 mg/m ³	
109-60-4	n-Propyl acetate	200 ppm	250 ppm	
71-23-8	Propyl alcohol (n-propanol)	200 ppm	400 ppm	
78-87-5	Propylene dichloride	75 ppm	110 ppm	
6423-43-4	Propylene glycol dinitrate	0.05 ppm	0.15 ppm	Skin
107-98-2	Propylene glycol monomethyl ether (PGME or 1-methoxy-2-propanol)	100 ppm	150 ppm	
75-56-9	Propylene oxide	2 ppm	4 ppm	SEN, Schedule R
75-55-8	Propylenimine	2 ppm	4 ppm	Skin, Schedule R
627-13-4	n-Propyl nitrate	25 ppm	40 ppm	
8003-34-7	Pyrethrum	5 mg/m ³	10 mg/m ³	
110-86-1	Pyridine	1 ppm	3 ppm	
106-51-4	Quinone	0.1 ppm	0.3 ppm	
108-46-3	Resorcinol	10 ppm	20 ppm	
7440-16-6	Rhodium, (as Rh):			
-	Metal and insoluble compounds	1 mg/m ³	3 mg/m ³	
-	Soluble compounds	0.01 mg/m ³	0.03 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
299-84-3	Ronnel	10 mg/m ³	20 mg/m ³	
83-79-4	Rotenone (commercial)	5 mg/m ³	10 mg/m ³	
-	Rouge	10 mg/m ³	20 mg/m ³	
8030-30-6	Rubber solvent (Naphtha)	400 ppm	500 ppm	
7782-49-2	Selenium and compounds, (as Se)	0.2 mg/m ³	0.6 mg/m ³	
7783-79-1	Selenium hexafluoride, (as Se)	0.05 ppm	0.15 ppm	
136-78-7	Sesone	10 mg/m ³	20 mg/m ³	
-	Silica Amorphous:			
61790-53-2	Diatomaceous earth (uncalcined) (inhalable fraction)	10 mg/m ³	20 mg/m ³	
61790-53-2	Diatomaceous earth (uncalcined) (respirable fraction)	3 mg/m ³	6 mg/m ³	
112926-00-8	Precipitated silica and silica gel	10 mg/m ³	20 mg/m ³	
69012-46-2	Silica, fume (respirable fraction)	2 mg/m ³		
60676-86-0	Silica, fused (respirable fraction)	0.1 mg/m ³		
-	Silica - Crystalline#:			
14464-46-1	Cristobalite (respirable fraction)	0.05 mg/m ³		
14808-60-7	Quartz (respirable fraction)	0.05 mg/m ³		Schedule R
1317-95-9	Tripoli, as quartz (respirable fraction)	0.1 mg/m ³		
7440-21-3	Silicon	10 mg/m ³	20 mg/m ³	
409-21-2	Silicon Carbide			
-	Nonfibrous, (inhalable fraction)	10 mg/m ³	20 mg/m ³	
-	Nonfibrous, (respirable fraction)	3 mg/m ³	6 mg/m ³	
-	Fibrous (including whiskers), (respirable fibres)	0.1 f/cc##		Schedule R
7803-62-5	Silicon tetrahydride (Silane)	5 ppm	10 ppm	
7440-22-4	Silver, metal	0.1 mg/m ³	0.3 mg/m ³	
-	Silver soluble compounds, (as Ag)	0.01 mg/m ³	0.03 mg/m ³	
-	Soapstone (total dust)	6 mg/m ³		
-	Soapstone (respirable fraction)	3 mg/m ³	6 mg/m ³	
26628-22-8	Sodium azide:			
-	as Sodium azide	**C0.29 mg/m ³		
-	as Hydrazoic acid vapour	**C0.11 ppm		
7631-90-5	Sodium bisulphite	5 mg/m ³	10 mg/m ³	
62-74-8	Sodium fluoroacetate	0.05 mg/m ³	0.15 mg/m ³	Skin
1310-73-2	Sodium hydroxide	**C2 mg/m ³		
7681-57-4	Sodium metabisulphite	5 mg/m ³	10 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
9005-25-8	Starch	10 mg/m ³	20 mg/m ³	
-	Stearates	10 mg/m ³	20 mg/m ³	
7803-52-3	Stibine (Antimony hydride)	0.1 ppm	0.3 ppm	
8052-41-3	Stoddard solvent	100 ppm	125 ppm	
7789-06-2	Strontium chromate, (as Cr)	0.0005 mg/m ³	0.0015 mg/m ³	Schedule R
57-24-9	Strychnine	0.15 mg/m ³	0.45 mg/m ³	
100-42-5	Styrene, monomer	20 ppm	40 ppm	Schedule R
1395-21-7; 9014-01-1	Subtilisins, (as crystalline active enzyme)	**C0.00006 mg/m ³		
57-50-1	Sucrose	10 mg/m ³	20 mg/m ³	
74222-97-2	Sulphometuron methyl	5 mg/m ³	10 mg/m ³	
3689-24-5	Sulphotep (TEDP) (inhalable fraction and vapour)	0.1 mg/m ³	0.3 mg/m ³	Skin
7446-09-5	Sulphur dioxide	2 ppm	5 ppm	
2551-62-4	Sulphur hexafluoride	1000 ppm	1250 ppm	
7664-93-9	Sulphuric acid, (thoracic fraction)	0.2 mg/m ³	0.6 mg/m ³	Schedule R, strong acid mists only
10025-67-9	Sulphur monochloride	**C1 ppm		
5714-22-7	Sulphur pentafluoride	**C0.01 ppm		
7783-60-0	Sulphur tetrafluoride	**C0.1 ppm		
2699-79-8	Sulphuryl fluoride 5 ppm	5 ppm	10 ppm	
35400-43-2	Sulprofos	1 mg/m ³	3 mg/m ³	
-	Synthetic Vitreous Fibres:			
-	Continous filament glass fibres, (respirable fibres)	1 f/cc##	3 f/cc	
-	Continous filament glass fibres, (inhalable fraction)	5 mg/m ³	10 mg/m ³	
-	Glass wool fibres, (respirable fibres)	1 f/cc	3 f/cc	
-	Rock wool fibres, (respirable fibres)	1 f/cc	3 f/cc	
-	Slag wool fibres, (respirable fibres)	1 f/cc	3 f/cc	
-	Special purpose glass fibres, (respirable fibres)	1 f/cc	3 f/cc	
-	Refractory ceramic fibres, (respirable fibres)	0.2 f/cc		Schedule R
93-76-5	2,4,5-T	10 mg/m ³	20 mg/m ³	
14807-96-6	Talc, (respirable fraction)	2 mg/m ³		
7440-25-7	Tantalum metal and oxide, (as Ta)	5 mg/m ³	10 mg/m ³	
7783-80-4	Tellurium hexafluoride, (as Te)	0.02 ppm	0.03 ppm	
13494-80-9	Tellurium and other tellurium compounds, (as Te) excluding hydrogen telluride	0.1 mg/m ³	0.3 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
3383-96-8	Temephos, (inhalable fraction and vapour)	1 mg/m ³	3 mg/m ³	Skin
13071-79-9	Terbufos, (inhalable fraction and vapour)	0.01 mg/m ³	0.03 mg/m ³	Skin
100-21-0	Terephthalic acid	10 mg/m ³	20 mg/m ³	
26140-60-3	Terphenyls	**C5 mg/m ³		
76-11-9	1,1,1,2-Tetrachloro-2, 2-difluoroethane	500 ppm	625 ppm	
76-12-0	1,1,2,2-Tetrachloro-1, 2-difluoroethane	500 ppm	625 ppm	
79-34-5	1,1,2,2-Tetrachloroethane	1 ppm	2 ppm	Skin
127-18-4	Tetrachloroethylene (Perchloroethylene)	25 ppm	100 ppm	Schedule R
1335-88-2	Tetrachloronaphthalene	2 mg/m ³	4 mg/m ³	
78-00-2	Tetraethyl lead, (as Pb)	0.1 mg/m ³	0.3 mg/m ³	Skin
107-49-3	Tetraethyl pyrophosphate (TEPP)	0.05 mg/m ³	0.15 mg/m ³	Skin
116-14-3	Tetrafluoroethylene	2 ppm	4 ppm	Schedule R
109-99-9	Tetrahydrofuran	50 ppm	100 ppm	Skin
-	Tetrakis (hydroxymethyl) phosphonium salts:			
124-64-1	Tetrakis (hydroxymethyl) phosphonium chloride	2 mg/m ³	4 mg/m ³	
55566-30-8	Tetrakis (hydroxymethyl) phosphonium sulphate	2 mg/m ³	4 mg/m ³	SEN
75-74-1	Tetramethyl lead, (as Pb)	0.15 mg/m ³	0.45 mg/m ³	Skin
3333-52-6	Tetramethyl succinonitrile	0.5 ppm	1 ppm	Skin
509-14-8	Tetranitromethane	0.005 ppm	0.015 ppm	Schedule R
7722-88-5	Tetrasodium pyrophosphate	5 mg/m ³	10 mg/m ³	
479-45-8	Tetryl (2,4,6-trinitrophenyl-methyl nitramine)	1.5 mg/m ³	3 mg/m ³	
7440-28-0	Thallium and soluble compounds, (as Tl)	0.1 mg/m ³	0.3 mg/m ³	Skin
96-69-5	4,4'-Thiobis (6-tert-butyl-m-cresol)	10 mg/m ³	20 mg/m ³	
68-11-1	Thioglycolic acid	1 ppm	2 ppm	Skin
7719-09-7	Thionyl chloride	**C1 ppm		
137-26-8	Thiram	1 mg/m ³	3 mg/m ³	
7440-31-5	Tin, (as Sn):			
-	metal	2 mg/m ³	4 mg/m ³	
-	oxide and inorganic compounds except SnH ₄	2 mg/m ³	4 mg/m ³	
-	organic compounds	0.1 mg/m ³	0.2 mg/m ³	Skin
13463-67-7	Titanium dioxide	10 mg/m ³	20 mg/m ³	
108-88-3	Toluene (toluol)	50 ppm	60 ppm	Skin
584-84-9;	Toluene-2,4- or 2,6-	0.005 ppm	0.02 ppm	SEN

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
91-08-7	diisocyanate (TDI)			
95-53-4	o-Toluidine	2 ppm	4 ppm	Skin, Schedule R
108-44-1	m-Toluidine	2 ppm	4 ppm	Skin
106-49-0	p-Toluidine	2 ppm	4 ppm	Skin, Schedule R
126-73-8	Tributyl phosphate	0.2 ppm	0.4 ppm	
76-03-9	Trichloroacetic acid	1 ppm	2 ppm	
120-82-1	1,2,4-Trichlorobenzene	**C5 ppm		
71-55-6	1,1,1-Trichloroethane	350 ppm	450 ppm	
79-00-5	1,1,2-Trichloroethane	10 ppm	15 ppm	Skin
79-01-6	Trichloroethylene	50 ppm	100 ppm	
75-69-4	Trichlorofluoromethane	**C1000 ppm		
1321-65-9	Trichloronaphthalene	5 mg/m ³	10 mg/m ³	Skin
96-18-4	1,2,3-Trichloropropane	10 ppm	15 ppm	Skin
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000 ppm	1250 ppm	
52-68-6	Trichlorphon, (inhalable fraction)	1 mg/m ³	3 mg/m ³	
102-71-6	Triethanolamine	5 mg/m ³	10 mg/m ³	
121-44-8	Triethylamine	1 ppm	3 ppm	Skin
75-63-8	Trifluorobromomethane	1000 ppm	1200 ppm	
2451-62-9	1,3,5-Triglycidyl-s-triazinetrione	0.05 mg/m ³	0.15 mg/m ³	
552-30-7	Trimellitic anhydride	**C0.04 mg/m ³		
75-50-3	Trimethylamine	5 ppm	15 ppm	
25551-13-7	Trimethyl benzene (mixed isomer)	25 ppm	30 ppm	
121-45-9	Trimethyl phosphite	2 ppm	4 ppm	
118-96-7	2,4,6-Trinitrotoluene (TNT)	0.1 mg/m ³	0.3 mg/m ³	Skin
78-30-8	Triorthocresyl phosphate	0.1 mg/m ³	0.3 mg/m ³	Skin
603-34-9	Triphenylamine	5 mg/m ³	10 mg/m ³	
115-86-6	Triphenyl phosphate	3 mg/m ³	6 mg/m ³	
7440-33-7	Tungsten, (as W):			
-	metal and insoluble compounds	5 mg/m ³	10 mg/m ³	
-	soluble compounds	1 mg/m ³	3 mg/m ³	
8006-64-2; 80-56-8; 127-91-3; 13466-78-9	Turpentine and selected monoterpenes	20 ppm	30 ppm	SEN
7440-61-1	Uranium (natural)			
-	Soluble and insoluble compounds, (as U)	0.2 mg/m ³	0.6 mg/m ³	Schedule R
110-62-3	n-Valeraldehyde	50 ppm	60 ppm	
1314-62-1	Vanadium pentoxide, as V ₂ O ₅ ,	0.05 mg/m ³	0.15 mg/m ³	

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
	dust and fume (respirable fraction)			
-	Vegetable oil mists	10 mg/m ³	20 mg/m ³	
108-05-4	Vinyl acetate	10 ppm	15 ppm	
593-60-2	Vinyl bromide	0.5 ppm	1.5 ppm	Schedule R
100-40-3	4-Vinyl cyclohexene	0.1 ppm	0.3 ppm	Schedule R
106-87-6	Vinyl cyclohexene dioxide	0.1 ppm	0.3 ppm	Skin, Schedule R
75-02-5	Vinyl fluoride	1 ppm	3 ppm	Schedule R
88-12-0	N-Vinyl-2-pyrrolidone	0.05 ppm	0.15 ppm	
75-35-4	Vinylidene chloride	5 ppm	10 ppm	
75-38-7	Vinyledene fluoride	500 ppm	625 ppm	
25013-15-4	Vinyl toluene	50 ppm	100 ppm	
8032-32-4	VM and P Naphtha	300 ppm	375 ppm	
81-81-2	Warfarin	0.1 mg/m ³	0.3 mg/m ³	
-	Welding fumes	5 mg/m ³	10 mg/m ³	
-	Wood dust:			
-	Softwoods	5 mg/m ³	10 mg/m ³	Schedule R (certain species), SEN* (certain species, see list at end of table)
-	Certain hardwoods such as beech and oak	1 mg/m ³	3 mg/m ³	Schedule R (certain species), SEN* (certain species, see list at end of table)
1330-20-7; 95-47-6; 108-38-3; 106-42-3	Xylene (o, m-, p-isomers)	100 ppm	150 ppm	
1477-55-0	m-Xylene alpha, alpha'-diamine	**C0.1 mg/m ³		Skin
1300-73-8	Xylidine, mixed isomers (inhalable fraction and vapour)	0.5 ppm	1 ppm	Schedule R, Skin
7440-65-5	Yttrium metal and compounds, (as Y)	1 mg/m ³	3 mg/m ³	
7646-85-7	Zinc chloride fume	1 mg/m ³	2 mg/m ³	
13530-65-9; 11103-86-9; 37300-23-5	Zinc chromates, as Cr	0.01 mg/m ³	0.03 mg/m ³	Schedule R

CAS Number	Substance	8 hour average contamination limit mg/m ³ * or ppm*	15 minute average contamination limit mg/m ³ * or ppm*	Notation+
1314-13-2	Zinc oxide, fume and dust (respirable fraction)	2 mg/m ³	10 mg/m ³	
7440-67-7	Zirconium and compounds, (as Zr)	5 mg/m ³	10 mg/m ³	

Notes:

- *mg/m³ - milligrams of substance per cubic metre of air; ppm - parts (volume) of substance per million parts (volume) of air
- **C - ceiling limit
- # - Trydimite removed
- ## - Fibres per cubic centimetre of air

+ - Explanation of Notations:

- Schedule R - Substance is also listed in Schedule R and subject to sections to referred to in that Schedule
- Skin - Potentially harmful after absorption through the skin or mucous membranes
- SEN - Well demonstrated potential to produce sensitization
- SEN* - Wood species suspected of inducing sensitization (see Table D)

Table AInhalable fraction:

For the application of this limit, inhalable fraction is that fraction of the aerosol that passes a size selector with the following characteristics:

Particle Aerodynamic Diameter (µm)	Inhalable Particulate Mass (IPM) (%)
-	100
1	97
2	94
5	87
10	77
20	65
30	58
40	54.5
50	52.5
100	50

Table BRespirable fraction:

For the application of this limit, respirable fraction is that fraction of the aerosol that passes a size selector with the following characteristics:

Particle Aerodynamic Diameter (μm)	Respirable Particulate Mass (RPM) (%)
0	100
1	97
2	91
3	74
4	50
5	30
6	17
7	9
8	5
10	1

Table CThoracic fraction:

For the application of this limit, thoracic fraction is that fraction of the aerosol that passes a size selector with the following characteristics:

Particle Aerodynamic Diameter (μm)	Thoracic Particulate Mass (TPM)(%)
0	100
2	94
4	89
6	80.5
8	67
10	50
12	35
14	23
16	15
18	9.5
20	6
25	2

Table D

Commercially Important Tree Species Suspected of Inducing Sensitization

Wood Type	Common	Latin
Softwood	California redwood	<i>Sequoia sempervirens</i>
	Eastern white cedar	<i>Thuja occidentalis</i>
	Pine	<i>Pinus</i>
	Western red cedar	<i>Thuja plicata</i>
Hardwood	Ash	<i>Fraxinus americana</i>
	Aspen/Poplar/Cottonwood	<i>Populus</i>
	Beech	<i>Fagus</i>
	Oak	<i>Quercus</i>
Tropical Wood	Abirucana	<i>Pouteria</i>
	African zebra	<i>Microberlinia</i>
	Antiaris	<i>Antiaris africana</i> <i>Antiaris toxicara</i>
	Cabreuva	<i>Myrocarpus fastigiatus</i>
	Cedar of Lebanon	<i>Cedra libani</i>
	Central American walnut	<i>Juglans olanchana</i>
	Cocabolla	<i>Dalbergia retusa</i>
	African ebony	<i>Diospyros crassiflora</i>
	Fernam bouc	<i>Caesalpinia</i>
	Honduras rosewood	<i>Dalbergia stevensonii</i>
	Iroko or kambala	<i>Chlorophora excelsa</i>
	Kejaat	<i>Pterocarpus angolensis</i>
	Kotobe	<i>Nesorgordonia papaverifera</i>
	Limba	<i>Terminalia superba</i>
	Mahogany (African)	<i>Khaya spp.</i>
	Makore	<i>Tieghemella heckelii</i>
	Mansonia/Beté	<i>Mansonia altissima</i>
	Nara	<i>Pterocarpus indicus</i>
	Obeche/African maple/Samba	<i>Triplochiton scleroxylon</i>
	Palisander/Brazilian rosewood/ Tulip wood/Jakaranda	<i>Dalbergia nigra</i>
	Pau marfim	<i>Balfourdendron riedelianum</i>
	Ramin	<i>Gonystylus bancanus</i>
	Soapbark dust	<i>Quillaja saponaria</i>
	Spindle tree wood	<i>Euonymus europaeus</i>

SCHEDULE T

(Section 340)

Organ or Tissue Weighting Factors

Item	Column 1 Organ or Tissue	Column 2 Weighting Factor
1	Gonads (testes or ovaries)	0.20
2	Red bone marrow	0.12
3	Colon	0.12
4	Lung	0.12
5	Stomach	0.12
6	Bladder	0.05
7	Breast	0.05
8	Liver	0.05
9	Oesophagus	0.05
10	Thyroid gland	0.05
11	Skin ¹	0.01
12	Bone Surfaces	0.01
13	All organs and tissues not listed in items 1 to 12 (remainder organs and tissues) collectively, including the adrenal gland, brain, extra-thoracic airway, small intestine, kidney, muscles, pancreas, spleen, thymus and uterus ^{2,3}	0.05
14	Whole body	1.00

¹ The weighting factor for skin applies only when the skin of the whole body is exposed.

² When the equivalent dose received by and committed to one of these remainder organs and tissues exceeds the equivalent dose received by and committed to any one of the organs and tissues listed in items 1 to 12, a weighting factor of 0.025 must be applied to that remainder organ or tissue and a weighting factor of 0.025 must be applied to the average equivalent dose received by and committed to the rest of the remainder organs and tissues.

³ Hands, feet and the lens of an eye have no weighting factor.

SCHEDULE U

(Subsections 341(1), 342(2), (3) and (4))

Effective Dose Limit

Item	Column 1 Person	Column 2 Period	Column 3 Effective Dose (millisievert)
1	Occupational worker, including a pregnant occupational worker	(a) One year dosimetry period (b) Five year dosimetry period	50 100
2	Pregnant occupational worker	Balance of the pregnancy	4
3	A person who is not an occupational worker	One calendar year	1

SCHEDULE V

(Subsection 341(3))

Specific Equivalent Dose Limits

Item	Column 1 Organ or Tissue	Column 2 Person	Column 3 Period	Column 4 Equivalent Dose (millisievert)
1	Lens of an eye	(a) Occupational worker	One year dosimetry period	150
		(b) Any other person	One calendar year	15
2	Skin ¹	(a) Occupational worker	One year dosimetry period	500
		(b) Any other person	One calendar year	50
3	Hands and feet	(a) Occupational worker	One year dosimetry period	500
		(b) Any other person	One calendar year	50

¹ When skin is unevenly irradiated, the equivalent dose received by the skin is the average equivalent dose over the 1 cm² area that received the highest equivalent dose.

SCHEDULE X

*(Subsections 461(4) and (6) to (10))*Minimum Distances from Exposed
Energized High Voltage Electrical Conductors

Voltage Phase to Phase (kV)	Voltage to Ground (kV)	Column 1 Metres (m)	Column 2 Metres (m)	Column 3 Metres (m)	Column 4 Metres (m)	Column 5 Metres (m)	Column 6 Metres (m)
230	133	6.1	1.4	1.83	2.4	1.41	1.85
138	79.8	4.6	1	1.22	1.9	0.92	1.35
72	41.6	4.6	0.6	0.8	1.6	0.61	1.05
25	14.4	3	0.3	0.6	1.2	0.12	0.55
15	8.6	3	0.3	0.6	1.1	0.12	0.55
4.16	2.4	3	0.15	0.6	1.05	0.04	0.50
0.75	0.75	3	0.15	0.6	1.05	0.04	0.05