Fall Protection

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1. PURPOSE

To establish a program for the use of fall protection systems and devices used for employee protection. . The objective of this program is to protect all personnel from the risk of injury due to falls. It addresses when personal fall arrest systems are to be used along with the use and inspection of all fall protection systems and devices.

2. SCOPE

This program covers all Phosphate Business Unit employees and contractors performing work on Mosaic Fertilizer phosphate property.

3. DEFINITIONS

3.1 Anchorage - A secure point of attachment for life lines, lanyards or deceleration devices.

3.2 Body harness - Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

3.3 Deceleration device - Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting life lines/lanyards, etc. which serves to dissipate a substantial amount of energy during a fall, or otherwise limit the energy imposed on an employee during fall arrest.

3.4 Free fall - The act of falling before a personal fall arrest system begins to apply force to arrest the fall.

3.5 Free fall distance - The vertical displacement of the fall arrest point on the employee's body belt or harness between onset of the fall and just before the system begins to apply force to arrest the fall.

3.6 Guardrail system - A barrier erected to prevent employees from falling to lower levels.

3.7 Lanyard - A flexible line of synthetic rope or strap material that has connectors at each end for connecting the body harness to a lifeline or anchorage.

3.8 Ladder safety system - A system attached to a fixed ladder designed to eliminate or reduce the possibility of a worker falling off the ladder. A ladder safety system usually consists of a carrier, safety sleeve, lanyard, connectors, and body harness. Cages and wells are not considered ladder safety systems.

3.9 Lifeline - A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorage at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

3.10 Personal fall arrest system (PFAS) - A system including but not limited to an anchorage, connectors, and a body harness used to arrest an employee in a fall.

3.11 Positioning device system - A body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall or roof, and work with both hands free while leaning.

3.12 Safety monitoring system - A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

4. PROCEDURE

4.1 General Requirements

4.1.1 Body harnesses with a lanyard properly attached and anchored shall be worn at all times when working four (4) feet or more above a lower level when the employee is not protected by standard guardrails or other acceptable means of fall protection.

a. This does not apply to: ladders, mounting or dismounting mobile equipment, cranes and draglines, or the servicing of mobile equipment and cranes unless a means of fall protection is available. Best management practices should be followed by providing fall protection for equipment servicing and maintenance where feasible.

4.1.2 One-hundred percent tie-off shall be maintained at all times when using fall protection. Examples are: a double lanyard or self-retracting lifeline.

4.1.3 All fall protection equipment and devices purchased and used on Mosaic property shall meet ANSI Z359.1-1992 and ANSI A10.14-1991 standards. All equipment and devices shall be used per the manufacturer's instructions, be properly tagged or labeled, and may not be modified.

a. Components within a fall protection system shall be of the same manufacturer unless written approval is obtained from the manufacturer or the system is designed and used under the supervision of a competent person.

4.1.4 All fall protection equipment including body harnesses, lanyards, and specialized devices shall be inspected by the user for damage or defects before each use and removed from service if any damage is detected.

4.1.5 All incidents that result in or could have resulted in injury due to a fall from an elevated height will be investigated. The investigation will be performed to identify any deficiencies in the fall protection program where additional training or equipment may be needed.

4.1.6 The body harnesses and lanyard (PFAS) shall be rigged such that an employee can neither free fall more than four (4) feet or contact any lower level.

4.1.7 All fall protection systems or equipment subjected to impacts from a free fall or other use shall be removed from service and destroyed, or inspected and re-certified by the manufacturer.

4.2 Lanyards/Connectors

4.2.1 Lanyards shall be a minimum one-half inch (1/2") Dacron, polyester, or equivalent strength material. Nylon or natural rope shall not be used. All lanyards shall have the ANSI approval tag or label clearly visible.

4.2.2 Single lock lanyard snap hooks shall not be used.

4.2.3 Lanyards and connecting snap hooks shall be inspected before each use and removed from service if any damage or defects are noticed.

4.2.4 Lanyards shall be attached only to proper anchor points (a secure point of attachment for lanyards, lifelines, or deceleration devices that is capable of supporting 5000 pounds). The anchor point should be above the work position and any slack kept to a minimum.

a. Examples of **proper** anchor points include: pad eyes designed for fall protection; substantial structural steel components in good condition; engineered permanent or portable anchor devices used per manufacturer's recommendations.

b. Examples of anchorages **not allowed**: any conduit or cable tray; fibercast pipe; small diameter pipe of any material of construction; handrails (unless capable of supporting 5,000 lbs. per employee).

4.2.5 The body harnesses lanyard attachment point shall be placed in between the shoulder blades for fall arrest purposes. Other "D" rings on harness shall be used for positioning or retrieval purposes.

4.2.6 Lanyards shall be visually inspected to ensure that snap hooks engage freely and keepers are closed completely after hook up.

4.2.7 Lanyards shall not be joined or hooked together by the snap hooks.

4.2.8 Lanyards shall not be wrapped around a beam or sharp structure that could cut or damage the lanyard. A webbing strap or other approved anchoring device will be used.

4.2.9 A Lanyard shall not be attached back to itself (unless designed and intended to do so) or have knots in the lanyard.

4.2.10 Lanyards shall not be hooked to the edge of beams or supports that do not allow the snap hook to fully engage.

4.2.11 Leading Edge Safety - leading edge work occurs when a worker uses a fall protection system anchored at foot level behind them and then moves away from the anchor point, exposing the worker to a potential fall over the edge of the surface they are working on.

a. A leading edge SRL is a self retracting lifeline manufactured specifically to meet the ANSI Z359.14-2021 standard. This standard calls for specific accommodations for leading edge applications and foot-level fall events.

b. In order to meet the ANSI Z359.14-2021 standard, a leading edge SRL will be made of stronger cable, will feature more wear-resistant components, and it will include robust energy absorbing technology integrated into the lifeline. They typically have been extensively tested in sharp-edge, leading edge, and foot-level applications.

NOTE: *Leading Edge Safety will be considered for any job/task where the use of a Leading Edge SRL may be applicable.*

4.3 Horizontal Lifeline Systems

4.3.1 Permanent and temporary horizontal lifelines constructed on Mosaic property shall be constructed and maintained to the specifications set forth in this policy.

a. Permanent horizontal lifelines shall be inspected initially (before use) and annually thereafter by a qualified engineer to certify the system is safe for use. A tag or label

will be conspicuously posted in the vicinity of permanent horizontal lifelines with the date of the last annual inspection and the name of the person who performed the inspection. Documentation of the inspections shall be maintained.

b. Temporary horizontal lifeline systems constructed for use shall meet the specifications set forth in this policy and shall be inspected by a qualified engineer before use. Documentation of the inspection shall be maintained.

4.3.2 A documented monthly visual inspection shall be performed on all permanent horizontal lifelines and connectors. The documentation shall be maintained.

4.3.3 Temporary manufactured horizontal lifeline systems shall be installed and used by trained personnel per the manufacturers' instructions.

4.3.4 Horizontal lifelines shall be capable of supporting a static load of at least 5,000 pounds per employee using the lifeline, applied anywhere along the lifeline; or shall be designed, installed, and used under the supervision of a qualified person, as part of a complete personal arrest system that maintains a safety factor of at least two.

4.3.5 Natural fiber or nylon rope shall not be used for lifelines.

4.4 Vertical Lifeline Systems

4.4.1 Vertical lifelines, rope grabs, connectors and associated equipment shall be manufactured and approved for use as a fall arrest system.

4.4.2 Vertical lifelines shall be used by trained personnel and inspected before each use.

4.4.3 Vertical lifelines shall have a tensile strength of at least 5000 pounds and have a minimum diameter of at least 5/16" for wire cable and 5/8" for all other materials.

4.4.4 Nylon or natural fiber rope shall not be used for vertical lifelines.

4.4.5 Vertical lifelines shall be used by one person at a time.

4.4.6 Anchorage for vertical lifelines shall have anchorage strength of at least 5000 pounds.

4.5 Roofing

4.5.1 Employees engaged in roofing activities on low slope roofs (a roof having a slope less than or equal to 4 in 12 - vertical to horizontal) with unprotected sides and edges 4 feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or a combination of one of the following:

a. Warning line system and guard rail system.

b. Warning line system and safety net system.

c. Warning line system and personal fall arrest system.

4.5.2 Employees working on roofs having a slope greater than 4 in 12 - vertical to horizontal with unprotected sides and edges 4 feet or more above lower levels shall be protected by either a guardrail system with toe boards, a safety net system, or a personal fall arrest system.

4.5.3 Roofing contractors performing work on Mosaic property shall demonstrate they are familiar with and comply with the requirements for fall protection as outlined in OSHA CFR 29 Subpart M - Fall Protection.

4.6 Ladder Safety Systems

4.6.1 All new and replacement fixed ladders and ladder sections that extend more than 24 feet above a lower level must have a ladder safety or personal fall protection system.

4.6.2 Cages or wells alone are not sufficient as fall protection systems on new or replaced fixed ladders and ladder sections.

4.6.3 On and after November 18, 2036, all fixed ladders over 24' in length shall be equipped with a personal fall arrest system or a ladder safety system.

4.6.4 All ladder safety systems, such as those that incorporate harnesses or body belts used for positioning, friction brakes, and sliding attachments, must meet the design requirements of the ladders they serve.

4.6.5 The ladder safety system shall be designed to absorb the impact of a solid object weighing at least 500 (five hundred) pounds in a free fall of 18 inches.

4.6.6 Design and installation mountings shall not reduce the design safety factors of the fixed ladders.

4.6.7 Safety sleeves shall be of a type which can be operated entirely by the person using the ladder safety system.

a. Safety sleeves shall permit the person using the ladder safety system to ascend or descend without having to continually manipulate the device.

b. The maximum length of the connection between the centerline of the carrier and the point of attachment to the body belt or harness shall not exceed 9 inches.

4.6.8 Approved harnesses with a front “D” ring may be used with ladder safety systems.

4.6.9 Ladder safety systems shall be inspected annually by a qualified engineer. Documentation of inspections shall be maintained in the area.

5. TRAINING

5.1 All employees potentially exposed to fall hazards will receive fall protection training on an annual basis. Employees will be trained on specialty fall protection equipment such as temporary horizontal and vertical systems and devices before use.

6. PROGRAM REVIEW/PERIODIC INSPECTIONS

6.1 Program review for Fall Protection shall be completed every seven (7) years or as required.

6.2 The Fall Protection Safety and Health Policy will be reviewed by the Safety Department on a triennial basis. The review shall include:

6.2.1 Initial and annual inspections/certification documentation on all permanent horizontal lifeline systems.

6.2.2 Monthly visual inspection documentation of permanent horizontal lifeline systems.

6.2.3 Yearly inspection documentation of ladder safety devices.

6.2.4 Incident investigations of injuries or near misses related to falls from elevated heights.

6.2.5 Overall performance of the Fall Protection Program including equipment type and availability, and employee training and awareness.

6.2.6 Employee fall protection training documentation.

7. APPENDICES

7.1 None.

8. REFERENCES

8.1 OSHA

8.1.1 29 CFR 1910.27

8.1.2 29 CFR 1926.500 - 1926.503

8.1.3 29 CFR 1910.28(b)(9)

8.1.4 Fall Protection in Construction, U.S. Department of Labor, OSHA 3146, 1998

8.2 ANSI

8.2.1 A10.14-1991 and ANSI Z359.14-2021

8.3 DBI Sala

8.3.1 “An Introduction to Horizontal Lifeline Systems”,

9. REVISION LOG

Revision Log				
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0	Initial Issue	Safety Dept.	Safety Dept.	5/14/07
0	Reformat for ISO		D. Allen	9/16/2011
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Contact the Subject Matter Expert for additional information on this program.