Black&McDonald

Health, Safety and Environment Manual

2024

This manual is intended for use by all Black & McDonald employees, affiliates, and subcontractors

The information presented is intended to provide guidance and direction in the implementation of Black & McDonald policies and programs. This manual is also a resource for the development and implementation of Black & McDonald's Health, Safety & Environment Management System.

This manual is not a definitive guide to government acts, codes, regulations, standards or policies. The appropriate acts, codes, regulations, standards, and policies should be consulted.

Please contact your HSE Professional for further guidance, direction, and assistance.

Corporate Director, HSE

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Health, Safety & Environment Management Manual

Rev.#	Date	Reviewed by:
9	January 2024	Corporate Safety Committee — October 2023 **Date**
		Approved by:
		Anthony Di Gianni **Corporate Director, HSE** — December 2023 **Date**

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REVISION LIST

REV #	DESCRIPTION OF CHANGE	REVISION PREPARED BY	AMENDMENT DATE
0	Initial Issue	Dan Ransom	01/31/2014
1	1.5 HSE Goals	Dan Ransom	06/18/2015
2	2016 Updates	NASC	10/20/2015
2	Health, Safety and Environment Record Retention Guideline- NASC Guideline	NASC	06/22/2016
3	2017 Updates	NASC	01/31/2017
4	2018 Updates	NASC	10/24/2018
5	2019 Updates	CSC	01/01/2019
6	2020 Updates	CSC	02/28/2020
7	2021 Updates Reformat to align with ISO 45001	CSC	05/25/2021
8	2022 Updates	CSC	12/13/2022
8.1	Updated due to page # error. Included BM-P Programs listing in Appendix	Trish Pietersen	12/01/2023
9	2023 Updates Program listing update Sharepoint migration to Teams	CSC	01/01/2024

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1 SCOPE

Black & McDonald is responsible for the occupational health and safety of workers and others who can be affected by its activities. The responsibility includes promoting and protecting the physical and mental health of all workers.

The purpose of this HSE Management System is to provide the framework for managing occupational health and safety risks and opportunities. The aim and intended outcomes are to prevent work-related injury and ill health to workers and to provide a safe and healthy workplace; consequently, it is critically important to eliminate or minimize hazards and occupational health and safety risks by taking effective preventative and protective measures and fulfil all legal and other requirements.

2 NORMATIVE REFERENCES

3 TERMS AND DEFINITIONS

ANSI	American National Standards Institute
ASME	American Society of Black & McDonald Engineers
CEPA	Canadian Environmental Protection Act
CSA	Canadian Standards Association
CNSA	Canadian Nuclear Safety Association
COR	Certificate of Recognition
CPR	Cardiopulmonary Resuscitation
CSST	Commission de la santé et de la sécurité du travail
EMS	Emergency Management System
EPEA	Environmental Protection & Enhancement Act
EPOG	Environmental Practices & Operating Guidelines
FA	First Aid
FAF	Functional Abilities Form
PJHA	Pre-Job Hazard Assessment
FLRA	Field Level Risk Assessment
HIERAC	Hazard Identification Elimination, Risk Assessment & Control
HSE	Health, Safety & Environmental
IH	Industrial Hygiene
IRS	Internal Responsibility System
JDE	JD Edwards Enterprise One Oracle Software/Database
JHA	Job Hazard Assessment
JSA	Job Safety Analysis
JHSC	Joint Health & Safety Committee
KRA	Key Result Areas
LTIF	Lost-Time Injury Frequency
MA	Medical Aids
NIOSH	National Institute for Occupational Health &Safety
NASC	National Safety Committee
OH&S Act	Ontario Health and Safety Act
OSHA	Occupational Safety & Health Association (USA)
PDA	Physical Demands Analysis
PPE	Personal Protective Equipment
PSP	Project Safety Plan
SDS	Safety Data Sheet
SMT	Senior Management Team
SOP	Standard Operating Procedures
SWP	Safe Work Practices
TDG	Transportation of Dangerous Goods

TRIR	Total Recordable Injury Rate
TSSA	Technical Standards & Safety Authority
TTT	Train-the-Trainer
WCB	Worker's Compensation Board
WHMIS	Workplace Hazardous Materials Information System
WHSCC	Workplace Health, Safety & Compensation Commission
WSIB	Workplace Safety & Insurance Board (Ontario)

Acceptable Risk — a risk reduced to a level that can be tolerated by the organization having regard to its legal obligations and its own HSE policy.

Code of Practice — a document that recommends practices or procedures for the design, manufacture, installation, maintenance, or utilization of equipment, structures, or products.

Note: *A code of practice can be a Program, a part of a Program, or other document.*

Critical hazards - any hazard with residual risk that is still identified as "high" after all controls have been considered.

Fit for Duty - Means a state (physical, mental and emotional) that allows the individual to perform assigned tasks competently and in a manner which does not compromise or threaten the safety or health of that individual or others. Final determination of what constitutes "fit for duty" for any specific task will lie in the discretion of the manager or supervisor using the guidelines provided by this policy and procedures and, where applicable and appropriate, other available assessment procedures.

Hazard – a source, situation, or act with the potential for harm in terms of human injury or ill health, damage to property or equipment, environment or a combination of these.

Hazard Identification - the process of finding, listing, and characterizing hazards.

Intolerable Risk — a risk the organization feels carries such a high probability of serious or catastrophic consequences that the activity should not be carried out in its current manner until controls can be implemented to reduce the risk to a tolerable level.

Likelihood – the chance of something happening.

Note: *In risk assessment terminology, the word "likelihood" is used to refer to the chance of something happening, whether defined, measured, or determined objectively or subjectively, qualitatively or quantitatively, and described using general terms or mathematically (e.g., a probability or a frequency over a given time period).Degrees of belief about likelihood can be chosen as classes or ranks:*

a) rare/unlikely/moderate/likely/almost certain; or
b) Incredible/improbable/remote/occasional/probable/frequent.

Lifecycle — human interaction during the entire lifecycle of the product, process, or service with respect to the following:

- Design.
- Construction or development of a process.
- Transport, assembly, and installation.
- Commissioning or setting to work.

- Intended use of the product, process, or service; and
- Decommissioning, dismantling and, as far as safety is concerned, disposal.

Legal Requirements — in any country the requirements of applicable federal, provincial/territorial/state, and municipal HSE laws, regulations, and bylaws; and, where applicable, an organization's collective agreements that relate to HSE.

Personal Protective Equipment (PPE) — anything designed to be worn, held, or carried by an individual for protection against one or more hazards.

Record — a document that states results achieved or provides evidence of activities performed

Note: *Under some circumstances electronic documentation can meet documentation requirements.*

Reasonably Practicable — the degree of risk in a particular situation must be balanced against the time, trouble, cost and physical difficulty of taking measure to avoid the risk. The greater the risk, the more likely it is that it is reasonable to go to very substantial expense, trouble, and intervention to reduce it. But, if the consequences and extent of risk are small, insistence on great expense would not be considered reasonable.

Residual Risk — the risk remaining after a hierarchy of controls has been implemented

Risk – the combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury, ill health, property, equipment, and/or environment damage that can be caused by the event or exposure(s).
Note: These two components of risk are of equal importance; and either or both may play a role in the subsequent risk control/mitigation measures to be adopted.

Risk Analysis — a process for comprehending the nature of hazards and estimating the level of risk.

Note:

1. *Risk analysis provides a basis for risk evaluation and decisions about risk control.*
2. *Information can include current and historical data, theoretical analysis, informed opinions, and the concerns of interested parties*
3. *Risk analysis includes risk estimation.*

Risk Assessment — the overall process of hazard identification, risk analysis, and risk evaluation.

Risk Control — protective or preventive actions implemented to reduce risk.

Note: *Risk control also involves monitoring, re-evaluation, and compliance with decisions.*

Risk Criteria — the terms of reference against which the significance of risk is evaluated.
Note:
Risk criteria are based on organizational objectives and external and internal contexts.
Risk criteria can be derived from standards, legal requirements, policies, and other requirements.

Risk Estimation — a process used to assign values to the likelihood and consequences of a risk.

Note: *Risk estimation can consider costs, benefits, the concerns of interested parties, and other variables, as appropriate for risk evaluation.*

Risk Evaluation — the process of determining the significance of the risk and making decisions concerning the allocation of resources to control the risk.

Risk Reduction — actions (i.e., use of preventive and protective measures) taken to lessen the likelihood of harm, the severity of harm, or both.

Risk Transfer — the action of passing on risk associated with a product, process, or service from one party to another.

Site Inspections – a formalized and documented process of identifying hazards in the workplace. As part of a proactive injury-prevention process, inspections reveal the current state of the workplace and any activities that you can see.

Interested parties — persons or organizations that can affect, be affected by, or perceive themselves to be affected by decisions or activities related to HSE hazards and risks.

Task Observations – a formalized and documented process of identifying if a worker is performing all aspects of a specific task the correct way. An opportunity for conversation between management and front-line workers.

Worker representative — a non-managerial worker who is:

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

Terms from 45001 standard:

- **Organization** – person or group of people that has its own functions with responsibilities, authorities, and relationships to achieve its objectives.
- **Worker** – person performing work or work-related activities that are under control of the organization
  - Note: Persons perform work, or work-related activities under various arrangements, paid or unpaid, such as regularly or temporarily, intermittently, or seasonally, casually or on a part-time basis
  - Note 2: Workers include top management, managerial and non-managerial persons
  - Note 3: The work- or work-related activities performed under control of the organization may be performed by workers employed by the organization, workers of external providers, contractors, individuals, agency workers, and by other persons to the text the organization shares control over their work or work-related activities, according to the context of the organization.
- **Participation** – involvement in decision making
  - Note: Participation includes engaging health and safety committees and workers representatives where they exist.
- **Consultation** – seeking views before making a decision
  - Note: Consultation includes engaging health and safety committees and workers' representative where they exist
- **Workplace** – under the control of the organization where a person needs to be or go to work for purposes
  - Note: The organization's responsibilities under the HSE Management System for the workplace depend on the degree of control over the workplace
- **Contractor** – External organization providing services to the organization in accordance with agreed specifications, terms, and conditions

- **Requirement** – Need to expectation that is stated, generally implied or obligatory
    - Note: "Generally implied" means that it is custom or common practice for the organization and interested parties that the need or expectation under consideration is implied
    - Note 2: A specified requirement is one that is stated
    - Note 3: This constitutes one of the common terms and core definitions for ISO management systems
- **Legal Requirements and Other Requirements** – Legal requirements that an organization must comply with and other requirements that an organization has to or chooses to comply with
    - Note: For the purposes of this document, legal requirements and other requirements are those relevant to the HSE Management System
    - Note 2: Legal requirements and other requirements include provisions in collective agreements
    - Note 3: Legal requirements and other requirements include those that determine the persons who are workers' representatives in accordance with laws, regulations, collective agreements, and practices.
- **Management System** – Set of interrelated or interacting elements of an organization to establish policies, objectives, and processes to achieve those objectives.
- **HSE or OH&S Management System** – A management system or part of a management system used to achieve the HSE policy
    - Note: The intended outcomes of the HSE Management System are to prevent injury and ill health to workers and to provide safe and healthy workplaces
    - Note 2: The terms Health, Safety and Environment (HSE) and Occupational Health and Safety (OH&S) have the same meaning
- **Top Management** – A person or group of people who directs and controls the organization at the highest level
    - Note: Top management has the power to delegate authority and provide resources within the organization, provided ultimate responsibility for the HSE Management System is retained
    - Note 2: If the scope of the HSE Management System covers only part of the organization, then the top management refers to those who direct and control that part of the organization.
    - Note 3: Top Management at B&M is referred to as the Senior Management Team (SMT)
- **Effectiveness** – The extent to which planned activities are realized and planned results are achieved
- **Policy** – Intentions and direction or an organization, as formally expressed by top management
- **Occupational Health and Safety Policy** – Policy to prevent work-related injury and ill health to workers and to provide safe and healthy workplace
- **Objective** – Result to be achieved
    - Note: An objective can be strategic, tactical, or operational
    - Note 2: Objectives can relate to different disciplines (such as financial, health and safety and environment goals) and can apply at different levels (such as strategic, organization-wide, project, product, and process).
    - Note 3: An objective can be expressed in other ways e.g., as an intended outcome, a purpose, an operational criterion, as an HSE objective, or using other words with similar meaning (e.g., aim, goal, target)
    - Note 4: B&M utilizes the term Key Reporting Areas or KRA as objectives
- **Injury and Ill Health** – Adverse effect on the physical, mental, or cognitive condition of a person
    - Note: These adverse effects include occupational disease, illness, and death
    - Note 2: The term "injury and ill health" implies the presence of injury or ill health, either on their own or in combination.
- **Hazard** – Source with a potential to cause injury and ill health
    - Note: Hazards can include sources with the potential to cause harm or hazardous situations, or circumstances with the potential for exposure leading to injury and ill health.

- **Risk** – Effect of uncertainty
  - Note: An effect is a deviation from the expected – positive or negative
  - Note 2: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood
  - Note 3: Risk is often characterized by reference to potential events and consequences
  - Note 4: Risk is often expressed in terms of a combination of consequences of an event (including changes in circumstance) and the associated "likelihood"
- **Occupational Health and Safety Risk** – combination of the likelihood of occurrence of a work-related hazardous event or exposure and the severity of injury and ill health that can be caused by the event or exposure
- **Occupational Health and Safety Opportunity** – circumstance or a set of circumstances that can lead to improvement of HSE performance
- **Competence** – Ability to apply knowledge and skills to achieve intended results
- **Documented Information** – Information required to be controlled and maintained by an organization and the medium on which it is controlled
  - Note: Documented information can be in any format and media, and from any source
- **Process** – Set of interrelated or interacting activities which transforms inputs into outputs
- **Procedure** – Specified way to carry out an activity or a process
- **Performance** – Measurable result
  - Note: Performance can relate either to quantitative or qualitative findings. Results can be determined and evaluated by qualitative or quantitative methods
  - Note 2: Performance can relate to the management of activities, processes (including services), systems or organizations
- **Outsource** – Arrange where an external organization performs part of the organization's function or processes
- **Monitoring** – Determining the status of a system, a process, or an activity
  - Note: To determine the status, there may be a need to check, supervisor or critically observe.
- **Measurement** – Process to determine value
- **Audit** – Systemic, independent, and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled
- **Conformity** – Fulfillment of a requirement
- **Nonconformity** – Non-fulfillment of a requirement
- **Incident** – Occurrence arising out of, or in the course of, work that could or does result in injury or ill health
  - Note: An incident where injury and/or ill health occurs is sometimes referred to as an "accident"
  - Note 2: An incident where no injury and/or ill health occurs, but has the potential to do so, may be referred to as a "near miss", "near hit", or "close call"
- **Corrective Action** – Action to eliminate the cause(s) of a non-conformity or an incident and to prevent recurrence.
- **Continual Improvement** – Recurring activity to enhance performance
  - Note: Enhancing performance relates to the use of the HSE management system to achieve improvement in overall HSE performance consistent with the HSE policy and HSE objectives
  - Note 2: Continual does not mean continuous, so the activity does not need to take place in all areas simultaneously

SECTION ONE: PLAN

4. CONTEXT OF THE ORGANIZATION

4.1 Understanding the organization and its context

Black & McDonald is an integrated, multi-trade service provider that safely delivers high-quality construction, facilities management, and technical solutions to government, institutional and industry clients across Canada, the United States and Bermuda.

Multi-trade Construction
Black & McDonald offers turnkey solutions for a wide range of applications including commercial buildings, institutional facilities, airports, mission critical data centres, hospitals, pharmaceutical, transit and transportation, water and wastewater treatment, oil and gas, mining, manufacturing, utilities, power generation and renewable energy.

Facility Services
We are an integrated multi-trade Facility Services provider with experience of operating and maintaining within a diverse portfolio of facilities in a varied cross-section of facility types including commercial offices, healthcare environments, major transportation hubs and airports, cultural facilities, life sciences, laboratories, municipal government properties, educational institutions, data centres, utilities infrastructure, and major manufacturing and distribution plants.

Utility Services & Renewables
We provide construction services for overhead and underground transmission systems, fibre optic cabling, construction of stations, municipal installations and their related civil construction. Our specialized field services provide testing, arc flash hazard analysis, and infrared scanning of electrical and mechanical systems.

Energy and Sustainability
We have embedded energy conservation and sustainability best practices into all Black & McDonald’s lines of business, where we apply those solutions to everyday operations, projects and our facilities of our customers

Nuclear Services
We currently partner with Ontario Power Generation (OPG) to engineer, procure and construct multi-trade construction projects. We provide the maintenance and facility management services for the refurbishment and management of operations at various nuclear facilities.

Engineering and Design
We draw on our in-house expertise to ensure all our engineering designs are practical and constructible. Our team of engineers, designers, GIS specialists, and field technicians provide commissioning and construction management solutions for diverse utility infrastructure and energy projects.

Fabrication and Modular Construction
We provide sole source and specialty metal solutions in every form of heating, ventilation, air conditioning, exhaust and environment challenge. Our team works with the design consultants to co-develop integrated models for both electrical and mechanical systems.

Senior management, assisted by interested parties, identifies, and analyzes the internal and external factors, whether positive or negative, relevant for the achievement of the objectives and that can influence the achievement of the expected results.

Subject	Internal Factors	External Factors	Competencies
Product or Service	Customer satisfaction, Quality expectations, Delivery within the terms Regulatory compliance	Supplier support, Customer changes, New service opportunities, Regulatory compliance	Management Workers Manufacturer/Supplier
Environment	Staff training	Client expectations, Regulatory compliance	Management Workers
Safety	Staff training, PPE and equipment	New regulations, Regulatory compliance	Management Workers Contractors Suppliers
Market	Customer needs, Service flexibility	New projects, Private vs public proposals	Management
Territory	Geographical knowledge and its development	Urban planning changes, Regulatory compliance	Management
Economy	Financial availability, Cost of labour and support resources	Quantity and quality of new proposals, Status of global/local economy	Management
Policy	Status awareness, Communication, Staff training	Government provisions, Regulatory compliance	Management
Human Resources	Employee expectations, Health and Safety, Qualifications and skills, Training	Union and Trade agreements, Regulatory requirements	Management Workers
Infrastructure	New and leading-edge technology, Technological support	Regulatory requirements	Management
Suppliers	Product validity, Delivery / turn-around, Product/service certification, Product/service costs	Contracts and agreements, Cost changes, New products/services, Supplier knowledge and support	Management
Customers	Specialty needs, Loyalty, Communication and reports, Product/Service knowledge,	Competitor presence	Management Workers
Subcontractors	Qualitative reliability	Market changes, Management contingencies	Management
Competitors	Continuous monitoring, Contacts and comparison	Surrounding presence New activities and services Best offers	Management

4.2 Understanding the needs and expectations of workers and other interested parties

Interested Parties	Needs	Expectations
Senior Management	Access to all information, Continual input of information from other interested parties, Annual questionnaires, audits, and reviews	Execution of product/services, Respect of contract/legislation, Communication, and involvement among all interested parties
Management	Decision making and purchasing power, Access to information, Continual input of information from other interested parties, Annual questionnaires, audits, and reviews	Execution of product/services, Respect of contract/legislation, Communication, and collaboration among all interested parties, Recognition of authority
Workers	Continuous training, Open and continuous communication, PPE/tools/equipment,	Information and instruction provided by management,
Contractors	Defined contracts and expectations	Adherence to local legislation and regulations, Respect of project timeframes, Fair and honest pricing, and invoicing practices
Suppliers	Detailed indications of the product requirements, defined contracts	Security on business solidity, flexibility on delivery times, communication
Customers	Quality standard satisfaction, respect on delivery times, post sales assistance, defined contracts	Assistance when requesting information, timely execution of project, Continual communication with other interested parties, Fair and honest pricing, and invoicing practices

4.3 Determining the scope of the HSE management system

Applicable Legislation

All regions of Black & McDonald must follow all legal acts, regulations and codes determined by the jurisdiction and the authority over that jurisdiction, and the nature and scope of work to be undertaken as listed below but not limited to:

- Technical Safety Standards Association (TSSA)
- Canadian Standards Association (CSA)/Technical Standards
- Canadian Electrical Code
- Canadian Environmental Protection Act (CEPA)
- Workplace Hazardous Materials Information System (WHMIS 2015)
- Globally Harmonized System (GHS)
- Occupational Safety and Health Administration (OSHA)
- Federal Motor Carrier Safety Administration (FMCSA)
- Mine Safety and Health Administration (MSHA)
- Transportation of Dangerous Goods (TDG)
- National Fire Code
- National Fire Protection Agency
- National Building Code
- American Society of Black & McDonald Engineers (ASME) Codes & Standards
- American National Standards Institute (ANSI)
- National Institute for Occupational Safety and Health (NIOSH)
- Canada Labour Code Part 2

Alberta Region

- WorkSafeAB
- Canadian Criminal Code Section 217.1 (Bill C45)
- Environmental Protection & Enhancement Act (EPEA)Municipal Affairs – Electrical Standards

Atlantic Region

Newfoundland & Labrador

- Occupational Health & Safety Branch
- WorkplaceNL

Nova Scotia

- Department of Labour and Advanced Education
- Occupational Health & Safety Division (OH&S)
- WCB Nova Scotia

Prince Edward Island

- Occupational Health & Safety Section of the Public Service Commission
- WCB PEI

New Brunswick

- WorkSafeNB

British Columbia Region

- WorkSafeBC
- Workers Compensation Act
- Hazardous Products Act
- Controlled Products Regulation (WHMIS)
- BC Safety Authority

Manitoba Region

- SafeWork Manitoba
- Workers Compensation Board of Manitoba (WCB)
- Safety Services Manitoba

Ontario Region

- Ministry of Labour, Immigration, Training and Skill Development
- Occupational Health and Safety Act
- Workplace Safety and Insurance Act
- Workplace Safety & Insurance Board (WSIB)
- Health & Safety Ontario

Power Generation Region

- Canadian Nuclear Safety Association (CNSA)
- Canadian Nuclear Safety Commission (CNSC)

Quebec Region

- CSST
- Act respecting Occupational Health and Safety (AOHS)
- Act respecting Industrial Accident and Occupational Diseases (AIAOD)
- Workers' Compensation Act (WCA)

Saskatchewan Region

- WorkSafe Saskatchewan
- Workers Compensation Board of Saskatchewan (WCB)

US Region

- Occupational Safety & Health Administration (OSHA)
- Federal Motor Carriers Safety Regulations
- Pipeline & Hazardous Materials Safety Administration
- National Electric Safety Code

Access to the applicable legislation/regulation(s) must be available on site.

To ensure compliance with all applicable legislation, the Black & McDonald HSE Management System and its application is reviewed internally at regular intervals and maintained through extensive collaboration across all Regions and operations. Additionally, our HSE Management System is evaluated against various third party/external audits to meet certain legislative criteria. (e.g., Regional COR Audits)

4.4 HSE Management System

Black & McDonald Health, Safety and Environment objectives will be met through the development and implementation of a comprehensive HSE Management System.
The HSE Management System approach in this document is founded on the concept of Plan, Do, Check, Act (PDCA).

The PDCA concept is an iterative process used to achieve continual improvement. It can be applied to the HSE Management System as a whole, or each of the individual elements.

Plan: Determine and assess HSE risks and opportunities, establish HSE objectives and processes necessary to deliver the results in accordance with the HSE policy.

Do: Implement the processes as planned.

Check: Monitor and measure activities and processes regarding the HSE goals, objectives and KRAs, and report the results.

Act: Take actions to continually improve the HSE performance and achieve intended outcomes.

5. LEADERSHIP

5.1 Leadership Commitment

Leadership, commitment, and active support from top management is critical for the success of the HSE Management System. Top management establishes the mission, vision, and values.
These concepts are implemented through:

1. Top management leadership, commitment, responsibilities, and accountability
2. Top management developing, leading, and promoting a culture in the organization that supports the intended outcomes of the HSE Management System
3. Communication
4. Consultation and participation of workers, and, where they exist, workers' representatives
5. Allocation of the necessary resources to maintain it.
6. HSE policies, which are compatible with the overall strategic objectives and directions of Black & McDonald
7. Effective process(es) for identifying hazards, controlling HSE risks and taking advantage of HSE opportunities.
8. Continual performance evaluation and monitoring of the HSE Management System to improve HSE performance.
9. Integration of the HSE Management System into the organization's business processes.
10. HSE objectives that align with the HSE policy and consider work hazards, HSE risks, and HSE opportunities
11. Compliance with its legal requirements and other requirements.

Site/Project specific requirements may dictate additional elements, as necessary

5.2 Corporate Health, Safety and Environment Policy

Black & McDonald and affiliates prioritize the protection of employees from injury or occupational ill health as a core value; and in doing so, is committed to providing every employee with a safe and healthy work environment. The Senior Management team is committed to maintaining the physical, psychological, and social well-being of its employees and all parties of the workplace.

Black & McDonald is committed to set and review OHS objectives and continual improvement efforts with an objective of a zero-incident workplace to be achieved through effective communication, supervision, education, training and resources.

In order to protect people, property, and the environment, Black & McDonald and its affiliates pledge that every precaution reasonable in all circumstances will be taken for the protection of all employees. This commitment is upheld through the application of our HSE Management System, which is in compliance with or exceeds legislative requirements.

The Black & McDonald HSE Management System will be reviewed annually to ensure senior management, supervisors, and employees display competency in their roles and responsibilities. Black & McDonald recognizes that a safe and healthy work environment is the right of every employee and can be established and sustained only through a united effort by all workplace parties, including consultation and cooperation with workers.

The prevention of incidents and the provision of safe and healthy working conditions is the responsibility of all senior management, supervisors and employees of Black & McDonald and its affiliates. Employees at every level are responsible and accountable to protect themselves, co-workers, others in the workplace, and support the Joint Health and Safety Committees in pursuing health and safety excellence. Black & McDonald and its affiliates are committed to providing proactive leadership and support to achieve this goal.

The implementation of this policy requires every Black & McDonald employee to be involved and supportive of the HSE Management System and hold the protection of the environment as a core value when carrying out everyday business activities.

J. Bruce McDonald
Co-President and Chief Executive Officer

Ian McDonald
Co-President and Executive Officer

NOBODY GETS HURT TODAY OR TOMORROW

5.3 Organizational Roles, Responsibilities and Authorities

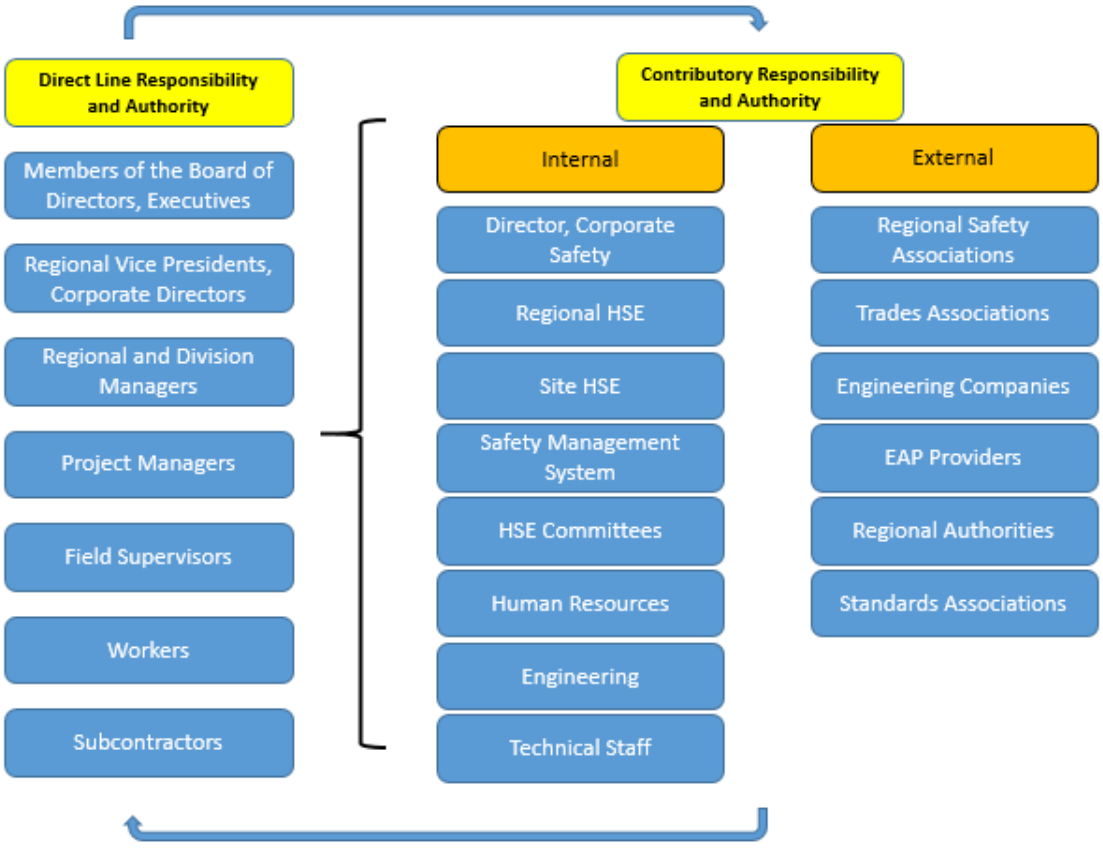
The IRS Model is a stand-alone concept and is the value system at the basis of health and safety legislation. The IRS model requires that every individual working for an organization has direct responsibility for health and safety as an essential part of their job. The model should be used to ensure that the HSE roles and responsibilities as assigned throughout the organization are addressed and distributed properly. The planning and implementation of a Project Safety Plan must incorporate the requirements of the IRS Model.

Many workplaces have inherent hazards and risks that require systematic and organizational management systems to achieve health, safety, and environment (HSE) goals. The IRS provides a structure with identified responsibilities and authorities to achieve these goals. Each day begins with every individual in the workplace accepting that they have the primary responsibility for their own safety.

The IRS has two components.

1. A structure and people with direct- line responsibility and authority; and
2. A structure, resource people and processes which have a contributory responsibility to the achievement of desired performance.

Both components allow for individual efforts to be maximized and integrated for measurably improved risk management.



The following table illustrates the two components and the relationships necessary to achieve HSE goals:

INTERNAL RESPONSIBILITY SYSTEM (IRS)	
Direct-Line Responsibility and Authority	**Contributory Responsibility (Resources Available to Line Personnel)**
Members of Board of Directors Executives Regional Vice Presidents, Corporate Directors Regional/Division Managers Project Managers Field Supervision Workers Sub-Contractors	**Internal** Corporate Director, HSE Regional HSE Manager Corporate Safety Site HSE Manager HSE Advisor HSE Committees Human Resources Engineering **External** Regional Safety Associations Trade Associations Unions Engineering Companies EFAP Providers Regional Authorities (Government) Standards Associations

DIRECT RESPONSIBILITY

1. Members of the Board of Directors

- Provide organizational direction that will ensure that safe and healthy work is carried out
- Set broad vision for health and safety performance.
- Ensure that the executives are capable of establishing and maintaining the IRS and the HSE Management System and are motivated to do so.
- Hold the executives accountable for their HSE performance.

2. Senior Management Team (SMT)

- Senior Management of Black & McDonald Limited set policy, provide strategic leadership perspective, set expectations, and provide the resources necessary for success.
- Promote an open and trusting environment and understand how their behaviour impacts others.
- Commitment is demonstrated through active and visible participation.
- Clear goals and objectives are established for the HSE Management System, and performance is evaluated against these goals and objectives.
- Be visibly committed to making the IRS work, and inspiring others to make it work
- Establish that the IRS is working by ensuring regular audits are being conducted, and receiving and acting on reports
- Be the role model and set the tone for the organization
- Be knowledgeable about the HSE performance of, and events in, the organization
- Ensure that programs and training and resources are in place to make the policy work
- Delegate authority and responsibility appropriately, particularly regarding HSE matters
- Hold people accountable for the authority and responsibility delegated to them
- Ensure that suitable management structures are in place
- Ensure that the workplace is suitably staffed, at all levels, to meet the HSE objectives
- Provide resources so that supervision and workers can carry out safe and healthy work
- Ensure that adequate and suitable planning and engineering is done to provide a safe and healthy workplace
- Take appropriate issues/concerns to the Board of Directors

3. Regional, Division, General & Area Manager

- Reporting to the Regional Vice President, this level of management will have the responsibility for the engineering, procurement, construction, pre-commissioning, and upon request – “start-up standby” for multiple projects/contracts.
- They will promote the philosophy that every incident is preventable by providing competent leadership of the HSE Management System.
- Prior to commencing and throughout the duration of any project the Manager(s) will be responsible and accountable for the following:
    - Creating a culture where HSE is integrated into the daily business with the equal weighting factors associated to scheduling, productivity, quality, and cost effectiveness through positive behaviour including: the provision of necessary physical and financial human resources, and time management support; incorporating the use of document control, record keeping and visibility, ensuring HSE active leadership approach; providing comprehensive written communication and clear expectations to the project team on a personal basis; and actively participating in recognizing both individual and group achievements;
    - Measure HSE accountability of all line management level competencies through personal monitoring of HSE performance and compliance with the HSE Management System

- Be visibly committed to making the IRS work, and inspiring others to make it work to ensure that safe and healthy work can be carried out
- Determine the resources necessary to achieve the HSE mission statement, and to communicate the requirements to the Senior Management Team
- Provide, use and manage the given resources to ensure a safe and healthy workplace
- Be knowledgeable about the health and safety performance of, and events in, the organization
- Ensure the workforce (workers and supervisors) is trained to safely complete the work
- Ensure the workforce (workers and supervisors) is informed about, and trained to deal with hazards in the workplace
- Ensure that the training is current, and that it is regularly reviewed and refreshed
- Ensure that the members of the workforce (both direct and contributive) understand their duties and responsibilities in making the IRS work properly
- Be aware of, follow and demand compliance with applicable legislation
- Use initiative in the improvement of all workplace processes, in order to reduce or eliminate risk
- Encourage supervisors and workers to report unresolved health and safety problems
- Respond appropriately to reports of health and safety problems, and to the JHSC recommendations
- Ensure that an effective mechanism is developed and implemented for auditing the operation of the IRS in the workplace (such as the JHSC), and act on the advice that comes forward from the audit
- Ensure that there is an effective mechanism for monitoring and modifying work practices and workplace conditions to reduce or eliminate the risks
- Ensure programs for the performance of safe and healthy work are developed and implemented
- Ensure programs and procedures are developed to ensure that workers can carry out safe and healthy work (same as above)
- Ensure that periodic audits of job procedures are conducted, to verify they are up-to-date and being used
- Delegate authority and responsibility appropriately, particularly about health and safety matters
- Hold people accountable for the authority and responsibility delegated to them
- Assign duties that match the authority, responsibility and accountability of the worker and supervisor
- Keep abreast of industry “best practices” and apply them where appropriate
- Analyze and act regarding serious incidents and other problems that affect the whole operation
- Take unresolved health and safety issues/concerns to management.

4. Project Manager

- The project manager will have the direct responsibility for the management of the scope of work and should be directly accountable to the Regional/Division manager with the following HSE expectations:
    - Demonstrate ownership, active leadership through positive behaviour, and participate in all aspects in accordance with the HSE Management System – inspections, observations, written communications, information sharing, tours, walkabouts, positive recognition and employee perception surveys.
    - Develop and submit a Project Safety Plan prior to commencement of work as required.
    - Communicate the HSE responsibilities to each direct report on a personal basis.
    - Measure HSE accountability of all reporting line management levels through personal monitoring of project HSE performance factors.
    - Participate in a collective line management hazard and risk assessment, including change management of the scope of work for the project which includes identifying all applicable legislation.

- Ensure Preventative Maintenance program is established and implemented for the equipment critical for safety during the duration of the project (Refer to 8.3 Preventative Maintenance).
- Ensure a contractor/subcontractor prequalification, selection, and management (HSE) process has been established and executed for the project.
- Ensure Alcohol and Drug Use Policy (04.06.03) is fully implemented, prior to the start of the project, as may be applicable.
- Ensure Pre-Job Hazard Assessments (PJHA) are conducted prior to the start of new work/at the beginning of the shift**.**
- Significantly contribute to the creation of a project culture where HSE is integrated into the daily business with the equal weighting factors associated to scheduling, productivity, quality and cost effectiveness.
- Promote open communication, cooperation and trust between all interested parties to optimize the project HSE objectives.
- Monitor and commend/correct compliance to established HSE Management System requirements of all levels of management, contractors, subcontractors and workers, review findings accordingly.
- Lead and/or participate in audits and investigations of major/unacceptable incidents and monitor the completion and communication of corrective actions.
- Actively promote Black & McDonald's HSE goals and objectives, where we believe that all incidents are preventable.

5. Field Level Supervision

- This level of supervision is responsible for controlling and directing "hands-on" workers. They are responsible to plan and organize the work within a safe and healthy working environment.
  - Become knowledgeable in the HSE Management System and individual responsibilities, as identified for the work to be performed. Communicate the responsibilities effectively to each direct report; and monitor performance.
  - Demonstrate ownership, active leadership through positive behaviour, and participate in all aspects of the HSE Management System – inspections, observations, written communications, information sharing, tours, walkabouts, positive recognition, and employee perception surveys.
  - Ensure that all workers are fit for work, trained and competent to perform their assigned tasks.
  - Ensure the proper equipment and materials are readily available to workers, and that pre-use inspections are performed
  - Participate in a collective line management hazard and risk assessment in the scope of work for the project.
  - Ensure Black & McDonald's Alcohol & Drug Use Policy (04.06.03) is fully implemented, prior to the start of the project, as may be applicable.
  - Participate in the pre-job planning and hazard risk assessment on all new or potentially hazardous work.
  - Ensure Pre-Job Hazard Assessments (PJHA) are conducted prior to the start of new work/at the beginning of the shift.
  - Ensure Pre-Job Hazard Assessments (PJHA) are updated, and communicated to workers if and when conditions change throughout the shift
  - Supervisor workers to ensure compliance to the project management system policies, programs, procedures, safe work practices, and rules.
  - Significantly contribute to the creation of a project culture where HSE is integrated into the daily business with equal weighting factors associated to scheduling, productivity, quality and cost-effectiveness.

  - Promote open communication, cooperation and trust between all interested parties to optimize the project HSE objectives.
  - Ensure that all the crew workers know and understand their specific HSE responsibilities and are held accountable for their behaviours.
  - Monitor and commend/correct compliance to established HSE Management System requirements of all levels of management, contractors, subcontractors and workers, review findings accordingly. Implement appropriate action plans.
  - Conduct investigations, HSE meetings, toolbox meetings, pre-job meetings as required, and prepare all required reports for submission, approvals, and record keeping.
  - Actively promote Black & McDonald's HSE goals and objectives, where we believe that all incidents are preventable.
  - Actively support the HSE personnel assigned to the project/workplace within their roles of advisor, monitor, resource, and auditor.
- Plan work assignments to enable workers to proceed safely.
- Ensure that workers receive appropriate training and direction to understand their direct authorities, duties and responsibilities in making the IRS work properly and achieving safe and healthy work.
- Ensure that the workers understand the scope of their authority for health and safety, and for taking initiatives to reduce risk in the workplace.
- Ensure that the workers have received the appropriate training to carry out safe and healthy work, and that the training has been 'refreshed' as appropriate.
- Act as a facilitator for the workers.
- Encourage workers to report health and safety opportunities.
- Respond quickly and appropriately to worker concerns and cooperate in their correction or if beyond the authority or ability of the supervisor, take the matter to a higher level.
- Use the initiative in the improvement of all workplace processes to reduce or eliminate risk
- Be aware of applicable legislation and company procedures
- Ensure that workers are Fit for Duty.
- Set an example by being consistently safety aware and insisting on the safe performance of work.
- Supervise, advise and coach the workers, as required.
- Use appropriate methods to convey safety and health information and the "safe work" message (safety talks, tailgate meetings, safety demonstrations etc.).
- Observe the actual work-in-progress and provide positive input to the workers.
- Ensure that the workers are aware of potential hazards, and have dealt with, or are dealing with the actual hazards in the workplace.
- Manage the available resources.
- Consult with workers in work planning, decision-making and problem-solving.
- Advise workers of known unsafe conditions or work practices.
- If hazards cannot be dealt with due to lack of authority or resources, then protect the area and ask senior supervision for advice or additional resources.
- Follow-up on unresolved issues to senior supervision; and
- Ensure there is a non-threatening environment when exercising rights pursuant to the IRS.
- Oversee and manage on-site subcontractors

6. Worker

- Workers are responsible and accountable to maintain a safe and healthy working environment to minimize the occurrence of workplace incidents by participating in Black & McDonald's HSE Management System, including but not limited to:
    - Be familiar with and comply with proper HSE policy, programs, and safe work procedures.
    - Use the required HSE devices and proper personal protective equipment, applicable to the potential hazards and implement controls to manage risk.
    - Notify their supervisor immediately of unsafe acts/conditions.
    - Report all incidents immediately to their supervisor.
    - Carry out work in a manner that will sustain a safe working environment for people, equipment, material and the environment.
    - Actively engage in suggesting ways and means to reduce risk/potential losses (Hazard ID's, Safety Opportunities).
    - Participate in a PJHA prior to initiating each job/task.
    - Consistently be aware of how off-the-job activities and lifestyle may impact job performance and personal contributions.

7. Subcontractors

- Are responsible and accountable to maintain a safe and healthy working environment to minimize the occurrence of workplace incidents by participating in Black & McDonald's HSE Management System, including but not limited to:
    - Be familiar with and comply with proper HSE policy, programs, and safe work procedures.
    - Use the required HSE devices and proper personal protective equipment, applicable to the potential hazards and implement controls to manage risk.
    - Notify their supervisor and/or B&M Contact immediately of unsafe acts/conditions.
    - Report all incidents immediately to their supervisor and/or B&M Contact.
    - Carry out work in a manner that will sustain a safe working environment for people, equipment, material and the environment.
    - Actively engage in suggesting ways and means to reduce risk/potential losses (Hazard ID's, Safety Opportunities).
    - Participate in a hazard assessment process or B&M's PJHA prior to initiating each job/task.
- Be aware of how off-the-job activities and lifestyle may impact job performance (Fit for Duty)
- Actively support and participate in B&M's site-specific orientation process
- Actively support and participate in B&M's prequalification process

CONTRIBUTIVE RESPONSIBILITY

1. **HSE Committees**
   - Participate in formal/informal inspections/task observations of the workplace.
   - Review HSE documented reports, inspections and make recommendations.
   - Assist in incident investigations/recommendations.
   - Attend HSE meetings as required.
   - Review and actively contribute to the positive implementation of the HSE Management System.
   - Committees shall operate within applicable subsections of this manual.

2. **Corporate Director, HSE**
   - Provide strategic direction to meet corporate, operational, customer policies, practices, goals and regulatory requirements.
     - Provide active leadership to the SMT HSE Advisory Committee.
     - Chair and provide strategic direction to the Corporate Safety Committee (CSC).
     - Provide HSE leadership, guidance and support to HSE Managers.
     - Lead/assist in developing the HSE Management system, policies, programs and solutions that create the required safe and sustainable culture.
     - Provide active leadership to the Critical Injury Management and Communication Process.

3. **HSE Manager – (Regional)**
   - Responsible to oversee all workplaces in their jurisdiction to ensure compliance with the company, client, and government policies, procedures, acts and regulations. The HSE Manager will ensure proper application and use of Black & McDonald's HSE Management System. This position will demonstrate leadership to drive safety as a core value.
   - Accountable to the Regional Vice President for providing professional HSE expertise toward the integration of an effective HSE Management System.
   - Accountable to promote a management culture that recognizes the interdependence of environment, health, safety, quality and production integrates loss control considerations into every facet of the business.
   - Provide active leadership, direction and guidance to the HSE department, and Black & McDonald management within the development, implementation and continuous improvement of loss control systems and processes.
   - Effective implementation of the hazard/risk assessment process to ensure the correct level of control is being applied to the risk factors.
   - Assist management in leading and coaching the workforce through safety and loss control techniques.
   - Ensure incidents are recognized, investigated, analyzed and reported in a timely/valued manner.
   - Provide measures of loss and risk management improvement through incident-trend analysis, benchmarking and predictable forecasting of performance, relative to the annual business goals.
   - Maintain current knowledge of legislative changes, and industry trends and practices regarding HSE.
   - Responsible for the staff selection, training, development and performance of HSE personnel.

4. **HSE Manager – (Site)**
   - Provide the Project Manager and Site Supervision with the services and technical advice needed for proper administration of the HSE program.

- Effective implementation of the hazard/risk assessment process to ensure the correct level of control is being applied to the risk factors.
- Prepare and distribute HSE statistical reports as required.
- Maintain project incident reporting and data collection system, coordinate investigations and ensure that corrective action(s) are completed expediently.
- Assist with the implementation of the Return-to-Work process.
- Subcontractor oversight – participate in subcontractor kick-off meetings. Include subcontractors in regular HSE inspections/audits and routinely monitor for compliance with HSE Management System.
- Conduct site tours and inspections to observe conditions and work practices.
- Coordinate continuing HSE education, programs, and courses for appropriate personnel; this includes training to support the educational matrix.
- Conduct, at minimum, 2 site inspections per month.

5. HSE Advisor/HSE Coordinator

- Responsible to evaluate, monitor HSE hazards and the control of risks in the workplace. They are responsible to oversee an assigned workplace(s) to ensure compliance with company, client, and government policies, procedures, acts and regulations. The HSE Advisor will ensure proper application and use of Black & McDonald's HSE Management System
    - Responsible for the day-to-day administration of the HSE Management System.
    - Assist line-management in incident prevention, investigation, analysis, and preparation of reports and summaries.
    - Post and maintain HSE bulletins, posters, rules and regulations.
    - Conduct and maintain HSE files, reports, and site inspections.
    - Ensure site/Black & McDonald orientations and awareness training are conducted for all staff/workers.
    - Assist in the development of effective corrective actions, where a deficiency has been identified, either through an incident investigation or site inspection/audit.
    - Act as a liaison between project-line management and the HSE department.

6. SMT HSE Advisory Committee

- Senior Management Team committee dedicated to ensuring HSE excellence
- Provide strategic direction to the HSE Management System initiatives in areas such as Corporate Policies, Programs and Practices, and client and other stakeholder requirements.
- Provide strategic guidance to the CSC.
- Provide strategic guidance to Corporate Goals and Objectives regarding performance of the HSE Management System.

7. CSC – Corporate Safety Committee

- Reporting to the chair (Corporate Director, HSE) they are responsible for the continuous improvement of the HSE Management System
    - Identification and Development of HSE Management System requirements.
    - Identification and development of programs and practices.
    - Development and communication of Corporate HSE statistics, and Corporate HSE awards programs.
    - Comprised of Regional HSE Managers, Corporate Director, HSE, and technical resources.

8. Joint Health and Safety Committee, or Health and Safety Representative

- Carry out the committee's or representative's mandate under the Occupational Health and Safety Act to advocate and implement a cooperative, problem-solving approach to continual improvement of the IRS in the workplace
    - Monitor the functioning of the IRS and make recommendations for its improvement.
    - On a monthly basis, inspect the workplace for the purpose of ensuring that risks are continually being reduced, and find problems and assess their risks before incidents, injuries and other losses occur.
    - Participate in the investigation of serious incidents and other events with a view to identifying and recommending elimination of fundamental causes of losses.
    - Assist in the development of safe and healthy working procedures
    - Monitor the elements of the HSE Management System (policies and programs) and to suggest ways of improving them.
    - Contribute to the health and safety assessment of new facilities, equipment, material and processes; and,
    - When recommendations are made to change work procedures, monitor that the changes are made and maintained.

9. Health and Safety Staff

- To be a health and safety resource for all workplace parties; and
- Advocate for a well-functioning IRS.
- Monitor the functioning of the IRS and make recommendations for its improvement.
- Educate all levels of the organization about IRS, and actively promote it.
- Audit, or arrange for the audit of, elements of the health and safety system, and suggest ways of improving them.
- Regularly inspect the operation with the Act, regulations and company procedures.
- Review the management functions from a health and safety standpoint and report their findings to senior management.
- Report to management on the safety and health status of operations.
- Advise workers, supervisors and managers on technical safety and health matters.
- Advise the JHSC on technical safety and health matters.
- Advise trainers on the safety and health content of training courses; and
- Liaise with other operations, other jurisdictions, and appropriate government agencies to obtain up-to-date information on safety and health issues for the operation and the JHSC.

5.4 Consultation and Participation of Workers

Black & McDonald shall establish, implement and maintain processes for consultation and participation of workers at all applicable levels and functions, and where they exist, workers' representatives in the development, planning, implementation, performance evaluation and actions for improvement of the HSE Management System.

The inclusion of workers consists of, but is not limited to:

- The development of Joint Health and Safety Committees, where applicable
- The appointment of Workers' Representatives, where applicable
- The participation in Pre-Job Hazard Assessments
- The participation in submitting Hazard Identifications, Safety Opportunities, Near Misses, and Good Catches
- The participation in site/workplace inspections
- Open and ongoing communication as it pertains to the HSE Management System

6. PLANNING

6.1 Actions to Address Risks and Opportunities

The identification of hazards, how they are communicated, and the analysis and mitigation of known hazards is required to ensure desired results. While planning, considerations need to be made regarding the context of the organization, and the needs and expectations of interested parties and the scope of the program. Risks and opportunities must be considered with respect to these elements as well as all legal and regulatory issues and the hazards and risks themselves.

Planning for actions to address risks and opportunities is an ongoing process and is undertaken to:

- Determine the risks that can affect HSE performance of the organization.
- Manage the risks that have been identified.
- Identify opportunities to improve HSE performance and the HSE Management System

6.1.1 Hazard Identification, Elimination, Risk Assessment and Control Process

Black & McDonald will establish and maintain an ongoing process to identify and eliminate, where possible, occupational health, safety and environment hazards, assess risks, and implement necessary measures to control these hazards and risks (HIERAC).

Occupational health, safety and environment hazards and risks, by definition, affect people. The identification and assessment process must, therefore, necessarily concentrate on jobs and tasks performed by employees, contractors, and other parties affected by the hazards. Because people are involved, individual behavior becomes a significant factor in both the likelihood of an incident happening and its consequences.

The HIERAC process leads to the identification and prioritization of objectives and targets, assignment of responsibilities, definition of training needs, and development of operational controls. The process also forms the basis for determining key metrics to measure the overall success of HSE Management System implementation.

The outcomes of this process are to be documented in Project Safety Plans and Pre-Job Hazard Assessments.

Project Safety Plans

Project Safety Plans shall be completed for all jobs $50,000 and greater or on projects/jobs of any size with critical hazards/risks (ex: working at heights, confined space). The Project Safety Plan is to be developed by the project manager and/or site supervisor, or designate, and must be submitted to the HSE manager/advisor prior to the commencement of the project/job. All workers, including subcontractors are required to provide input, review, and sign off on the Project Safety Plan.

The person responsible for overseeing the project/job shall ensure the Project Safety Plan is implemented and kept current. Each change must be evaluated to determine if it introduces a new hazard, risk, or if an existing risk control needs to be modified.

Project Safety Plan – Table of Contents

- Corporate Occupational HSE Policy
- Introduction
- Our HSE Management System
- Objectives
- Project Safety Plan Objectives
- Internal Responsibility System (IRS)
- Responsibilities
- Supplier/Consultants
- Subcontractors
- Scope of Work
- HSE Management System / Program
- Emergency Contact Information
- Safety Education, Training & Orientation
- Hazard Identification Elimination, Risk Assessment & Control
- Hazard Assessment & Controls Checklist
- Hazardous/Designated Substances Identified
- Personal Protective Equipment (PPE)
- Hazard Assessment
- Environmental Hazard Assessment
- Violence Risk Assessment Form
- Employee/Subcontractor Acknowledgement

Workers have a responsibility to make the supervisor aware of all hazards that are not identified in a Project Safety Plan. Additionally, the person responsible for overseeing the project/job is responsible to keep an up-to-date copy of the Project Safety Plan on site throughout the duration of the work.

Critical Hazards

Critical hazards are any hazard with residual risk that is identified as “high risk” during the secondary risk assessment, after all controls have been considered.

These hazards include, but are not limited to:

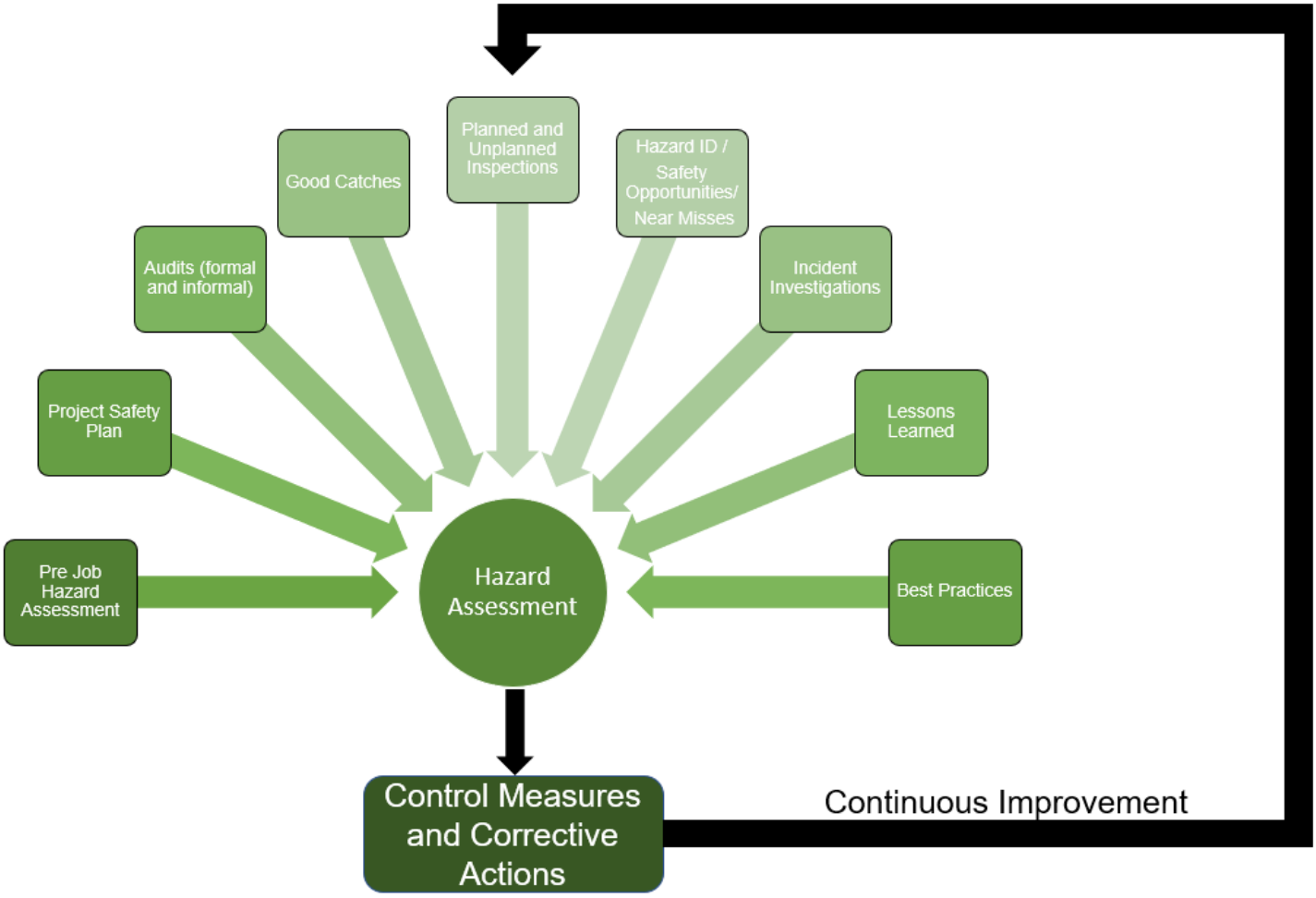
- Working at Heights
- Confined Space work
- Live-Electrical Work
- Crane Operations
- Ground Disturbance

Pre Job Hazard Assessments

Pre Job Hazard Assessments are required prior to beginning any task. These assessments are used as a tool to ensure all known and potential hazards are identified, assessed, and controlled at the site level. It requires re-assessment when the task, the environment, or crew changes.

With the assistance of workers, supervisors are required to complete the PJHA and ensure the contents are communicated across the site, including communication to any visitors or subcontractors. On-going hazard communication is required to ensure the PJHA is accurate and up to date.

HIERAC Process Chart



All controlled versions of documents for Hazard Assessments can be obtained from theWire

6.1.2 Implementation of HIEARC

PURPOSE

Designed to complement the zero-harm initiative by ensuring that Black & McDonald maintains a current, accurate evaluation of its HSE hazards and risks associated with its operations at the planning stage, throughout the lifecycle, and in advance of important changes planned.

SCOPE

The HIERAC specifies requirements for the identification of HSE hazards, their elimination where practical, assessment and control of risks associated with the remaining hazards. Applicable to all divisions and all jurisdictions where Black & McDonald operates. This standard shall be applied at all stages in the lifecycle of a job/project, process, or service.

RESPONSIBILITIES

Corporate Director, HSE

- Responsible for ensuring that each operational activity of Black & McDonald has a current assessment of HSE hazards and risks associated with its operations, equipment, and geographical location; and that all significant risks have been adequately addressed. A key record to indicate that this has been done is a completed Project Safety Plan.

Project Supervisor, Foreman or Superintendent

- (Appropriate for the size of the project) responsible to develop the Project Safety Plan and must submit it to the appropriate Regional HSE Manager prior to the commencement of the project/job.

Site Supervisor or delegate

- Responsible to develop, document and communicate the Pre-Job Hazard Assessment prior to work commencing.

Project Manager or delegate is responsible for, but not limited to:

- Implementing the Plan in a timely manner; based on the project value, client requirements & critical tasks involved in the scope of work the HSE Manager will determine which planning template will be most suitable for the project:
- The Plan being kept current as a valuable tool to manage the inevitable changes that occur during a project/job. Assistance with this requirement shall include workers, joint health and safety committees and Regional HSE or designated HSE personnel.
- Keep a copy of the Project Safety Plan on site throughout the duration of the job.
- Train all workers in the risk controls involved in their job or task, any additional safety precautions, and in the procedures that the worker is to follow.

HSE personnel, as Advisors:

- Implementing the PSP and PJHA in a timely manner.
- Assistance with keeping PSP and PJHA up to date.
- Ensure an up-to-date copy of the PSP and PJHA is on site throughout the duration of the job.
- Train all workers in the risk controls involved in their job or task, any additional safety precautions, and in the procedures that the worker is to follow.

Workers

- Being aware of and understanding the hazards and risks in their work.
- Understanding and following the procedures associated with their job, or assigned tasks, including procedures for controlling the associated risks.
- Informing the supervisor of all hazards that are not identified in the PSP or PJHA.
- Wearing and/or using correctly the appropriate PPE for the job or task.
- Complying with applicable legislation.

6.1.3 HIERAC Framework

The hazard identification, elimination, assessment, and control process will be documented on the HIERAC Worksheet and maintained for future reference.

HIERAC processes can found in the Project Safety Plans, Pre-Job Hazard Assessments, Site Inspection Reports

Data

Hazard identification shall consider both historical and current data. Historical data is of great value throughout the HIERAC process as it is necessary for the results of the process to reflect experience with the same or similar activity. If the process fails to identify a hazard that has resulted in injury in the past, the process is suspect. Review of past incidents will help to ensure that the current HIERAC results are realistic. Such a review will also help to identify hazards that may not be obvious at first analysis, and thus more accurately estimate the degree of risk presented by a particular hazard.

Historical data sources could include but not be limited to:

- Past hazard identification studies done internally, and/or by external sources. External examples might have been ergonomics, or industrial hygiene studies done at a site, which might be used to understand the likelihood of risk for a similar operation at another site.
- Historical experience including insurance claims history, common experience in our industry, and our own analysis of past incidents including near miss and injuries. It could also include the results of any inspections or audit programs that might indicate the current effectiveness of any existing control programs.
- Guidance documents such as policies, programs, Standard Operating Procedures (SOPs), and training expectations.

Current data needed could include, but not be limited to:

- Description of the physical facility including reasonably foreseeable hazards, hazardous situations, and hazardous events, and the potential harm to workers and the environment.
- Description of external facilities and infrastructure with potential hazards and risks.
- Description of the activities that occur within each portion of the site, and during all relevant phases of the lifecycle of the product, process, or service including the different parts, and functions of the product, process, or service, and the materials to be processed, if any.
- Health, safety and environment hazards presented by the facility and activities.
- Interested parties (those potentially affected by job hazards).
- Number of people affected by each activity or who work in each area of the facility.

- Cognitive demands and psychosocial aspects that could contribute to the presence of hazards or hazardous situations.
- Number and type of contractors on site.

Note: *Monitoring of work environment and worker health as per scheduled periodic hazard reviews, hazard reviews in response to incidents, non-conformances and corrective and preventive actions, hazard reviews in conjunction with management of change, and Hazard reviews performed as part of HSE management programs to achieve objectives will contribute to hazard identification. Use the HIERAC Worksheet.*

Identification of Hazard Sources
Each identified source shall be analyzed, based on available data, to determine how it can potentially harm a worker, do damage to equipment, machinery, property, or the environment. The analysis shall include:

- The characteristics of the source.
- Conditions under which the source can cause harm, including the:
  a. amount (i.e., concentration, intensity, or force) of the source that can cause harm through a particular means.
  b. means by which the source can cause harm (e.g., inhalation, ingestion, absorption, injection, or transference of energy), and
  c. frequency and/or duration of exposure of a worker to the source at the amount and through a particular means at which the source can cause harm.
- Interaction of the worker with the source, and
- Potential severity of harm presented by the hazard.

The results of such an analysis will be documented on the HIERAC Worksheet and maintained for future reference.

Sources of hazards and hazardous situations shall be identified. Sources can include, but are not limited to, the following:

- Objects (e.g., tools, equipment, machinery, work surfaces, and materials).
- Chemicals.
- Biological agents.
- Physical agents (e.g., sources of energy).
- Animals, Wildlife, Plant life.
- Cognitive demands and psychosocial aspects that could contribute to the presence of hazards or hazardous situations.
- Ergonomics
- Severe weather and seasonal variations in weather, and
- External to the site from neighboring activities and infrastructure.

1. Estimate the Potential Consequence & Severity (Table 1.3.1)

While the estimates of severity will be subjective, it is essential that the process is easy to perform and that there is consistency over time and between different evaluators. One way to accomplish these goals is to establish standard categories to rate the seriousness of specific types of injuries, illnesses, and damage to property or environment. Table 1.3.1 establishes categories of consequence severity.

TABLE 1.3.1:

Consequence & Severity

Risk Area	Minor (1)	Moderate (2)	Serious (3)	Major (4)	Catastrophic (5)
Health & Safety	**Report Only/Near Miss**	**First Aid**	**Medical Aid/Modified Duty**	**Lost Time**	**Critical Injury/Incident, Fatality**
Environmental	**Negligible** unlikely to cause adverse effects	**Minor** some adverse effects limited to local community or environment and may occur on public or private property	**Localized** moderate adverse effects to local community or environment and/or extreme adverse effects to B&M owned property	**Major** adverse impacts to the local community or environment and some adverse effects beyond local community	**Critical** long-term adverse impacts to the environment and beyond local community
Property	**<$5k**	**>$5k**	**<$10k**	**>$10k**	**>$100k**
Reputation	**No public relations impact**	**Minor incident** concerns arise with stakeholders	**Moderate incident** minor loss of confidence with public/customers	**Serious incident** negative regional media coverage	**Very serious incident** negative national media coverage

2. Estimate the Likelihood of Occurrence (Table 1.3.2)

Estimates of likelihood can be, for most situations, subjective and qualitative. As in the estimation of severity of consequences, consistency of likelihood estimates is important. All the teams conducting hazard analysis should have a consistent understanding of the rationale for assigning a likelihood to an occurrence of a given incident or injury. Thus, the following standard categories should be used:

- Highly Unlikely (1)
- Unlikely (2)
- Possible (3)
- Likely (4)
- Almost Certain (5)

Exposure Estimate
Estimating exposure involves calculating the number of times the specific step or task is typically performed. This number reflects a combination of both the number of people carrying out the task and how often each one performs it. For many tasks this will be an estimate, since the actual number will vary from day-to-day on a project. Exposure estimates like those for likelihood can be both subjective and qualitative such as; a few persons a few times, a few persons frequently, or many persons frequently.

Total Likelihood Estimate
The total likelihood of a specific incident, injury, or illness occurring is a combination of our estimate of occurrence in any one instance and our estimate of total exposure. **Table 1.3.2** combines these estimates into an overall likelihood estimate for the occurrence of an incident, injury, or illness.

TABLE 1.3.2

Risk Rating Table: Combining Single Probability and Exposure Estimates to Arrive at Total Probability (Likelihood) Estimates

Probability of Single Instance	Exposure (How often the task is performed)		
	A Few Persons Infrequently	A Few Persons Frequently	Many Persons Frequently
Highly Unlikely	1	1	2
Unlikely	1	2	3
Possible	2	3	4
Likely	3	4	5
Almost Certain	4	5	5

3. Classify Risk as per the Risk Matrix (Table 1.3.3)
This process will help to ensure that our resources are directed to the control of those hazards that truly present the greatest risk of injury, or harm to people, property and the environment.

Table 1.3.3 presents the Risk Rating Table to be used to conduct the final phase of risk assessment and the identification of priorities for risk control allocation of resources. The intent of this step is to provide a score based on two criteria:

When using this Risk Rating Table (1.3.3) the requirement is to first clearly identify the credible consequence(s) that could occur because of the hazard, and then determine the likelihood of the identified situation occurring.

The intersection of the consequence and likelihood identifies the risk rating number. The higher the number, the higher the degree of risk for the occurrence of major harm to people, property, and/or the environment.

The analysis would first address Project-Wide situations, Area-Specific situations, and then Job/Task specific requirements.

Table 1.3.3

Levels of Risk for Various Incident Probabilities & Severities

		Potential Consequences/Impacts of Occurrence				
Risk Area		**Minor (1)**	**Moderate (2)**	**Serious (3)**	**Major (4)**	**Catastrophic (5)**
Health & Safety		**Report Only/Near Miss**	**First Aid**	**Medical Aid/Modified Duty**	**Lost Time**	**Critical Injury/Incident, Fatality**
Environmental		**Negligible** unlikely to cause adverse effects	**Minor** some adverse effects limited to local community or environment and may occur on public or private property	**Localized** moderate adverse effects to local community or environment and/or extreme adverse effects to B&M owned property	**Major** adverse impacts to the local community or environment and some adverse effects beyond local community	**Critical** long-term adverse impacts to the environment and beyond local community
Property		**<$5k**	**>$5k**	**<$10k**	**>$10k**	**>$100k**
Reputation		**No public relations impact**	**Minor incident** concerns arise with stakeholders	**Moderate incident** minor loss of confidence with public/customers	**Serious incident** negative regional media coverage	**Very serious incident** negative national media coverage
Total Probability of Occurrence	**Highly Unlikely (1)**	**1**	**2**	**3**	**4**	**5**
	Unlikely (2)	**2**	**4**	**6**	**8**	**10**
	Possible (3)	**3**	**6**	**9**	**12**	**15**
	Likely (4)	**4**	**8**	**12**	**16**	**20**
	Almost Certain (5)	**5**	**10**	**15**	**20**	**25**

- **Low Risk (1-5) (Blue)**

  Task can commence/continue with appropriate controls and a continuous improvement plan. A mitigation plan (i.e., safe work procedure) is only required for the second risk ranking after controls are put in place and the hazard still exists.

- **Moderate Risk (6-15) (Green and Yellow)**

  Task commences/continues with controls in place and/ or program to reduce the hazard.

- **High Risk– (16-25) (Orange and Red)**

  Task does not commence/continue until a written mitigation plan has been developed and approved by the Project/Operations/Division Manager and/or their designate.

6.2 HSE Objectives and Planning to Achieve Them

6.2.1 HSE objectives

Black & McDonald believes that excellence in Health Safety & Environment is a philosophy inherent in all aspects of our operations. We recognize our most important assets are our people and that safety excellence, production, quality, and cost-effectiveness can be achieved through the daily integration of our HSE Management Systems and processes.

At Black & McDonald, through robust leadership, the health and safety of people and the protection of our environment are fundamental values we observe when carrying out our business activities. We have been the recipient of numerous awards of excellence; yet we strive for continuous performance improvement and support a culture that believes that every incident is preventable and that a goal of zero incidents is achievable.

Many of our operation's present potential risks to people and environment, and we believe the most effective way to meet our commitment is through a capable, committed workforce, and practices designed to enable safe and environmentally responsible operations. We accomplish this through an HSE Management System that has clearly defined policies and practices and is rigorously applied to deliver our desired results.

HSE Management System Objectives:

- Implement consistent HSE Management measures to provide a safe workplace to the people, equipment, materials and the environment.
- Encourage a questioning attitude and continuous improvement approach to safety issues.
- Support the development of our workers through orientation, training, coaching, task instruction and equipment awareness, job/task analysis, toolbox talks and job-analysis risk reviews.
- Establish effective planning to identify hazards and effectively mitigate risk.
- Reinforce our belief that all safety, health and environmental incidents are preventable.
- Promote and maintain a work environment in which each of us accepts personal responsibility for our own safety and that of our colleagues, and in which everyone actively participates to ensure the safety and wellness of others.

We believe these measures will help drive Black & McDonald closer to our vision of a workplace where "Nobody Gets Hurt Today or Tomorrow". Black & McDonald's depth of experience has made us the partner-of-choice across a wide range of industries. Our management team is committed to putting our people first in meeting our customer's challenges, in the most critical environments.

6.2.2 Planning to achieve HSE objectives

To achieve the intended outcomes, Black & McDonald has implemented the following corporate objectives and KRAs:

Fulfill Strategic Plan Annually:

- HSE Management System
- Implementation of HSE Programs
  - Fully implement HSE Training Initiatives
  - One Company/One Process (Programs)
  - External (COR, Client) & Internal (Regional Audit) Evaluation
  - Corporate Safety Committee and Senior Management Team HSE Committee Meetings
  - All regions will develop a continuous improvement development plan and meet quarterly to review.

Regions, Divisions are measured on the metrics below on an annual basis

1.) # of Lost Time Injuries
2.) Total Recordable Incident Rate
3.) Total Incident Rate
4.) Audit Score
5.) # of Environmental Reportable Incidents
6.) Site Inspections/Observations
   - VP/SVP = 2 task observations / month
   - RM/DM/GM/AM = 2 task observations / month
   - PM = 4 site visits / month; 1 must be Task Observation, 1 must be Site Inspection
   - Field Supervision = 4 site inspections / month
   - HSE Manager = 2 site inspections / month

7.) Leading/Lagging Indicator Ratios

7. SUPPORT

7.1 Resources

Resources can take many forms to effectively establish, implement, maintain, and continually improve the HSE Management System. These resource formats include, but are not limited to, infrastructure (buildings, offices, and equipment), financial, technological, natural, human, communications, and raw materials.

7.2 Competency

Competency requirements for workers that affect or could affect the HSE performance is established within regional training matrices to ensure job position and local legislation requirements are met.

7.2.1 Training

Black & McDonald as an organization will employ competent people in all aspects of its operations. Education and training are valuable risk management tools contributing to this requirement for competence. We will, as a minimum, be in compliance with legislative requirements for competency, and additionally, will conform to the Black & McDonald standards for education and training as described in this HSE manual.

7.2.2 Competent Trainers

Black & McDonald will utilize competent trainers whether they are internal trainers, or contract trainers from external sources.

A trainer must:

- Be highly skilled in the area of expertise he/she will be instructing.
- Be certified and accredited in their area of specialty, if such recognition is available and recognized by Black & McDonald.
- Be trained in the application of the Occupational Health and Safety Act and relevant regulations or any other appropriate Acts, Regulations, Codes as appropriate to the jurisdiction and nature of the training being conducted.
- Made aware of Black & McDonald policies, programs and procedures.
- Have completed a Train-the-Trainer (TTT) program and demonstrate competency in preparing lesson plans and delivering the material to satisfy the learning objectives of the training being delivered.

Train-the–Trainer Program Requirements
A TTT program must as a minimum cover the following areas:

- ***Adult Learning*** – Adult learning principles; characteristics of adult learners; acknowledging cultural differences; dealing with uneven educational backgrounds/experience of participants; and participant involvement.

- ***Designing training*** – Determining learning objectives by carrying out a needs analysis; developing detailed session/lesson plans, taking into consideration the use of government legislation, company standards, other applicable standards and manufacturer specifications; and ensuring the program designed meets the needs identified.

- ***Presentation Skills*** – Use of instructional and audio-visual aids; applying effective communications skills with individuals and groups; practicing active listening; awareness of positive body language; methods for conducting 'hands-on' field training.

- ***Facilitation Skills*** – Generating group participation; maintaining control of a classroom; dealing with participant reactions and behavior; evaluating self and group as training progresses; and addressing housekeeping/administrative issues.

- ***"Putting it All Together'*** – Demonstration of delivery of training material by applying presentation, facilitation and communication skills.

- ***Evaluation Techniques*** – Providing feedback; conducting demonstration of skills tests; testing and auditing.

7.2.3 Competency Curriculum

Current education and training topics include:

Prerequisites – such as (but not limited to):

- Trades qualifications
- Appropriate certificates
- New equipment, machinery, tools etc. training
- New Worker orientation
- Field Project orientation

Legislative Requirements - such as (but not limited to):

- First Aid
- CPR
- WHMIS 2015
- Hazard Communication
- Working at Heights
- H&S Committee members
- Worker Safety Reps.
- Anti-Harassment, Workplace Violence & Discrimination
- OH&S Act & Regulations

Specialty Training – such as (but not limited to):

- Supervisor Training (Basics of Supervising, Practical Loss Control Leadership)
- Planned Job Observations
- Working in Confined Spaces
- Transportation of Dangerous Goods (TDG)
- Defensive Driving
- Electrical Safety
- Energized Systems
- Pre-Job Hazard Assessment (PJHA)
- Emergency Preparedness
- Pre-Job Safety Meetings

7.2.4 Training/Competency Matrix

Black & McDonald requires competent people at all levels. The following is a sample matrix used within the Black & McDonald organization to address this requirement for competency. It should be continually modified in accordance with jurisdictional and project requirements.

The required steps are:

1) Create Competency Curriculum
2) Implement Training
3) Record Successful Training Completion
4) Ensure Training is Current/Up to Date

HSE Manager/Advisor will create a Training Matrix specific to their Region's scope & needs

SAMPLE

Black & McDonald

Job Title	Orientation	WHMIS	Basic Survival Training	First Aid	Fall Protection	Journeyman Certification	H2S Awareness Training	Confined Space Awareness	Respirator Fit and Use Training	SCABA	Air Brakes	Alcohol and Drug Awareness	Band Saw Orientation	Basic Fire Awareness	Bucket Truck Operator	Bucket Truck Self-Evacuation	Cat 5& Fibre Cable Installation	Construction Safety Supervisor	Forklift Operator	Hazard Id. Training	HIA Red Security Pass	IMSA I	IMSA II	IMSA III	Incident Investigation	Leadership Safety Excellence	Medical	Mobile Crane Hoisting	Overhead Crane Operator	Oxygen Acetylene Handling	Powerline Safety Course	Public Speaking Training	Rigging and Lifting Basics	Scissor Lift Operator	Supervisor Guide & Docs	Supervisor Safety Training	Temporary Workplace Signing	Traffic Control Person	Transport of Dangerous Goods	We Care Training	Basics of Supervising
Bucket Truck Operator	X	X		X	X									X	X	X													X				X		X	X			X		
Electrical Apprentice	X	X		X																																					
Electrical Journeyman	X	X		X		X																																			
Electrical Superintendant	X	X		X	X	X		X	X			X		X					X					X	X						X			X	X			X	X	
Electrical Supervisor	X	X		X		X													X															X	X				X	
Groundman	X	X		X	X					X				X	X														X		X									
HVAC Apprentice	X	X		X	X																																			
HVAC Journeyman	X	X		X	X	X																						X				X	X			X			
HVAC Supervisor	X	X		X	X	X		X	X			X		X										X				X		X		X	X			X	X		
Instrument Journeyman	X	X		X		X																																		
Ironworker Apprentice	X	X		X																																				
Ironworker Journeyman	X	X		X	X	X																																		
Ironworker Supervisor	X	X		X	X	X													X														X	X					X	
Laborer	X	X		X																																				
Lineman	X	X		X	X	X				X				X	X														X				X	X						
Mechanical Superintendant	X	X			X			X	X			X		X					X					X	X					X			X	X				X	X	
Millwright Apprentice	X	X		X																																				
Millwright Journeyman	X	X		X		X												X													X									
Millwright Supervisor	X	X		X	X	X		X						X				X	X					X							X		X	X				X	X	
Mobile Crane Operator	X	X		X	X					X																	X		X	X		X		X	X				X	
Office / Administration	X	X		X																																			X		
Offshore Personnel	X	X	X	X	X		X							X													X													X	
Pipe Apprentice	X	X		X																																				
Pipe Journeyman	X	X		X		X																						X												
Pipe Supervisor	X	X		X	X	X		X						X				X	X									X			X		X	X				X	X	
Project Manager	X	X			X			X	X			X		X			X		X					X	X						X		X	X				X	X	
Safety Representative	X	X			X			X	X			X					X		X					X	X			X			X		X	X	X	X	X	X	X	
Shipper / Receiver	X	X		X														X										X								X	X			
Traffic Loop Supervisor	X	X		X																X													X	X	X	X		X	X	
Traffic Loop Technician	X	X		X																															X	X				
Traffic Technician	X	X		X	X	X								X	X					X	X													X	X	X				
Utility Superint	X	X							X		X		X						X					X	X				X		X		X	X				X	X	
Utility Supervisor	X	X		X	X			X											X					X									X	X	X	X		X		
Utility Worker	X	X		X																																				
Welder Apprentice	X	X		X																																				
Welder Journeyman	X	X		X		X																																		
Welder Supervisor	X	X		X	X	X		X						X				X	X									X			X		X	X				X	X	

SAMPLE

7.3 Awareness

Workers shall be made aware of:

- The HSE policy and HSE objectives
- Their contribution to the effectiveness of the HSE management system, including the benefits of improved HSE performance
- The implications and potential consequences of not conforming to the HSE management system requirements
- Incidents and the outcomes of investigations that are relevant to them
- Hazards HSE risks and actions determined that are relevant to them
- The ability to remove themselves from work situations that they consider present an imminent and serious danger to their life or health, as well as the arrangements for protecting them from undue consequence for doing so.

7.4 Communication

To effectively communicate Black & McDonald's HSE Management System the following content has been identified as information for distribution to employees:

- Policies, Programs, Procedures, Practices and Guidelines
- Hazard Identification and Elimination and Control Methods
- Incident Investigations and Corrective Actions
- Lessons Learned
- Manufacturer or Supplier recalls/notices
- Client/Contractor notices
- Regulatory updates
- Site Inspection findings
- Trends Analysis

Delivery Methods
The following is a listing of methods Black & McDonald uses to engage all employees in communication of health, safety and environment information. Each plays a crucial role to ensure our employees and subcontractors receive communications in a manner that is both accessible and easy to comprehend.

- Orientation (new hire, annual, subcontractor, site-specific)
- Training sessions (internal/external)
- Joint Health and Safety Committee Meetings
- Safety Meetings / Quarterly Meetings
- Annual Leadership Conference
- Notice Boards
- Shop-Talk
- Project Safety Plans
- Pre-Job Hazard Assessment (PJHA)
- SMT HSE Advisory Committee Meetings
- Corporate Safety Committee
- HSE Manual
- HSE Handbook
- HSE Bulletins & Newsletters
- Teams (Corporate & Regional Sites)
- theWire
- eCompliance
- Black & McDonald internal communication (email, newsletters)
- Task Observations and Site Inspections
- BambooHR (HR Platform)

All HSE information and supporting documents can be found on the wire/Teams

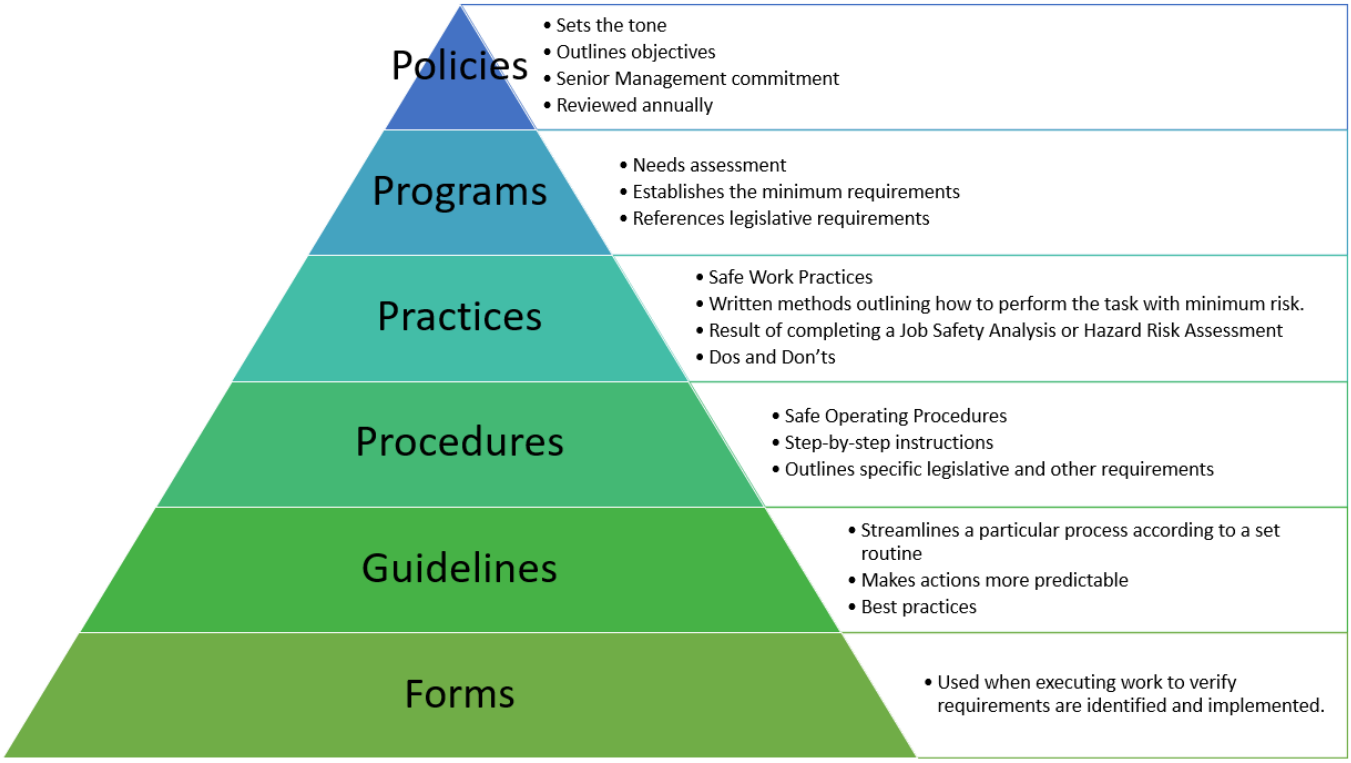
7.5 Documented Information

7.5.1 General

The main types of documents that support the HSE Management System are classified as Policies, Programs, Practices, and Procedures.

When viewed on a hierarchy scale, the documentation provides increasing detail/instruction for the safe execution of work:

- **Policies** set the tone for the organization. These documents outline the organization's objectives and contains senior management's commitment to a safe and healthy work environment.
- **Programs** are developed based on the outcome of a needs assessment and establish the minimum requirements for work activities that involve the associated risk.
- **Practices** establish written methods for completing a task with minimum risk. These documents are often considered a 'Do and Don't' list.
- **Procedures (Work Instructions)** are detailed, step-by-step instructions and outline specific legislative and other requirements.



7.5.1.1 Policies

Black & McDonald uses policies to establish guidelines and rules for the smooth functioning of the organization to achieve the desired HSE objectives. They are designed to govern behaviour and ensure values and goals are consistently applied across the company.

Policies Index

Description	Document Number
CSC Policies	
HSE Supervisory Competence Training	02-01
Andre Benard Award	02-03
HSE Staffing	02-04
Ontario Working at Heights	02-05
HR Policies *(as applicable to HSE)*	
Work Rules	
Hours of Work	4.6.01
Employee Conduct	4.6.02
Alcohol & Drug Use	4.6.03
Smoking in the Workplace	4.6.04
Professional Dress & Grooming	4.6.05
Scent-Free Workplace	4.6.07
Health & Safety	
Early & Safe Return to Work	4.7.01
Security	
Confidentiality	4.8.01
Conflict of Interest	4.8.02
Information Technology Acceptable Use	4.8.03
Employee Privacy & Personal Information	4.8.04
Competition and Antitrust	4.8.07

7.5.1.2 Programs

Black & McDonald has developed Programs to identify hazards and outline the requirements to control or mitigate the risk. Program documents outline responsibilities and general requirements.

Programs Index

Separate Manual Available Upon Request or on theWire

Description	Program Number
Programs	
Fall Protection (Working at Heights)	BM-P01
Crane & Rigging Operations	BM-P02
Working Alone	BM-P03
Confined Space Entry	BM-P04
Personal Protective Equipment	BM-P05
Electrical Safety	BM-P06
Ground Disturbance-Excavation-Trenching	BM-P07
Managing Hazardous Energy	BM-P08
Ladders, Entrances Walkways	BM-P09
Lifting & Handling Loads	BM-P10
Powered Mobile Equipment	BM-P11
Hot Work	BM-P12
Respiratory Protection	BM-P13
Noise Exposure	BM-P14
Heat & Cold Stress	BM-P15
Powered Tools & Equipment	BM-P17
Chemical and Biological Hazards	BM-P18
Pressure Testing	BM-P20
Work Refusal	BM-P32
Incident Reporting and Communication	BM-P33
Environmental Management Program	BM-P34
Procurement and Change Management	BM-P35
Subcontractor Management	BM-P36
Good Catch	BM-P37
Preventative Maintenance	BM-P38
Vulnerable Workers	BM-P39

7.5.1.3 Practices

Safe Work Practices are generalized statements of what should or should not be done to execute a task safely. At Black & McDonald all Safe Work Practices can be found in the HSE Handbook.

7.5.1.4 Procedures

A Standard Operating Procedure (SOP) is a written, specific step-by-step description of how to complete the job safely and efficiently from start to finish. These procedures provide guidance for consistent performance of the HSE Management System requirements.

Standard Operating Procedures apply to all processes and persons as identified by a Job Hazard Analysis (JHA) of the work to be completed. Each SOP is limited in scope to the actual singular work task(s) being undertaken (e.g., SOP for working in a confined space, SOP for changing out a breaker, SOP for lock out, tag out).

SOPs are required for all tasks in which performed incorrectly due to lack of technical skills or knowledge, or due to behavioural attributes, could lead to a major accident hazard. (High risk work).

SOPs do not apply to technical specifications, special process procedures, inspection and test plans, procurement documents, or other specialized procedures which have their own governing procedures.

Applicable SOPs will take authority from the following governing document(s):

- Local Occupational HSE Legislation.
- Canadian Standards Association (CSA)/American National Standards Institute (ANSI).
- Trade Codes and Best Practices.

JOB PROCEDURE:

PROJECT:

SCOPE OF WORK:

Black&McDonald

Tools / Equipment Required:	Materials Required:	Personal Protective Equipment:	Emergency Contacts	
■ x	■ x	■ x	x	x
■ x		■ x	x	x
■ x		■ x	x	x
■ x		■ x	x	x
■ x		■ x	x	x
■ x		■ x	Local Hospital	x
			Emergency Services	911

TEMPLATE

Steps	Job Sequence	Potential Accidents/Hazards	Recommended Safe Job Procedures	Applicable Codes	Hazard Level	Sign Off
1	PRE JOB PLANNING...					
1.1	x	x	x	x	x	
1.2	x	x	x	x	x	
2	WORK PROCEDURE...					
2.1	x	x	x	x	x	
2.2	x	x	x	x	x	
2.3	x	x	x	x	x	
2.4	x	x	x	x	x	
2.5	x	x	x	x	x	
2.6	x	x	x	x	x	
2.7	x	x	x	x	x	
2.8	x	x	x	x	x	
2.9	x	x	x	x	x	
2.10	x	x	x	x	x	
2.11	x	x	x	x	x	
3	Emergency Procedures					
3.1	x	x	x	x	x	
3.2	x	x	x	x	x	
3.3	x	x	x	x	x	

Procedures Developed By: x *Date:* x

Worker signature:_____	Name (print):_____	Date:_____
Worker signature:_____	Name (print):_____	Date:_____
Worker signature:_____	Name (print):_____	Date:_____
Dispatcher signature:_____	Name (print):_____	Date:_____
Approved By:_____	Name (print):_____	Date:_____

7.5.2 Records Management and Document Control

This section provides guidelines for document control and the management of records.

7.5.2.1 Records Management

The purpose of this guideline is to provide guidance for the proper management of all records related to Health, Safety and Environment (HSE).

Responsibilities

Regional HSE Managers/Advisors:

- Identify the length of time a record must be kept. A retention time longer than is specified in this guideline is determined by the Regional HSE Manager.
- Notify Regions when a new recordkeeping requirement is identified.
- Maintain secure access to records that may have sensitive information such as employee medical records. Guidance and support may be required from Human Resources.
- Make records available to Regulators and others upon request. Note that if litigation is likely, release of records shall be done in coordination with legal advice.
- Ensure that key records under their control are maintained in a duplicate form in a remote location or uploaded onto the company's servers.

Division Managers/Department Managers/Project Managers/Project Coordinators:

- Maintain documents according to the Table outlined within this guideline.
- Records from projects are to be maintained with project documents, unless otherwise specified.

References

All documents, policies, programs and procedures under the HSE Management System.

Records, Logs & Statistics

Records, logs, and statistics shall be maintained to provide reference to program activities and results.

In addition to certain documentation being required by regulations, these records also provide information required to assess the program, to make necessary modifications, and to plan for future activities.

Summaries of safety-related reports provide an overview of the program and assist in determining trends and setting priorities for future safety measures.

All records, logs, and statistics shall be filed so that they are readily available by both individual Region, and Nationally.

CSC Stats should be reviewed quarterly. For more information, refer to section four, Management/Executive Review in HSE Manual.

Record Retention Guidelines

The following table sets out the recommended retention periods for HSE related records, including hygiene and medical records.
This chart outlines the retention and disposition requirements of hard-copy (printed) documentation.
All digital files are kept indefinitely on cloud-based systems.

	DOCUMENT TYPE	DISPOSITION	PERIOD	TRIGGER
1	JHSC meeting minutes, agendas and related papers	Destroy by Shredding	5 Years	After creation
2	Incident/Accident Investigation Reports, Near Miss Reports, and incidents of Workplace Violence and Harassment	Destroy by Shredding	5 Years	After creation
3	Work Refusal Investigations	Destroy by Shredding	5 Years	After creation
4	Workplace inspection reports, including daily/pre-use inspection checklists	Destroy by Shredding	5 Years	After creation
5	Pre-Start Safety Reviews (PSSRs – Ontario Requirement), Engineering Assessments by a Professional Engineer	N/A	Indefinite	Permanent – maintain during the life of the equipment, machine, process, etc.

6	OSHA Forms 300, 300A and 301 and the privacy case list, if applicable (Applicable to U.S. only)	Destroy by Shredding	5 Years	From the last day of the year to which the records relate
7	Employee Medical Records	Destroy by Shredding	30 Years	After employee leaves employer
8	Pre-Job Hazard Assessments – PJHA's (Sampling percentage 5%)	Destroy by Shredding (Destroy by Shredding)	90 Days (5Years)	After creation (After Creation)
9	Project Safety Plans	Destroy by Shredding	5 Years	After Project has been completed
10	Records of personal or environmental monitoring of exposure to hazardous substances	Destroy by Shredding	30 Years	After employee leaves employer
11	Employee records of significant adverse effect to health or environmental hazards	Destroy by Shredding	30 Years	After employee leaves employer
12	Employee records of allegations concerning exposure to environmental hazards against employer	Destroy by Shredding	30 Years	After employee leaves employer
13	Asbestos monitoring/employee exposure measurements	Destroy by Shredding	30 Years	After creation (Exposure tracked in regulatory registry)
14	Environment permits, such as Air and Noise Emissions	N/A	Indefinite	Permanent
15	Occupational health and safety training records *Hard copy*	Destroy by Shredding	7 Years	After employee leaves employer
16	Occupational health and safety training records *Digital copy*	N/A	Indefinite	Permanent

17	Proof of training completion (i.e., certificates, awards, test results)	Destroy by Shredding	7 Years	After employee leaves employer
18	Supervisor Log Books	Destroy by Shredding	5 Years	Last date of entry in book

7.5.2.2 Document Control

Document control is a systematic approach to ensure consistency in the development, review, update, implementation, and management of the various documents within the HSE Management System.

All documents found on theWire are controlled; any documents downloaded or printed are uncontrolled.

Responsibilities

Document Preparer	Person assigned by the department manager to prepare a procedure/instruction
Interfacing Departments	Departments with responsibility within the application of the document
Management System Procedure	Document prescribing management activities of a given process which work towards reaching the objectives allocated for this process
Process owner	Individual organization accountable for the custodianship and ownership of the document throughout its life cycle
Work Instruction (WI)	Document that prescribes the specific details for the performance of tasks by individuals or by small functional groups or teams
Department Manager	Person responsible for the leadership of department or company division
Project Supervisor	Person who is assigned to administration and management of a project
Quality Assurance Manager	Person responsible for Quality Assurance Program
HSE Advisor	Person who advises on matters related to HSE rules, regulations and practices
Document Control Administrator	Person responsible for the storage and release of documents

Division Managers shall:

- Establish the documents that are necessary to be issued to define their activities.
- Identify the Document Preparer best qualified to prepare the document
- Review the document prior to distributing it for the review with other departments.
- Retrieve from circulation, the obsolete procedures/instructions/forms, when new ones are distributed.
- File the comments of the reviewers, including comment disposition sheet.

Division Managers with functional responsibilities, when they are the process owner, are responsible for planning, implementing, controlling, and documenting the management processes including:

- Verifying their process is mapped (when required), measured, defined and documented in consideration of quality, quantity, timeliness, cost, safety, interested parties, methodology and resource requirements, including relevant licensing and/or adopted industry requirements.
- Establishing, implementing and maintaining their process, including delegating to others any or all aspects thereof, while retaining overall responsibility.
- Ensuring that the organizational interfaces and elements required to support their process are established and documented.

- Ensuring that the resources required to support their document are provided.
- Ensuring that the performance of their document is monitored, assessed, reported and overseen, and that required corrective actions or desired enhancement opportunities are initiated and completed in a timely manner. This will ensure continual improvement of procedures, instructions and associated documentation.
- As a process owner, if acceptable, sign the document first page header on the block as specified for document control.

Document Preparer shall:

- Ensure the revised or new document content is accurate and follows the criteria and format.
- Act as the single point of contact with regard to clarification of document content from the user community.
- Ensure all pages and appendices are included.
- Ensure the revised content summary is captured in the Revision List.
- Major changes must be included and the reference to the revised section provided.
- Minor changes should be included; however, where this is not practical due to extensive changes they may be excluded.
- When the document has been completely re-written the rationale shall be referenced.

During the Dispositions and Validation, the document preparer shall:

- Send the draft document, original forms to all interfacing departments for review, verification, and/or approvals.
- Allow two weeks for review and disposition. If no response is received, the document will be deemed as accepted by the interfacing departments and the document will be issued.
- Incorporate/disposition or make any changes as required from interfacing departments.
- Submit the amended document to the interfacing departments for review.
- Obtain the organizational signatures specified on the document header on the first page.

Project Supervisor shall:

- Verify the need for new/revised document.
- Ensure that document content and format are in compliance with local legislation.
- Ensure that the following components have been included in the procedure:
    - Regulatory requirements
    - Personal protective equipment requirements
    - Tools and equipment required
    - Training requirements
    - Responsibilities of each person involved in the job
    - Specific sequence of events to complete the work safely
    - Permits required
    - Emergency procedures
- Provide final approval.
- Monitor the approval process.

Document Control Administrator shall:

- Release the word document or issue new document number and template.
- Update the status of the document in Teams and eCompliance as cancel/obsolete/supersede.
- Assists the preparer/author in routing the new or revised document to interfacing departments.
- Issue the approved new or revised document in Share Point and eCompliance.
- Ensure that any new and revised document issue is communicated to all Project staff.

Quality Assurance Manager shall:

- Provide assistance to the document preparer to ensure steps taken do not circumvent steps required for quality control
- Monitor implementation of the document

HSE Advisor shall:

- Provide assistance to the document preparer regarding matters related to Safety rules and regulations.
- Review the document to ensure that hazards have been properly identified, the risk factor is rated, and that control methods have been written to mitigate the exposure to the hazard.
- Through collaboration with the document preparer provide assistance in identifying the risk factor ratings and how they would relate local legislation requirements.
- Monitor implementation of the document.

Note: *Dependent on the scale and scope of the project it is understood that the above roles may be combined into one position or divided among*

Documentation Creation Requirements

Document Preparation Plan

Department Managers are responsible for ensuring that their department has the applicable H S E Management System documents defining departmental responsibilities and interfaces and sufficient safe work practices to provide detailed instructions to staff on specific tasks.

Standard Operating Procedures that describe how the requirements of the various Codes and Standards are implemented require sign off in the appropriate signature block.

The Work Process Change Approval Request shall identify all interfaces with other departments. The interfacing departments shall be listed as required. To ensure revisions to documents are reviewed by the interested parties, a Document Review for Approval/Acceptance" form will need to be signed by Management personnel from each department involved in the process prior to issuing for implementation.

Preparation Approval

When creating a document, the following aspects must be clearly understood prior to initiating:

- Identify the governing document - what higher tier policy, program or legislative requirement established the need of the new or revised document.
- What is the scope of application from an organizational perspective?
- Who is the document owner?

Development of Initial Process Map

Process Maps are required when an HSE Management System documentation interfaces with three or more different departments. The process map should be completed to identify each department's role and how the process progresses through until completion.

Process maps are intended to define, describe and document processes. They are diagrams that utilize standard symbols to illustrate the various elements comprising a process and the departmental interfaces required to implement the process.

Note: *Intra-departmental Work Instructions providing detailed instructions for individual positions do not require a process map.*

Standard Operating Procedures

Following the development of a process map, the document author will create the procedure using the Black & McDonald Standard Operating Procedure Template

At a minimum, the procedure should provide the following information:

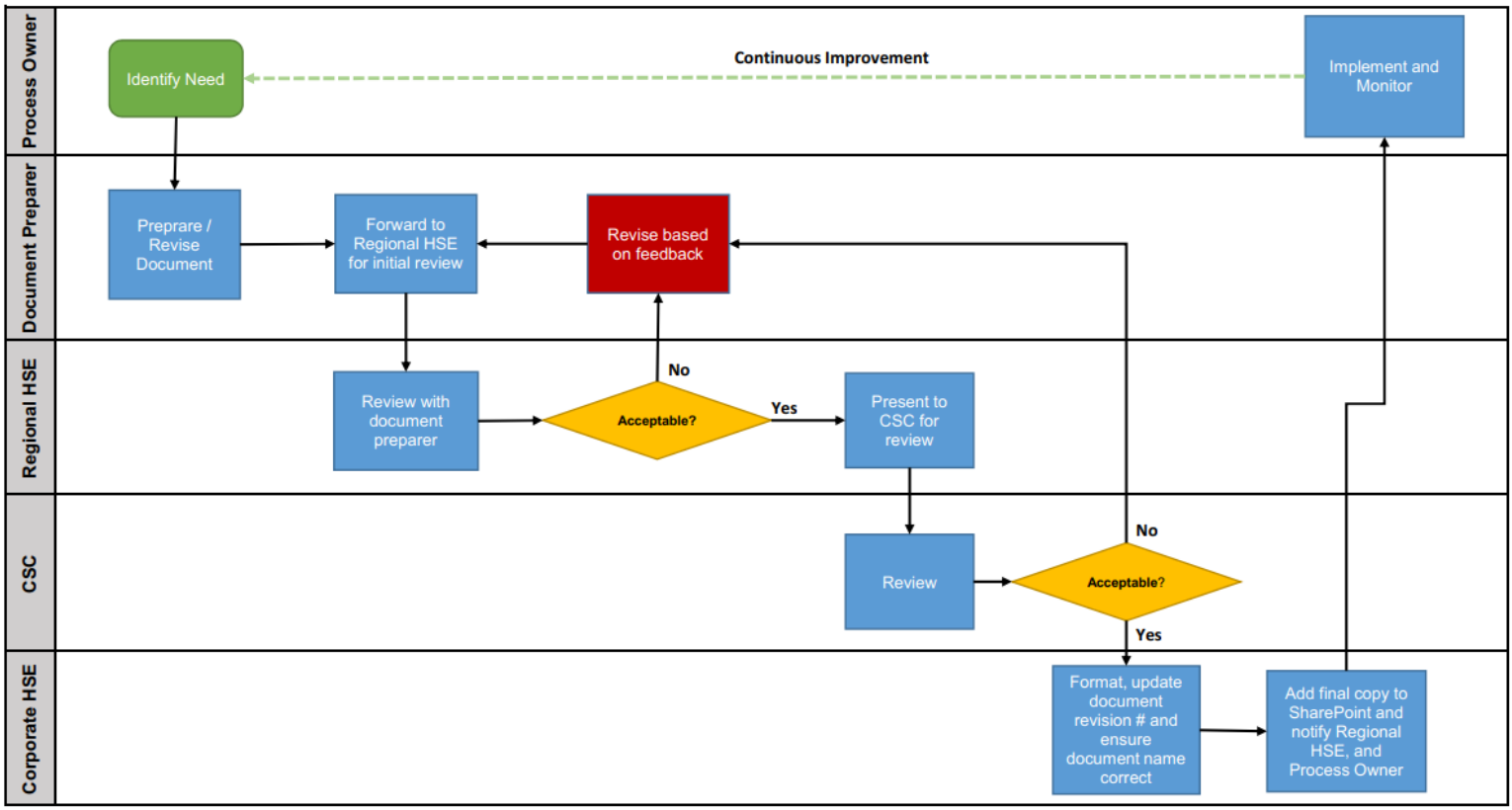
- The general purpose or objective.
- The specific requirement/criteria that must be satisfied.
- The relevant organizational department/roles/positions responsible for execution.
- The approaches used by the organization to satisfy the performance requirements including references to interfacing; programs/procedures/documents/codes and regulatory requirements.
- Work Instructions Supporting the procedure.

Work Instruction

When it is required, following the development of a process map, the document author will use the Black & McDonald Safe Job Procedure template to create detailed instructions to staff required to perform specific activities. Each Work Instruction should provide the following information:

- The general purpose or objective of the element - state specifically the who, what, where, when, and how to carry out the work
- The specific requirement/criteria that must be satisfied by the element
- The relevant organizational department/roles/positions responsible for execution
- The approaches used to satisfy the performance requirements of the work including references to interfacing programs/procedures/documents/codes and regulatory requirements

Document Review Process Map



SECTION TWO: DO

8. OPERATION

8.1 Operational Planning and Control

Once an understanding of hazards is established, controls to mitigate risk are determined and implemented as necessary to enhance occupational health and safety. This is done by eliminating hazards, or, if not practicable, by reducing the risks to levels as low as reasonably practicable for the operational area and activities.

Operational controls include, but are not limited to:

- The use of procedures and systems of work
- Ensuring the competence of workers
- Establishing preventive maintenance and inspection programs
- Specifications for the procurement of services and goods
- Application of legal requirements or manufacturer's instructions for equipment
- Engineering and administrative controls

8.1.1 General

It is assumed that, when present, a hazard, or a combination of hazards, will lead to harm if measures are not taken to eliminate hazards or implement protective measures.

When a hazard cannot be immediately eliminated, interim controls shall be implemented until the risk assessment is complete and permanent controls can be implemented.

Black & McDonald follows the Hierarchy of Controls (Table 1.3.4) approach in the elimination and reduction of hazards and risks.

8.1.2 Eliminating Hazards and Reducing HSE Risks

Risk Assessment

Risk analysis aids in developing an understanding of the likelihood and consequence component of risks. The results of risk analysis provide input to risk evaluation decision-making on whether risks need to be further reduced. Risk analysis can be useful during the process of determining the most appropriate risk-reduction strategies.

Risk analysis in the first instances shall be carried out for each hazard or hazardous situation by the person(s) responsible for developing the Project Safety Plan, as they are the ones within the organization who are familiar with the hazards and risks associated with the product, process, service, or workplace.

The following three-step process will lead to an estimation/ranking of risks:

1. Estimate potential consequences and severity.
2. Estimate likelihood of occurrence.
3. Classify risk as per Risk Matrix Chart (Table 1.3.3).

Hazard Mitigation & Control Measures

Where the assessment finds that a hazard is a potential danger to the health or safety of a person, the hazard must be eliminated or, if elimination is not possible, controlled to minimize the risk to as low as reasonably practicable. Control measures are the steps taken to eliminate or minimize the risk of exposure to occupational hazards.

Table 1.3.4

CONTROLS	
Typically, more than one control will be implemented for each hazard. Controls should be implemented in the following order:	
Elimination	Removal, Housekeeping
Substitution	Manual vs. Automatic, Toxic vs. Less Toxic
Engineering	Guards, Railings, Ventilation, Isolation, Roll Cages
Administrative, Awareness	Training, Policies, Standards/Codes-of- Practice, SOPs, Preventative Maintenance, Inspections, Investigations, Rules, Scheduling, Purchasing, Subcontractor Management
Personal Protective Equipment (PPE)	Basic
	Specialized

Hazard controls must be implemented as soon as reasonably practicable.
After controls have been identified, a secondary risk assessment needs to be conducted on the hazard, taking into consideration the severity and/or consequence of the hazards with the controls implemented. This process identifies the level of residual risk, and direction on how to proceed based on the below chart:

8.1.3 Project Safety Plan

PURPOSE

This document is to establish the planned approach that Black & McDonald will apply to implement its Health, Safety & Environment (HSE) Management System at any and all sites where Black & McDonald is engaged.

Protection of HSE is a fundamental core value in all aspects of our businesses and will be dealt with like any other key project component. As such the planning activity to take place prior to beginning any work on any project site, will result in the establishment of the HSE goals and objectives for each project and development of the Project HSE Plan (PSP) and program to be implemented to achieve the desired HSE results.

SCOPE

The provisions of a site-specific health, safety and environment plan also referred to as "the Project Safety Plan" (PSP), and ensuing program will apply to all of Black & McDonald's activities, personnel and subcontractors. The term Project Safety Plan (PSP) also applies to the Service and FMO activities that Black & McDonald is engaged in.

Please also note the following considerations with regards to the scope of a Site-Specific Safety Plan document:

- The PSP is intended to be a living document over the life cycle of the Project, Service or FMO contract; it will be updated as required over the life of a Project, Service or FMO contract as required by Management of Change component in the HSE Management System.

Note: when commissioning is part of the contractual requirements, then the up to date HIERAC will dictate if a separate PSP for commissioning activities would be warranted, as commissioning often places extra burden on the HSE structure and management system, including modifications to emergency planning and preparedness, and the communications system.

- The PSP is not to be used for task-specific work instructions. Site-specific procedures to address critical hazard/risk exposures such as working at heights; working in confined spaces; working with energized sources; working around open holes/excavations; working with hazardous materials; or hot work can be included as annexes to the PSP.

- The PSP is not a contract scope document. Where the PSP and the contract documents differ, the contract documents shall take precedence.

8.1.4 Management of Change

Black & McDonald operates under a comprehensive HSE Management System that is supported by the use of forms, policies, programs, and our HSE Management System Manual.

All supportive documents will follow our document management policy, to ensure proper Management of Change tracking.

The Management of Change process takes place as a result of change request(s) from various sources such as, but not limited to, corrective action initiative outputs, Joint Health and Safety Committee (JHSC) recommendations, field inspections, task observations, incident investigations, legislative updates/changes and changes identified by program updates, etc.

The Corporate Safety Committee (CSC) is the main approving body for all changes to documents that support Black & McDonald's HSE Management System

The process for change to an HSE Management System document is as follows:

1. Requestor submits a request to the Regional HSE Manager
2. The HSE Manager determines the relevance of the request and, if in agreement, forwards the request to their regional representative on the CSC
3. The regional CSC representative brings the issue forward to the CSC Programs Committee for further development and approval
4. The CSC Programs Committee presents the completed initiative/document change to the CSC for approval and implementation
5. The CSC publishes the document or updates an existing document or process in the CSC library
6. The CSC communicates the change to all interested parties for implementation, as appropriate.

See also 7.5.2.2 Document Control

8.1.5 Procurement

8.1.5.1 Subcontractor Management

The objective of Subcontractor Management process is to ensure that all subcontractors hired by Black & McDonald meet regulatory requirements and adhere to our internal HSE, Legal, and Finance standards.

The Subcontractor Management process is based on the following guiding principles:

- Regional HSE assessment of subcontractor's submission
- The Legal unit's assessment of a subcontractor's submission
- Regional Controller's (Finance) assessment of subcontractor's submission

The HSE portion of the subcontractor management process includes the following:

a. Prequalification

- Ensuring subcontractors working on Black & McDonald projects meet internal eligibility criteria (including but not limited to current good standing with Workers Compensation Board)
- Ensuring all documents submitted are up to date (COR, clearance certificate, etc.)

b. Management of Subcontractor (site level)

Subcontractors are required to:

- Provide a site-specific safety plan or input into the Black & McDonald Project Safety Plan (PSP) prior to the commencement of work
- Review and adhere to Black & McDonald Drug & Alcohol Policy and Program
- Be measured by site inspections, observations and audits (if required) by a Black & McDonald HSE Manager/Advisor in coordination with subcontractor staff
- Comply with appropriate Policies, Programs, Procedures, Safe Work Practices, Industry Best Practices, and Government Regulations/Acts/Codes within their scope of work

Project Manager/HSE Manager will:

- Arrange periodic HSE evaluations of overall performance of the subcontractors while on site
- Address substandard performance issues with corrective actions implemented to meet compliance.
- Consider all non-compliant issues during post-performance review.
- Monitor and supervise on-site work of subcontractors

c. Performance Review

- At the completion of work, HSE may conduct a final assessment to determine if the subcontractor has consistently met the regulatory requirements and internal HSE programs

8.2 Emergency Preparedness and Response

A complete emergency management system (EMS) is comprised of the four primary components: prevention/mitigation; preparedness; response, and recovery directly linked to a site-specific HIERAC, and integrated and compatible with the normal activities related to prevention of incidents.

A site-specific Black & McDonald Emergency Management Plan and Program will have procedures for identifying the potential for and responding to emergency situations, and for preventing and mitigating the health, safety, and environment consequences associated with such situations. In the case of a potential crisis the plan and program will also address the requirement to recover/return to a “new normal” appropriate for the location and situation.

The site-specific EMS will also conform to the Black & McDonald policies on Emergency Preparedness and Crisis Management, the appropriate Regional Emergency Response Procedures, and as appropriate shall be developed in accordance with the clients’ procedural requirements, including development of task specific rescue criteria and procedures.

8.3 Preventative Maintenance

Preventative Maintenance is the systematic scheduled care and protection of tools, equipment, PPE, and vehicles to maintain them in a safe useable condition to minimize incidents such as downtime, property damage, environment damage, and injury.

The preventative maintenance program will be scheduled, control hazards, have written procedures, generate appropriate records, and have trained key personnel to satisfy legislative requirements, company procedures and manufacturers specifications.

Parts or items critical for safety must be identified along with their scheduled frequency of preventative maintenance and inspections as a component of the Project Safety Plan. The principle of the critical few is used in the identification of the critical items so the required attention, through planned inspections and subcontractor management, is paid to them.

SECTION THREE: CHECK

9. PERFORMANCE EVALUATION

9.1 Monitoring, measurement, analysis, and performance evaluation

Monitoring and measuring within Black & McDonald takes two forms:

1. Proactive (Leading Indicators) initiatives, and
2. Reaction to incidents (Lagging Indicators)

These are the two key measurement parameters that we will utilize. Continuous improvement of our health and safety performance at Black & McDonald is critically dependent on proactively managing our hazards and associated risks.

The following is a listing of examples of Leading and Lagging Indicators:

Leading Indicators: Tracked

- Project Safety Plans
- Pre-Job Hazard Assessments (PJHA)
- Supervisor Inspections
- Management Inspections
- Near Misses
- Hazard ID's
- Audits (Successful)
- Task Observation
- Safety Meetings
- Good Catches

Not Tracked as part of Leading/Lagging Ratio:

- Emergency Response Plans
- Fall Protection Plans
- Confined Space Plans
- Safe Work Permits
- Basics of Supervising Training
- Subcontractor Management Plans
- Subcontractor Audits
- Journey Management Plans
- Drug & Alcohol Tests
- Environment Plans
- Equipment Inspections
- Training
- Competency Checks
- Customer Satisfaction Survey's
- HSE Orientations
- Refresher Orientations

9.1.1 Forms, Records & Reporting

The following is a list of forms, records and reports that are used to monitor, measure and report on HSE Management System compliance. These activities are important to identify non-compliance situations and the required corrective actions. They also contribute to the identification of opportunities for improvement:

- JHSC Inspection Form
- JHSC Meeting Minutes
- Field Supervision Inspection
- HSE Inspection
- Focused Inspection
- Audit (In house/COR/Governing body)
- Subcontractor Audit
- Post Job Evaluation
    - Management of Change
    - Basics of Supervisor Training
    - Working Alone Plan

Lagging Indicators: Tracked

- Fatalities
- Lost-Time Incidents
- Modified Duty Incidents
- Medical Aid Incidents
- First Aid Incidents
- Vehicle Traffic Violations
- At Fault Vehicle Incidents
- Environment Incidents (Recordable)
- Property Damage

Not Tracked for Leading/Lagging Ratio

- OH&S Stop Work Orders
- OH&S Fines
- Drug and Alcohol Violations
- Environmental Incidents (Non-recordable)
- Total Incident Frequency
- Safety Infractions

All these indicators will be incorporated into developing annual Key Result Areas (KRAs) for operations management.

9.1.2 Evaluation of compliance

Audit Types

Focus Audit:

Taking a specific task or work type and auditing to ensure compliance with Program, Work Practices, Regulations and Black & McDonald policy. (I.e., Electrical Trade)

Limited Scope Audit:

Auditing a defined operation to ensure compliance with Standard Work Practices, Regulations and Black & McDonald policy associated with the scope of work/project. (I.e., Calgary Airport site)

COR Audit:

An audit lead by an external source from Black & McDonald. The goal of the audit is to grade the company on legislative compliance and show areas of required improvement.

Black & McDonald Internal Audit:

An inclusive audit lead by the Corporate Director, HSE. The focus of the audit is based on a prior needs assessment or poor statistical performance.

Subcontractor Audit:

Using the audit tool (Attachment D: Subcontractor Demonstrated Compliance Audit) of the Subcontractor Management Program to ensure legislative and regulatory compliance with Black & McDonald standards.

Audit PROGRAM (RISK BASED)

Each type of audit serves as a tool to evaluate compliance across multiple segments of Black & McDonald. The following provides initial guidance on when to undertake an audit.

1. **Focus Audit:**
   - After critical injury/catastrophic incident
   - After review of injury trends
   - Client requested
   - After trend analysis based on Hazard Identifications

2. **Limited Scope Audit:**
   - Follows the same guidelines as a Focus Audit, but its scope is limited to a specific sector

3. **COR Audit:**
   - Annually
   - External renewal
   - Internal renewal

4. **Black & McDonald Internal Audit:**
   - Where required and determined by senior management and the Corporate Director, HSE, a bi-annual internal audit shall be conducted
   - If business is not COR certified, use as a pre-COR gap analysis

5. **Subcontractor Audit:**
   - Refer to Subcontractor Management Program for frequencies

Corporate Director, HSE will work with HSE Manager to:

- Choose type of audit
- Choose internal or external audit team
- Internal or external use of resources
- Governing body audit or Black & McDonald audit tool
- Review gaps
- Create and Review Continuous Improvement Plans

9.2 Internal Inspections

To ensure compliance with Black & McDonald's HSE Management System requirements and Regulations / Legislation, task observations and inspections of all work areas must be conducted.

RVPs and Division Managers will conduct formal Task Observations of worker tasks, along with inspections of work areas during their visits. Project Managers and Supervisors are responsible for inspecting their work area(s) weekly for hazards and legislative non-compliance. Supervisors shall promptly complete all corrective actions noted during inspections.

Task Observations/Inspection reports will be sent to the HSE Manager and reviewed by management and/or Corporate Director, HSE, to ensure all corrective actions have been addressed.

9.2.1 Task Observation

PURPOSE

To support and drive the elimination of incidents by identifying and correcting "at risk" behaviours and reinforcing "acceptable" behaviours in the workplace.

SCOPE

The observation of all steps of a task as it is being carried out to ensure procedures are accurate and followed correctly. Task observations are intended to:

- Encourage conversations about safe work practices
- Reinforce "Acceptable" behaviours
- Identify "At Risk" behaviours and engage in identifying corrective actions
- Coaching of employees on "Acceptable" behaviours
- To prevent incidents

PROCESS

a) Identify Behaviours Critical to Safety:

- Behaviours that the workers need to perform are identified
- These behaviours should be conducive to lowering the amount of incidents
- A behaviour can also be observed, after the fact, by observing the results (i.e., reviewing a PJHA even though you weren't there when it was produced.

b) *Communicate Behaviours to Employees:*

- All workers are made aware of the required behaviours and how they are performed safely
- This information is available in: Programs, Safe Work Practices and shall be identified in the PJHA

c) Task Observation/Site Inspection:

- Perform observations
- Interact with the workers observed to provide feedback/correction/coaching
- Consider observing work where the higher risk hazards, or the experience of the workers may be a factor
- Complete the observation report away from the work area
- Examine the work area and complete the Site Inspection portion

d) Record & Document Observation Data/Corrective Actions

- Take corrective actions from the observation/inspection and add them to the regional corrective action database.
- Track the completion of actions to closure
- Regions will be held accountable for actions recorded in the database

e) Communicate Data from Observations/Inspections:

- Corrective actions are tracked regionally
- Management observations/inspections are tracked regionally and on the NSC quarterly reports
- Review submitted observations for common themes and trends

TRAINING

Observers play a key role in the process. They shall support, conduct and document the observations that are used to identify which behaviours are being done safely and which are not.

Key Elements:

- Ensure they know when the critical behaviours are being performed acceptably and when they are not. If the observer suggests to a worker, they are conducting themselves incorrectly when they are not, then it can be harmful to the program
- Observation and intervention techniques
- Observation recording techniques
- Observation sequence: interrupt the workers or not, etc.

It is recommended that all observers have taken a selection of the following courses:

1. Basic Employee Orientation – *Black & McDonald HR/HSE*
2. Part 2 Orientations for Supervisors – *Black & McDonald HSE*
3. Practical Loss Control Leadership – *DNV*
4. Basics of Supervising – *Black & McDonald/IHSA*
5. Construction/FMO Fundamentals – *Black & McDonald TDP*

Conducting a Task Observation & Site Inspection

a) Identify the Division/Site/Location, Trade/Group, Who Was Observed, Date

b) Observe, check the item:

HSE Documentation

- PJHA
- Site Specific Safe Work Practices/Procedures
- Project Safety Plan

Human/Safe Behaviours

- Attention to Work
- Communicating Hazards/Last Minute Risk Assessment
- Use/Application of PPE
- Following Programs, Processes & Procedures
- Use of Tools/Equipment
- Pre-Job briefing/Daily Safety Meeting

Housekeeping Behaviours

- Use of Guards & Barriers
- Orderliness of Workplace
- Workplace Setup/Sequence/Storage

Other Hazards

- Lockout/Tagout
- Close out of permits

c) Explain what was observed. List any significant positives and negatives
d) List any Reinforcement/Corrective Actions
e) Determine if Follow-Up Actions are necessary and record on the form
f) Move on to Site Inspection portion of form
g) Review each category and select the appropriate answer
h) If the category is not up to standards or at risk, assign a Risk Ranking in the Comments section.
i) Add as a Corrective Action.
j) Complete the rest of the form (Observer, Observee, Reviewed by etc.)
k) Submit to regional HSE designate

Task Observation Goals
For this program to be successful a number of key components must be followed. Those include:

- Include information and training in all employee orientations
- Conduct regular observations sessions
- Focus on identifying unsafe work practices
- Provide constructive feedback
- Focus on positive examples
- Review results of observations regularly
- Follow guidelines set forth for observations and site inspections

Corrective Actions
Corrective Actions will be tracked and followed up on by the HSE Manager.

1. Corrective Actions are formulated from Inspections, Trends, Analysis and Audits.
2. Corrective Actions are sent to Management weekly.
3. Corrective Actions due dates are set weekly or depending on the situation.
4. Mid- to High-Level Incidents are documented on the Corrective Action page only. Low- level incidents are handled immediately by the field level management (Foremen, Journeymen, etc.).
5. Corrective Action Communication Flow:
    a. HSE Manager/Advisor communicates and assigns corrective action to Division and Project Managers: this information is covered in the Project Management meetings held weekly.
    b. Division Manager and/or Project Manager communicate and assign corrective action to their project Foremen.
    c. Project Foreman communicates corrective action during toolbox talks and assigns him/herself or delegates the responsibility of implementing the corrective action (usually to the Journeyman).
    d. Project Foreman completes corrective action and gets all the crew to acknowledge and sign off on the corrective action document completing the process.
    e. Project Manager returns signed corrective action sheet to HSE Manager/Advisor.
    f. HSE Manager/Advisor confirms actions been complete by doing periodic follow-ups: this is usually performed during site inspections.

Note: Corrective Actions should be tracked within eCompliance on the Inspection form using 'Action Items'

9.3 Management Review

9 . 3 . 1 Senior Management Team Review

SCOPE

This standard provides guidelines for the establishment by the Senior Management Team (SMT) of periodic, documented reviews of the HSE-Management System to ensure that the HSE Management System is effectively addressing the health and safety issues, and to demonstrate the commitment to continually improving the overall performance.

This standard is applicable to all Black & McDonald employees, subcontractors, and workplaces in all divisions and jurisdictions where Black & McDonald operates.

PURPOSE

This is a strategic analysis of the HSE Management System with a focus on leadership with respect to health, safety and environment. Thus, the reviews are directed towards evaluation of the long-term direction of the HSE Management System and motivation of employees to innovate for continuous improvement.

This is the opportunity for the Senior Management Team to determine whether the system is performing as anticipated and is effective in meeting Black & McDonald's policy and objectives. Thus, key questions that the review process should answer are "Do we have the right system?" "Is this HSE Management System appropriate for our particular organization with our specific activities, products, services, and corresponding health and safety hazards and risks?"

REQUIREMENTS

The Senior Management Team review will consider the following:

- Results of HSE Management System audits and evaluations of compliance with applicable legal requirements and with other requirements to which Black & McDonald subscribes.
- Annually review and update the Corporate Safety Policy. Each Regional VP will sign and post in their office.
- The results of worker participation and consultation.
- Communications and complaints from external interested parties.
- The HSE performance of the organization in total and its component parts.
- The extent to which objectives and Key Result Areas (KRAs) have been met.
- Status of incident investigations, corrective actions and preventive actions.
- Follow-up actions from previous management reviews.
- Changing circumstances, including developments in legal and other requirements related to HSE including client requirements; and
- Recommendations for improvement.

Changes resulting from a SMT review must be directed at reducing HSE hazards, risks, injuries, and illnesses and improving the HSE performance of the Black & McDonald organization. Written records of a Senior Management Team review will be retained.

These records will include description of any decisions and actions related to changes to any element of the HSE Management System including:

- HSE policy and objectives.
- Resources; and
- HSE performance.

Results of a Senior Management Team review will be made available for communication and consultation with workers and relevant external parties, including clients as appropriate.

Meetings

The review process is not just a meeting conducted once every quarter or once per year. It is an ongoing process by which the Senior Management Team is presented with data and other information about the progress and general condition of the HSE Management System and decisions regarding future actions are made. Formal meetings will occur on a regular schedule, have a predetermined agenda and minutes will be kept and distributed to attendees.

Formal meetings will be a key aspect of the review process, but they are not the only aspect. Formal and informal reporting, presentations, and the communication of ad hoc information may also form part of the review process. It is expected that the SMT will make ad hoc requests for information on specific HSE Management System issues, or the Corporate Director HSE, will want to share information on recent successes in resolving non-conformances identified during various types of audits.

The SMT review should be conducted in a manner similar to review and oversight of business operations. The HSE review should be integrated with the Senior Management Team review of the overall business.

It is anticipated that early in the HSE Management System review process there will be a requirement to address some tactical HSE issues and thus a requirement for more meetings both formal and informal. As the review process evolves and matures there should be a shift to more strategic issues such as implementing design and workflow improvements to reduce/eliminate HSE risks while reducing costs and overall hazard exposures, and a requirement for fewer meetings.

Goals

In general, the overall goal of the Senior Management Team review is to determine if the HSE Management System continues to meet the changing HSE needs of the Black & McDonald organization. Consistent with the concept of continuous improvement, the review process should focus on answering the following questions:

- Are the HSE risks, as identified by the HIERAC process, being managed effectively?
- Is Black & McDonald complying with HSE regulations and will it continue to do so?
- Are we improving our HSE performance?
- Should HSE objectives and Key Result Areas (KRAs) for executive and management be updated?
- Do past or foreseeable changes necessitate changes to elements of the HSE system?

Data

The information generated from the HSE Management System to satisfy the information requirements of this standard can be considerable. The challenge to the SMT will be to focus attention on overall HSE Management System performance in terms of realizing the Black & McDonald goals for health and safety issues and to have at their disposal the needed information to provide proactive leadership in dealing with future changes and challenges.

Reporting

While reporting can be both formal and informal, formal reporting will require written reports submitted at regular pre-determined intervals that present updates regarding an established set of program elements and process measurements such as management KRAs, lead and lag measurements and ratios.

Supplementing formal meetings by informal reporting such as verbal updates, e-mails, and written reports, will ensure regular communication flow between the Corporate Director, HSE, and the rest of the SMT. Such informal reporting will ensure that critical issues that surface between the formal scheduled meetings are not lost, or simply held for the next scheduled meeting.

Records

Decisions also need to be made regarding what sort of records will be generated and retained, and the nature of the form(s) to be used as a result of ongoing SMT reviews of the HSE-MS. Records will include the results of formal SMT review meetings, as well as periodic communication between HSE staff and the SMT. Records of any reports made to the SMT should also be maintained.

Forms used should, as a minimum, include the date of the meeting or discussion, attendees, items discussed, list of decisions made, and action items assigned. Any corrective or preventive action taken as the result of the management review process should also be noted in the management review record. It is suggested that a separate form be used to record the details of the corrective action and track its completion. Forms used and records generated should be consistent with other aspects of an integrated management system requiring SMT review.

SECTION FOUR: ACT

10. IMPROVEMENT

10.1 General

Black & McDonald actively seeks out, and where possible, realizes opportunities for improvement that will facilitate the achievement of the intended outcomes of the HSE Management System. These opportunities for improvement can arise from corrective action, continual improvement, breakthrough change, innovation and re-organization.

10.2 Incident, Non-conformity and corrective action

The timely reporting of incidents or nonconformities, and the subsequent development and implementation of corrective actions are an essential component to the continuous improvement of Black & McDonald's HSE Management System.

10.2.1 Requirements

There are immediate reporting requirements in law that must be complied with. Incidents outlined below normally result in immediate and intense attention, including site visits from Governmental agencies.

- Major Incident
- Critical Incident
- Significant Property Damage (Major fire or explosion, building collapse, electrical contact etc.)
- Environment Release and/or Discharge

Under these circumstances all Black & McDonald personnel will cooperate fully with Government representatives. Records and documents will be in order, factual and presented in their entirety without delay.

Involvement can result in fines, regulatory charges, criminal charges and most certainly, work orders. These types of reprimands affect the business in a negative way regarding reputation among peers as well as financially.

10.2.2 Incident Investigation and Analysis

Incidents resulting in medical attention beyond first aid, or Near Misses that meet the Dangerous Occurrence criteria are required to be investigated.
The scale of the investigation shall be determined by line management and will be based on the significance and complexity of the incident, and the opportunity to make improvements.
If an incident is rated as a major incident, but the circumstances of the incident are such that a team investigation is not deemed appropriate because of limited opportunity, or a technical investigation is more appropriate, the business level authority shall approve this decision and provide the rational to the Corporate Director, HSE as soon as possible.

Immediately following the event, or as soon as it is safe to do so, all witnesses and participants shall be interviewed and documented. This is to ensure all facts, contributory factors and case specific details can be factored and considered in any resulting action. All witness meetings with select individuals shall be scheduled within 24 hours of the specific incident. Employees who are asked to participate in an interview shall be entitled to their standard rate of pay for the duration of the interview.

Root cause analysis and the identification and assignment of corrective actions shall be documented.

Learn from Incidents

Incident Review Meetings shall occur once the investigation has completed, or no later than ten (10) business days from the date of incident. These meetings may include the Regional Vice President, Division Manager, Regional HSE, Regional HR, individuals directly involved in the incident, Supervisor and/or Manager of the affected employee(s) and, if applicable, the Joint Health and Safety Committee. These meetings will discuss findings of the incident investigation, contributing factors, and corrective actions will be reviewed.

All Incident Review Meetings shall take meeting minutes and distribute to the participants of the meeting within 48 hours. These minutes as well as the incident details will be posted to the Teams page. (Any personal information will be removed prior to adding the details to Teams).
It is the responsibility of the Regional HSE Manager, or designate, to arrange and schedule the Regional Incident Review Meetings.

The final investigation will be distributed to all parties involved and information will be shared at the Corporate Incident Review meetings, which are held monthly. The final investigation can also be posted on notice boards, discussed at pre-job meetings, or toolbox talks, if personal or confidential information is removed. Sharing the information of an incident can assist all workers to avoid repeating a similar incident.

Incident Review Meeting Goals:

- Determine methods to eliminate or reduce the risk of the incident to re-occur
- Improve the initial hazard detection/communication
- Ensure incident communication was proper or, if anything can be improved.
- Update the best practices as needed to continuously improve.

Incident Review Meeting participants are responsible for making recommendations to eliminate the potential for re-injury to the workforce. Recommendations may include, but are not limited to:

- Training/retraining for affected person(s)
- Improved personal protective equipment
- Equipment repair or replacement
- Correction of congested area/storage
- Installation of a guard or safety device
- Actions to improve a procedure
- Further assessment by the manufacturer and/or review of their specifications
- Verification or further assessment by vendor or another third party
- Discipline of the person(s) involved and/or possible reassignment of the person(s).

Upon the completion of the Incident review meeting, an Incident Summary Report shall be completed by the Regional HSE Manager or designate.
Corporate HSE will collate all the Incident Summary Reports and forward to SMT for review with the Corporate Monthly Statistics.

Training

Training on incident reporting is provided during the Black & McDonald Orientation process. Supervisors and management receive additional training support during Part 2 Orientation, and Basics of Supervising (BOS) for the management and investigation of incidents.

10.2.3 Early and Safe Return to Work

This program ensures that workers who sustain a work-related injury/illness receive appropriate health care, workers compensation benefits and, where appropriate take part in a modified work program to return them to regular duties in an expedient manner. Black & McDonald is committed to fair and consistent return to work that provides meaningful, fulfilling and productive employment to workers upon return to work following a workplace injury.

PURPOSE

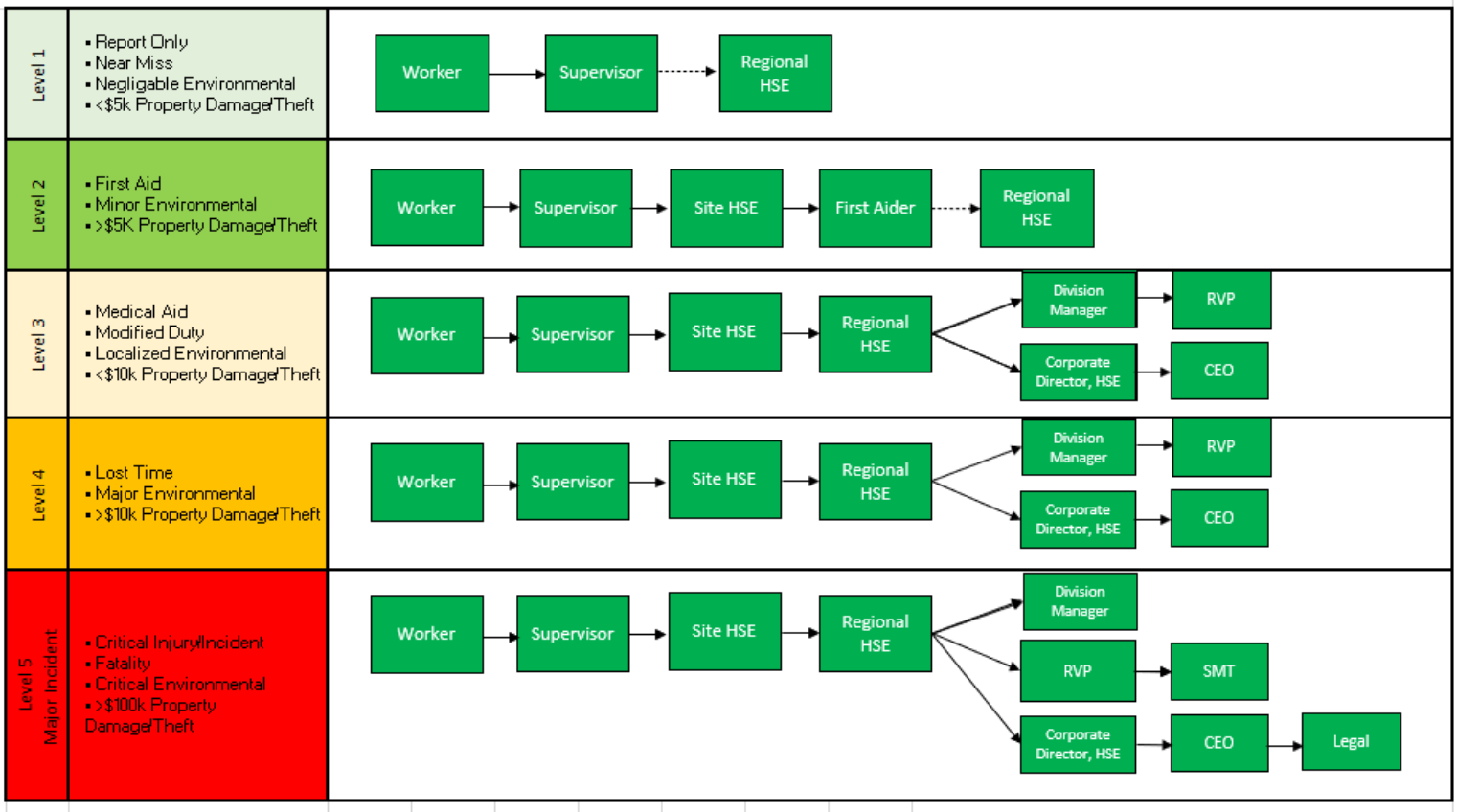
Black & McDonald's goals and objectives regarding early and safe return to work are as follows:

- To facilitate a worker's safe and early return to work after an injury or illness by:
- Promoting effective rehabilitation
- Monitoring medical services and methods of rehabilitation
- To provide modified work that is safe, within the worker's medical restrictions and that promotes productivity at Black & McDonald.
- To facilitate the worker's return to regular, pre-injury duties with support from appropriate personnel.
- To reduce the financial impact of work-related injuries and illnesses to the worker and the organization.

10.2.4 Reporting, Communications

Timely internal reporting is imperative to ensure that all stakeholders are well-informed of the situation. The following reporting chart outlines the minimum **immediate, verbal** (phone, e-mail or text messages acceptable) reporting requirements based on the severity of incident.

Incident Escalation Tree:



10.3 Continual Improvement

Black & McDonald is committed to ongoing improvement of our HSE Management System and the application of its practices. Continual improvement is captured through open communication and timely and effective follow up measures.

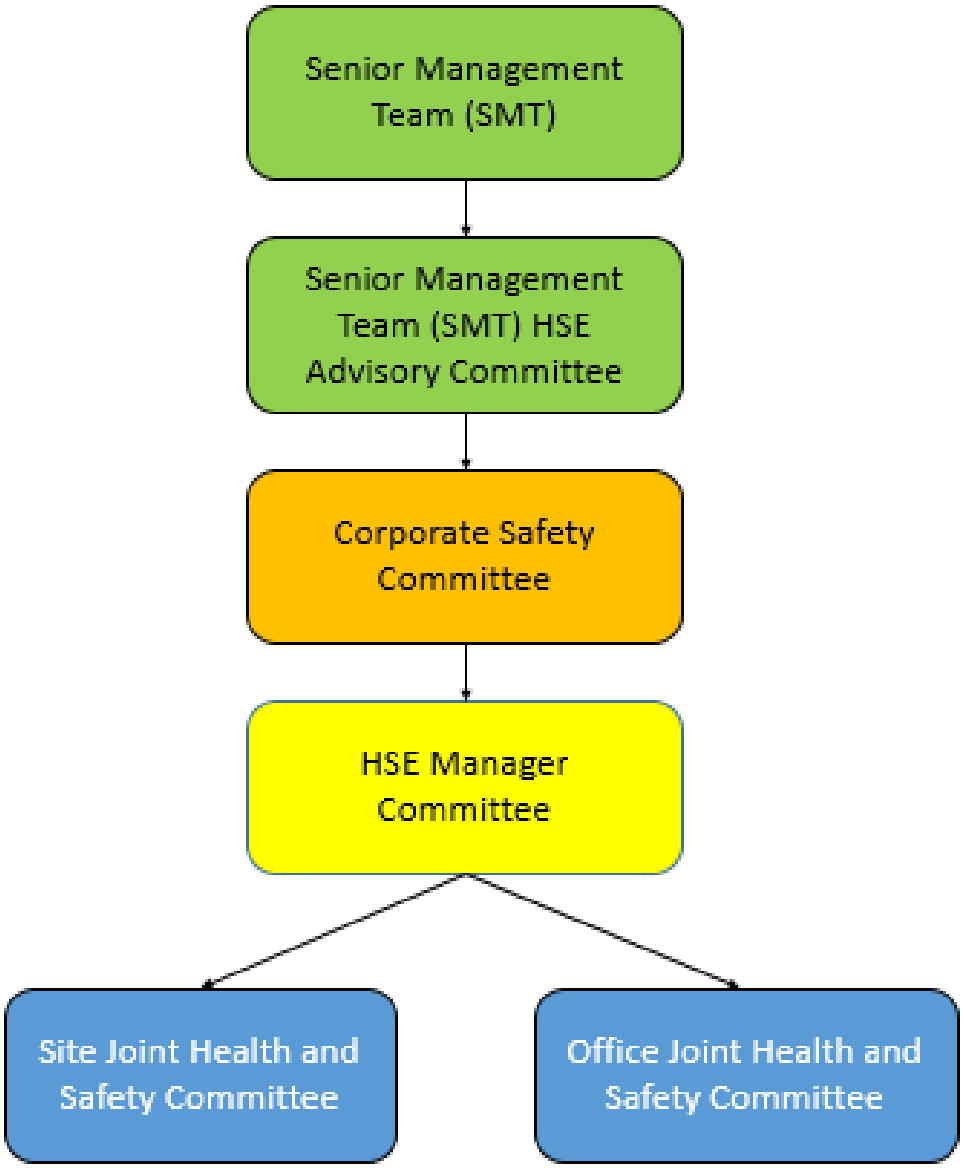
The following are ways in which Black & McDonald plans for, and communicates our continuous improvement efforts:

- Annual review and update of Corporate and Regional strategic plans
- Quarterly Review Meetings
- All-Staff Meetings
- Monthly Incident Review Meetings
- Internal and External audit results and analysis
- Good Catch Program
- Lessons Learned

10.3.1 Forms, Records

- Subcontractor Management Process
    - Online Portal
- Corrective Action Process
    - Corrective Action Tracking
- Corporate HSE Stats
    - Project Safety Planning, Site Inspections, Hazards Identification
    - Senior Management Task Observations/Site Inspections
- Management of Change Forms
    - Document Review for Approval/Acceptance
    - Document/Work Process Change Approval
- Corporate HSE Policy
    - Regional Policy signed by VP available on Teams

HSE Communications Structure:



SECTION FIVE: APPENDIX

5.1 POLICIES

5.1.1 CSC Policies
5.1.2 HR Policies

5.2 FORMS

5.2.1 Employee Orientation Forms
5.2.2 Incident Forms
5.2.3 Project Report Forms
5.2.4 Work Protection Forms
5.2.5 Equipment Inspection Forms
5.2.6 Management Of Change Forms
5.2.7 Emergency Preparedness & Planning
5.2.8 Document Control
5.2.9 HR Forms

5.3 PROGRAMS

- BM-P01 Working at Heights
- BM-P02 Craning and Rigging
- BM-P03 Working Alone
- BM-P04 Confined Space
- BM-P05 Personal Protective Equipment
- BM-P06 Electrical Safety
- BM-P07 Ground Disturbance
- BM-P08 Managing Hazardous Energy
- BM-P09 Ladders, Entrances and Walkways
- BM-P10 Lifting and Handling Loads
- BM-P11 Powered Mobile Equipment
- BM-P12 Hot Work
- BM-P13 Respiratory Protection
- BM-P14 Noise Exposure
- BM-P15 Heat and Hold Stress
- BM-P17 Powered Tools and Equipment
- BM-P18 Chemical and Biological Hazards
- BM-P19 Asbestos Control
- BM-P20 Pressure Testing
- BM-P21 Hydrogen Sulfide (H2S)
- BM-P23 Material Storage and Housekeeping
- BM-P24 Fatigue Management
- BM-P25 Journey Management
- BM-P26 Silica
- BM-P28 Anhydrous Ammonia (NH3)
- BM-P29 Occupational Health and Wellness
- BM-P30 Industrial Hygiene
- BM-P31 Emergency Response
- BM-P32 Work Refusal
- BM-P33 Incident Communication and Management
- BM-P34 Environmental Management
- BM-P35 Procurement and Change Management
- BM-P36 Subcontractor Management
- BM-P37 Good Catch
- BM-P38 Preventative Maintenance
- BM-P39 Vulnerable Workers