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I. INTRODUCTION

The Metals Industry Research and Development Center (MIRDC) recognizes that adherence to a formal risk management process that is fully integrated in all its organizational processes including strategic planning contributes to the achievement of its goals and objectives and improvement of its performance in governance, efficiency in operations, product and service quality, health and safety, security, reputation, legal and regulatory compliance and environmental protection.

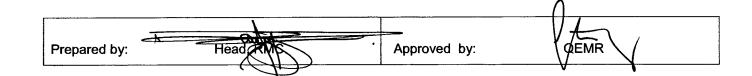
Within the confines of MIRDC, risks can come from uncertainty in operational risks, legal liabilities, project failures, security, and accident, among others. While MIRDC believes that risks are unavoidable and that its available resources for managing these risks are finite, its aim is to achieve an optimum response to risk, prioritized in accordance with the risk evaluation process.

For MIRDC, risk management is the identification, analysis and evaluation and prioritization of risks followed by well-coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of undesired events. Thus, risk management in MIRDC covers processes such as identifying risks, analysing and evaluating risks, risk treatment, monitoring and reviewing and reporting risks. Once risks are assessed, the risk priorities are set whereby the less acceptable the exposure in respect of a risk, the higher the priority is given to addressing it. The highest priority risks are given regular attention at the highest level of the MIRDC management and are consequently considered regularly by the proactively TQM Steering Committee. By addressing risks identifying and opportunities, MIRDC, consistently focused on its vision and guided by its mission, protects and creates value for its stakeholders, including the customers, employees, external providers, regulatory bodies and society as a whole.

II. OVERVIEW: MIRDC RISK MANAGEMENT PLAN

1. Purpose

The purpose of this Risk Management Plan (RMP) is to describe the methodology for identifying, analyzing and evaluating, treating, monitoring and measuring, reviewing and reporting risks of the Metals Industry Research and Development Center (MIRDC).



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2. Risk Philosophy

MIRDC has adopted a dynamic risk management approach in identifying, evaluating and controlling existing and potential risks at all organizational levels. Proper management of its assets and processes and procedures will ensure the continuity of its operations. Everyone in the MIRDC is responsible in the implementation of the risk management system to ensure its success and likewise, ensure its continuing suitability, adequacy and effectiveness.

3. Scope

The scope of this document pertains to the entire operation of the MIRDC and its internal and external risks. The risk management methodology identified in this document will be used by all MIRDC process owners and project implementers who are responsible for managing and reporting risks in their respective division/section/project and maintaining their Candidate Risk Register.

4. Document Maintenance

This document will be reviewed annually to assess the need for changes to the risk management system. When the need for changes occur, revision of the document will follow the documented procedure PM-MIRDC 07-01, Control of Documents.

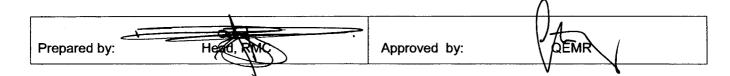
III. RISK MANAGEMENT STRUCTURE, AUTHORITY AND KEY ROLES & RESPONSIBILITIES

The Risk Management Structure of MIRDC is comprised of the TQM Steering Committee, the Risk Management Committee (RMC), the Risk Owners, the Internal Audit Committee and Members and Stakeholders.

The TQM Steering Committee

Overall, the TQM Steering Committee (TQMSC), chaired by the Executive Director, acts as the policy-making body responsible for setting the direction and overseeing the implementation of activities and projects under the different components of the TQM Program such as ISO, 5S and Employee Suggestion Program (ESP).

The TQMSC plays a critical role in the MIRDC's risk management approach. Specifically, the TQMSC, supported by the Risk Management Committee and Internal Audit Committee, has an



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oversight role over the Center's risk management system thus, its ability to assess the effectiveness of those processes in identifying, assessing and managing the Center's most significant exposures is of utmost importance. The TQMSC ensures that risk exposures are consistent with MIRDC's overall appetite for risks and approves the Center's risk management policies.

The TQMSC structure is presented in Office Order No. 17, Series of 2016 dated 29 February 2016.

Risk Management Committee

At MIRDC, the Risk Management Committee (RMC) is the core group created by the Executive Director and is tasked to represent the TQMSC in discharging its responsibility relating to risk management. The committee is comprised of a Chairman, a Vice Chairman and three (3) members.

The TQMSC believes that it can effectively perform its oversight of key risk exposures for preservation and enhancement of stakeholder value if it can delegate to the RMC the task of preparing an appropriate strategic agenda for the TQMSC and ensuring that the TQMSC is provided information necessary for making good risk management decisions.

The RMC is intended to assist the TQMSC in understanding and assessing MIRDC's strategies with risk exposures and in reviewing significant risk exposures and the steps management has taken to monitor, control and report such material risks including operational, reputational, strategic, technology and any other form of risk as approved by the TQMSC.

The Risk Management Committee also assists in defining the MIRDC risk appetite and oversees the risk profile and performance against the defined risk appetite. The committee reviews the MIRDC risk appetite statement on an annual basis and recommends it for approval by the TQMSC.

The committee meets quarterly to review risks – identified or emerging – and present to the TQMSC a report summarizing the Committee's review of the Center's methods for identifying and managing risks and recommend any changes deemed appropriate taking into consideration the Center's scope of operations to ensure the continuing adequacy and effectiveness of the MIRDC's risk management system. Such report must include assessment of compliance with applicable statutory and regulatory requirements.

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To perform its role effectively, each Committee member must obtain an understanding of the Center's operating environment. The functions and activities of the RMC are coordinated through the Division/Section Representatives (DSRs). Specifically, the roles and responsibilities of the Committee in risk management are as follows:

- a. Assists the TQM Steering Committee in fulfilling its corporate governance responsibilities relating to risk management;
- b. Responsible for overseeing the implementation of risk management activities and projects;
- Assists the TQM Steering Committee in assessing the different types of risk to which the Center is exposed and enabling the efficient and effective management of significant risks;
- d. Reviews the effectiveness and suitability of the Center's Risk Management Plan and process;
- e. Recommends the approval of the Consolidated Risk Register to the TQM Steering Committee:
- f. Ensures that the MIRDC's risk management system is communicated to all delivery units within the organization so that it is properly integrated into the Center's overall operational strategy; and
- g. Conducts periodic reviews to assess compliance with and effectiveness of processes and procedures with respect to risk management.

The Risk Management Committee is responsible for maintaining the Consolidated Risk Register - a repository for all significant risk information across various divisions/sections/projects of the MIRDC.

Risk Owners

The Risk Owner participates and coordinates the risk management function of the Risk Management Committee and is responsible for championing and taking ownership of the risk management effort at the division/section/project level, taking the lead in risk assessment, mitigation planning and execution activities, facilitating communication throughout the implementation of the risk management approach and ensuring that the Candidate Risk Register is reviewed and updated, as necessary. The Risk Owner is responsible for providing the RMC with recommendations and updates on risk actions.

Risk owners at the division/section/project level have been identified and made accountable for managing specific risks, supported by process owners who have been designated, trained, and made responsible for the particular process or activity from which

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the risk arises. This is consistent with management's belief that risks are best understood and managed by the employees who are closest to the process.

The Risk Owner is responsible for maintaining the Candidate Risk Register - a repository for risk information at the division/section/project level.

Internal Audit Committee

The role of the Internal Audit Committee in the risk management system includes:

- coordinating risk reporting to the TQM Steering Committee;
- focusing the audit work on the identified significant risks;
- monitoring progress with audit recommendations;
- · providing assurance on the management of risk; and
- providing active support and involvement in the risk management system.

Members and Stakeholders

The role of the MIRDC's personnel and stakeholders is to participate in the Risk Management process by providing candidate risk input, and supporting risk mitigation planning and execution activities.

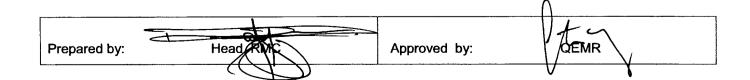
IV. RISK MANAGEMENT PROCESS

The Risk Management Process Diagram shown in Figure 1 summarizes the Risk Management process of MIRDC.

- Step 1 Risk Identification
- Step 2 Risk Analysis and Evaluation
- Step 3 Risk Treatment
- Step 4 Monitoring and Review

Continuous Process - Communication and Consultation

The communication and consultation process interacts with the different processes of the risk management function and is essential in achieving successful risk assessment and treatment. Establishing the context in which MIRDC operates forms part of the risk management system.



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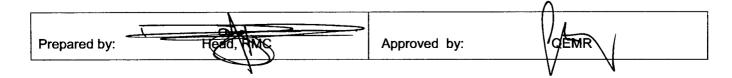
A documented procedure (PM-MIRDC-06-01, Risk Management Process) forms part of the MIRDC Procedures Manual.

Tables 1, 2, 3 and 4 show the Criteria for Risk Impact, Criteria for Risk Probability, Severity Levels and Risk Severity Matrix, respectively.

Monitoring and Review Risk Identification Risk Analysis and Evaluation

Figure 1: MIRDC Risk Management Process Diagram

Table 1 presents the MIRDC Criteria for Risk Impact. Risk impact is a description of the consequences of the risk occurring. Determining the risk impact considers the consequences the risk would have on the division/section/project if the risk event occurs. The Criteria for Risk Impact is a guide for evaluating the risk consequences and determining the risk impact, expressed as "insignificant," minor", "moderate," "major" or "extreme." In the Risk Register, impact is recorded as a number from 1 (Insignificant) to 5 (Extreme).



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Risk impact determination considers the criticality of internal and external factors within the specific context of the division/section/project. The Risk Owners use the criteria in Table 1 as an initial guide for assigning risk impact, but will confirm the resulting risk impact with the Risk Management Committee.

Table 1: Criteria for Risk Impact

Impact Score	Qualitat	tive Impact
Extreme (5)	Occurrence of the risk may result in: significant impact on the organization's strategy or operational activities significant failure involving major rework or major setback that directly affects the project's objectives loss/destruction of major tangible assets, resources or sensitive data significant harm to MIRDC's reputation or interest	 one or more MFOs/organizational commitments unachievable inability for a substantial portion of a delivery unit to perform projects for more than four months legal action or regulatory intervention significant stakeholder concern
Major (4)	Occurrence of the risk may result in: material impact on the organization's strategy or operational activities failure that involves significant rework, modification or reassessment loss/destruction of important tangible assets, resources or sensitive data serious harm to MIRDC's reputation or interest serious stakeholder concern	 one or more MFOs/organizational commitments unable to be achieved in planning timeframe inability for a substantial portion of a delivery unit to perform projects for a period between one and four months regulatory warning
Moderate (3)	Occurrence of the risk may result in: moderate impact on the organization's strategy or operational activities failure or setback that causes additional work and reassessment but containable moderate loss of tangible assets or resources moderate harm to MIRDC's reputation or interest	 a key strategic goal cannot be attained without significant revision and delay over a year a small number of projects disrupted for more than 4 months regulatory attention moderate stakeholder concern

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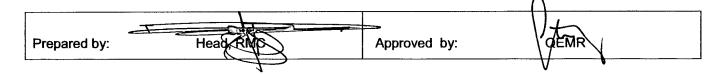
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Impact Score	Qualitative Impact		
Minor (2)	Occurrence of the risk may result in: minor impact on the organization's strategy or operational activities impact has some effect causing rework or reassessment but easily handled loss of minor tangible assets or resources noticeable effect on MIRDC's reputation or interest	 one or more strategic goals not attainable and must be revised small number of projects disrupted for 1 to 4 months warning or order to comply from regulatory authority minor stakeholder concern 	
Insignificant (1)	Occurrence of the risk may result in: insignificant impact on the organization's strategy or operational activities little impact, minor inconvenience, effects easily remedied loss of some tangible assets or resources less noticeable effect to MIRDC's reputation or interest	 achievement of a strategic goal delayed within fiscal year small number of projects disrupted for under one month no legal or regulatory consequences low stakeholder concern 	

Table 2 shows the MIRDC Criteria for Risk Probability. Determining risk probability involves considering the likelihood of the risk event actually occurring. The Criteria for Risk Probability is a guide for the risk probability either as "rare," "unlikely," "possible," 'likely," or "almost certain." In the Risk Register, probability is recorded as 1 to 5. The determination of risk probability considers the criticality of internal and external factors within the specific context of the division/section/project. The Risk Owners use the criteria in Table 2 as an initial guide for assigning risk probability, but will confirm the resulting risk probability with the Risk Management Committee.

Table 2: Criteria for Risk Probability

PROBABILITY SCORE	DESCRIPTION	PROBABILITY OF OCCURRENCE
Almost Certain (5)	The risk is expected to occur in most circumstances	> 90% chance to occur in one year or similar events occur once or more each year
Likely (4)	The risk will probably occur	between 51% to 90% chance to occur in one year or similar events occur between 1 – 3 years
Possible (3)	The risk might occur at some time in the future	between 11% to 50% chance to occur in one year or similar events occur between 3 - 5 years



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Unlikely (2)	The risk could occur but doubtful	5% to 10% chance to occur in one year or similar events occur between 5 – 10 years
Rare (1)	The risk may occur but only in exceptional circumstances	< 5% chance to occur in one year or has not occurred in the last 10 years

Risk exposure is the consequences which may be experienced by the MIRDC if a risk event occurred. The risk exposure or risk severity, expressed in terms of the product of impact and probability, is used in conjunction with timeframe to prioritize risks for appropriate action (e.g., mitigation) and escalation. For each risk under consideration, the risk owner determines the risk exposure from the intersection of that risk's impact and probability. In the Risk Register, risk exposure is calculated by multiplying the impact and probability (a number from 1 to 5). Table 3 provides a summary of severity scores using a 5-point scale.

When determining the probability, impact and severity of an identified risk, it is first measured at its inherent level – the level of risk in each event before any control or mitigation action is taken.

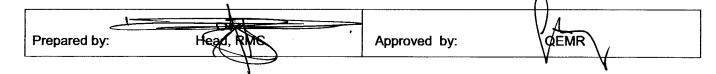
Table 3. Severity Levels

Severity Level	Equivalent Severity Score
Low	₹5
Modest	5 to 11
Moderate	12 to 19
High	› 19

Table 4 presents the Risk Severity Matrix of MIRDC. As shown, a risk in the green zone indicates a low risk, the yellow zone indicates modest risk, the amber zone indicates moderate risk, and the risks with the highest impact and likelihood are in the red zone.

Table 4: Risk Severity Matrix

			IMI	PACT		1
•		1	2	3	4	5
8	1					5
8	2			6	8	10
	3		6	9	12	15
5	4		8	12	16	
> L	5	5	10	15		



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VI. RISK APPETITE

The risk appetite definitions of MIRDC are presented below:

Table 5: Risk Appetite Definitions

APPETITE LEVEL	RISK APPETITE DESCRIPTOR	DEFINITION
1	Avoid	Not willing to accept risks in most circumstances
2	Modest	Willing to accept some risks in certain circumstances
3	Moderate	Willing to accept risks
4	Aggressive	Willing to accept opportunities having high risk exposure

MIRDC defines its aggregate risk appetite as "modest" and confirms that it is willing to accept some risks in certain circumstances.

VII. GLOSSARY OF TERMS

The definition of terms as used in the risk management plan is based on the ISO 31000:2009 and ISO Guide 73:2009 standards.

Residual Risk: Is the risk remaining after risk treatment.

Risk: A risk is the effect of uncertainty on objectives. An effect is a deviation from the expected - positive and/or negative.

Risk Analysis: A process to comprehend the nature of risk and to determine the level of risk. Risk analysis provides the basis for risk evaluation and decisions about risk treatment.

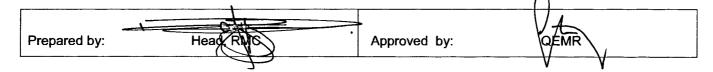
Risk Appetite: Is the amount and type of risk that an organization is willing to pursue or retain.

Risk Criteria: The terms of reference against which the significance of a risk is evaluated.

Risk Evaluation: Is the process of comparing the results of risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable.

Risk Event: The occurrence or change of a particular set of circumstances. An event can be one or more occurrence, and can have several causes.

Risk Identification: A process of finding, recognizing and describing risks. Risk identification involves the identification of risk sources, events, their causes and their potential consequences.



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Risk Impact: The consequence of an event affecting objectives.

Risk Owner: A person with the accountability and authority to manage risk.

Risk Probability: The likelihood of the occurrence of a risk.

Risk Register: Is the record of information about identified risks.

Risk Severity: This is the product of the probability and impact that determines the magnitude of the risk under consideration.

Risk Treatment: A process to modify risk. Risk treatment can involve: avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk: taking or increasing risk in order to pursue an opportunity; removing the risk source; changing the likelihood; changing the consequences; sharing the risk with another party or parties; and retaining the risk by informed decision.

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