



MMS North America Program

Risk Assessment Program

Risk Assessment Program

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1 PURPOSE

The purpose of this program is to define responsibilities and establish the minimum requirements for operations to identify and understand environmental, sustainability, health, and safety (EHS) risks and impacts, and apply a consistent approach for implementing controls for reducing or eliminating risks.

2 SCOPE

This program applies to all NAB and U.S. Distribution sites that are in-scope of the MMS.

- Bartow / S. Pierce, New Wales, Riverview, and Faustina/Uncle Sam facilities
- Florida Mining facilities
- Belle Plaine, Carlsbad, Colonsay, and Esterhazy mines
- Big Bend, Pine Bend, Pekin, and Tampa Marine warehouse Distribution facilities
- Black Point, Henderson, Hooker's Point, and Port Sutton ammonia Distribution facilities.
- Sulphur Galveston, Sulphur Pendola Point, Sulphur River, and Sulphur Tampa Port sulfur Distribution facilities

Idle sites, capital, mergers/acquisitions are exempt as per the Mosaic Management System.

3 APPENDICES

4 GENERAL REQUIREMENTS

- 4.1** Every site covered by this program shall have a process in place to identify, assess, and communicate risk.

5 GENERAL RESPONSIBILITIES BY ROLE

5.1 Site Leadership

- 5.1.1 Maintain site EHS Risk Register with all existing and new risks identified.
- 5.1.2 Identify a site owner of the EHS Risk Register
- 5.1.3 Request and allocate necessary resources for the implementation of control measures to achieve and maintain an acceptable level of risk.
- 5.1.4 Ensure that a Cross-Functional Team (CFT) is used for the purpose of assessing risks, selecting appropriate control measures, and conducting the annual Risk Register reviews.
- 5.1.5 Ensure that the site's top 25 risks based on inherent risk scores in the Risk Register are reviewed annually.



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5.1.6 Ensure that the site's top 25 risk based on residual risk scores in the Risk Register are reviewed annually.

Ensure that other risks are reviewed when any of the following apply:

- Incident occurs
- New control is added, or existing control is removed.
- Process or procedure change impacts the risk entry (often MOC driven)
- Regulatory changes impact the risk entry.

5.2 People Leaders

- 5.2.1 Communicate with workers the EHS risks and controls associated with their tasks.
- 5.2.2 Ensure that site personnel provide input into the Risk Register, including but not limited to frequent reviews seeking opportunities for risk reduction, training on hazards and understanding operational controls etc.
- 5.2.3 Reference the EHS Risk Register during incident investigations.
- 5.2.4 Consult the EHS Risk register to prioritize work if applicable.
- 5.2.5 Consult the EHS Risk register when developing site goals where applicable.
- 5.2.6 Ensure Risk Register and project review meetings are conducted.
- 5.2.7 Ensure personnel are familiar with the risks associated with the work and understand operational controls in place.
- 5.2.8 Utilize reports and / or information from the Risk Register to promote or prioritize site EHS improvements.

5.3 Health, Safety & Environmental Team

- 5.3.1 Participate in the EHS Risk Register review meetings when requested.
- 5.3.2 Reference the EHS Risk Register during incident investigations and when drafting final reports.
- 5.3.3 Support the top 25 review process where requested.
- 5.3.4 Support updates to the Risk Register with the assistance of other subject matter experts resulting from any of the following:
 - 5.3.4.1 Incident Investigation
 - 5.3.4.2 Self-Assessment or reviews
 - 5.3.4.3 Management of Change
 - 5.3.4.4 Employee Identification
 - 5.3.4.5 Risk Reduction Projects



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5.4 All personnel (Employees and Contractors)

- 5.4.1 Identify and communicate new EHS risks or concerns with site people leaders.
- 5.4.2 Understand EHS risks and controls in place in their specific work areas.
- 5.4.3 Participate in completing risk assessments within their work areas and scope of work.
- 5.4.4 Participate as a member of a CFT when asked.

6 Risk Assessment Process

6.1 The Risk Register will house the categories of risk listed below:

- 6.1.1 Safety Risk
- 6.1.2 Health Risk
- 6.1.3 Environmental Risk
- 6.1.4 Sustainability Risk (upcoming)

6.2 The Risk Register will be housed within the tool set published by the EHS services group.

6.3 Risks are input into the EHS Risk Register and assigned both an inherent and residual risk rating based on potential severity and probability of impact to people or the environment due to a hazard.

- **Inherent Risk:** refers to risk that exists before any effective operational controls are in place

$$\text{Inherent Risk} = S \times P \times 10$$

Where S = Severity of Consequence (1 – 5 scale)

P = Exposure/Likelihood/Enforcement Probability (1 – 5 scale)

Note: Inherent Risk total will be between 10 and 250.

- **Residual Risk:** is the actual risk based on having operational controls in place (assuming they are effective)

$$\text{Residual Risk} = \frac{S \times P \times 10}{\text{CCE}}$$

Where S = Severity of Consequence (1 – 5 scale)

P = Exposure/Likelihood/Enforcement Probability (1 – 5 scale)

CCE = Current Control Effectiveness (1 – 1,000 scale)

Each formula utilizes quantified assessments for Severity of Consequence (Severity) and Exposure/Likelihood/Enforcement Probability (Probability), with the Residual Risk formula accounting for Current Control Effectiveness (CCE).

6.4 Severity of consequences

Severity is a measurement of the impact that a risk will have if it results in an incident. There are four different Severity scoring systems, Safety, Environmental, Health and Sustainability. The Safety and Health Severity scoring systems have a single scale from 1 to 5. Due to the larger variety of potential impacts from an Environmental or Sustainability risk, these scoring systems have five different scoring scales each from 1 to 5.

6.5 Probability

Probability (P) describes the level of exposure to risk by an individual, group, community, or environment.

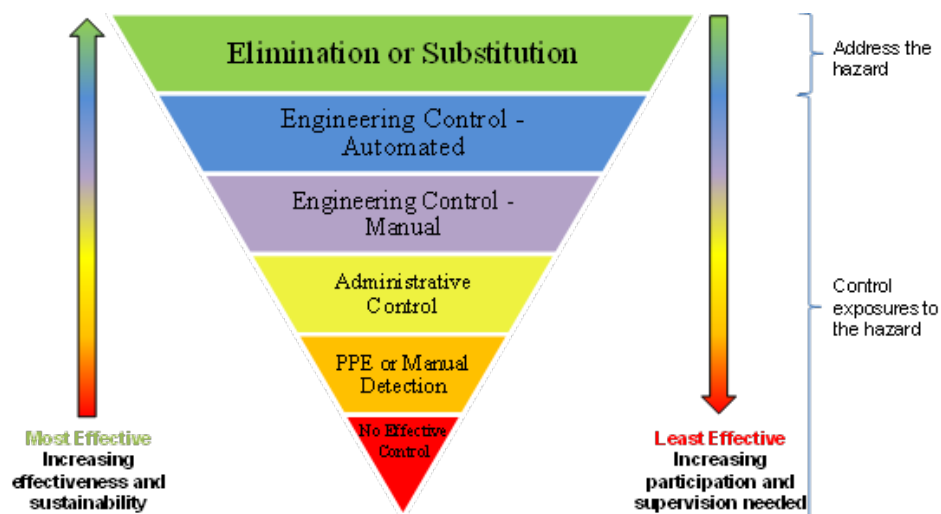
There are two different Probability scoring systems, one for Safety and Health and one for Environmental and Sustainability. Within each scoring system there are five different Probabilities used to account for various elements.

6.6 Current Control Effectiveness

Controls are put in place to mitigate (lessen) an Inherent Risk. Once controls are in place, an Inherent Risk will be scored as a Residual Risk. Current Control Effectiveness (CCE) refers to how effective the controls in place are in mitigating a particular risk.

The Hierarchy of Controls below indicates how successful each category of control is in mitigating risk. The system is called a hierarchy because success of a control decreases down the hierarchy with the top level (elimination or substitution) being the most effective and the bottom being the least effective with no effective controls.

Based on the Hierarchy of Controls, two separate CCE scores have been developed for Mosaic Safety/Health and Environmental/Sustainability risk scoring.





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6.7 Risk Controls and Implementation

6.7.1 Operational controls refer to the proactive and reactive measures put in place to prevent hazards from occurring or mitigates the effects of a hazard. The hierarchy of controls is used when identifying controls that are in place at the site. The following categories are used to support this process:

- 6.7.1.1 Elimination
- 6.7.1.2 Substitution
- 6.7.1.3 Engineering – Automated
- 6.7.1.4 Engineering – Manual
- 6.7.1.5 Administrative / Manual
- 6.7.1.6 Personal Protective Equipment (PPE)
- 6.7.1.7 Manual detection
- 6.7.1.8 No effective control

6.7.2 All operational controls are listed, and the highest level of effective controls determine the current control of effectiveness (CCE).

6.8 The detailed information to support determining the severity consequence and probability is available in the risk assessment forms. Severity and probability explanations are defined for all risk types.

6.9 Identifying and Assessing Risk

6.9.1 New and reassessed risks will be captured in the Risk Register through the assessment completed by a cross functional team.

6.9.2 There are multiple events that could trigger the reassessment of a risk in the Risk Register:

- 6.9.2.1 Self-Assessments / PHAs/ DHAs/ Drills / Risk Reduction Projects/ Safety Committee/ Employee identified/ Cross Sharing of Risk Reductions
- 6.9.2.2 Incident Investigation
 - Whenever an incident occurs at a facility that requires a mandatory investigation the Risk Register is consulted / reviewed during the investigation
 - When the Final Notice for an incident is generated any updates made to the Risk Register are stated on the Final Notice.
- 6.9.2.3 Management of Change
 - The Risk Register should be consulted/reviewed during an MOC.



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- From here it is determined whether an operational control needs to be added to the Risk Register, a new risk needs to be added to the Risk Register, or if no changes are required.

6.9.3 A risk can be reassessed multiple times. There are various factors that could trigger a reassessment of a risk. These could include but are limited to a new control being added to the risk, a change in the frequency to the exposure of the risk or to the severity of exposure to the risk.

6.10 Identifying a Significant Risk

6.10.1 Significant risk in the register is a risk with an inherent score of 200 and above, the sites may also deem a risk to be significant within the register by selecting the significant box in the Risk Register tool.

6.10.2 Each site may elect to identify significant risk outside of the 200 inherent score and review significant risk at their site on a regular frequency.

6.11 Cross Functional Teams will consist of both leaders and workers that have a vested interest in the risk being assessed.

7 Training, Qualifications and Competencies

Table 1			
Audience	Training Elements/Topics	Frequency	Method
Any person whose work is governed by this document must be trained	Mosaic Risk Assessment Training	Initial	Instructor Led Training (ILT) or Computer Based Training (CBT)

8 DEFINITIONS

- **Environmental Risk:** Conditions or behaviors that could cause environmental incidents resulting in unfavorable impact to the physical environment. Also includes the risk of incidents resulting in environmental regulatory actions.
- **Sustainability Risk:** Risks associated with the consumption of water, energy, and natural resources. It also includes the generation of waste, tailings, and greenhouse gasses. Additionally, it includes any risk that affects the long-term viability of our business and Mosaic's social license to operate affecting diversity, community involvement, and public relations.



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- Safety Risks: Risk of physical injury to personnel or the risk of operational barriers resulting in safety related regulatory actions.
- Health: Risks impacting the overall health and wellbeing of personnel. This includes on-site medical treatment / services, ergonomics, industrial hygiene, physical fitness, psychological wellness, and psychological safety.
- All other definitions in this program can be found in the [EHSS Corp Reference Glossary of Terms](#).

9 REFERENCES

References (Number and title)
Mosaic Management System Elements (folder link)
EHSS Corp Reference Glossary of Terms
Risk Assessment Forms

10 REVISION LOG

Rev. No.	Rev. Date	Revised By	Reason for Revision
0	September 15 2023	MMS	Initial release
1	July 30 2024	MMS	Addition of Health and Sustainability Risks
2	4/1/2025	MMS	Addition of corporate risk program language, definitions, and removal of variance language