Conveyors Program

Document Title: Phosphates Conveyors Program		**Document Identifier:** <Generated by Content Server>	
Applies To: North America Phosphates Business		**Managed By:** NAB EHSS PMO	
Document Owner: Director, NAB Health & Safety Department		**Document Approver:** VP, NAB Operations Services	
Current Version Effective Date:	5/15/2023	**Formal Review Cycle Due Date:**	May 2030

TABLE OF CONTENTS

1. PURPOSE

To establish practices, procedures and training procedure for operations and maintenance on and around conveyors and conveying equipment.

2. SCOPE

This procedure applies to all conveyors and conveying equipment in Mosaic Fertilizer LLC Phosphate Business Unit facilities.

3. DEFINITIONS

3.1 Conveyor – A horizontal, inclined or vertical device having points of loading and discharge for moving or transporting bulk materials, packages or objects. This includes belt conveyors, screw conveyors, chain conveyors and product elevators.

3.2 Designated conveyor cross-over and cross-under (designated area) - A cross-over point to cross a conveyor that is in service that shall consist of stairs, platform, and handrails and engineered to meet walking / working surface standards, or a cross-under point shall be an area that is protected from falling debris or material.

3.3 Flag Switches – Electrical switches installed on conveyors and connected to Safety Trip Cables. Activation of the switch causes a shutdown of electrical power to the conveyor.

3.4 Guarded by Location – Moving parts so protected by their remoteness from the floor, platform, walkway, or other working level or by their location with reference to frame, foundation, or structure as to reduce risk of accidental contact by persons or objects (see Machine Guarding Procedure).

3.5 Nip Points – A point at which a machine element meets a rotating element in such a manner that it is possible to nip, pinch, squeeze, or entrap a person or object coming into contact with one of the two members.

3.6 Safety Trip Cables – Small diameter wire rope installed along the length of a conveyor that when pulled, pushed or fallen into cause sufficient movement of the Flag Switches to cause a shutdown of electrical power to the conveyor.

3.7 Trestle – An engineered structure designed to support an elevated conveyor.

4. PROCEDURES

4.1 General

4.1.1 Only a trained person shall be permitted to operate a conveyor. Training shall include instruction in operation under normal and emergency situations.

4.1.2 Cleaning and working around conveyors:

a. Conveyor belts, idlers, tables (beds), or any associated equipment, shall not be cleaned while conveyors are in operation.

b. When shutting down the conveyor for cleaning may be impractical, only a water hose or air lance may be used for cleaning. The hose or air lance may not be used any closer than three feet of any moving parts.

c. Cleaning beneath the conveyor (between the return belt on the bottom to the ground or structure below) is allowed providing it is guarded by distance, guarding or using proper equipment such as bobcats so as to not place any employee in danger. If cleaning has to be done and safeguards as mentioned are not in place then the Mosaic LOTO program shall be used. Note: For shoveling, raking or sweeping for cleaning in close proximity under conveyors belts where nips points, rollers or tail or head pulleys presents a hazard a Task Risk Assessment needs to be completed and recorded. See the Task Risk Assessment Program.

d. If anything gets caught in a moving conveyor, let it go, and pull the trip cord or push the nearest stop switch. Use proper lockout procedures before removing the object.

e. After maintenance or cleaning has occurred, it shall be necessary to determine that the work is complete; guards have been reinstalled; everyone is clear; and the proper operating personnel have been notified prior to starting the conveyor.

4.1.3 Loose clothing, long hair, jewelry, or anything that may become entangled in a conveyor part is not to be worn around conveyors.

4.1.4 Walkways along conveyors shall be kept clean and clear of all tripping hazards.

4.1.5 Conveyors shall be stopped and properly locked out before passing hoses, cables, hand tools, etc., over or under the conveyor, except at areas designated to cross over or under the conveyor.

4.1.6 Materials shall not be passed through (between the belts) conveyors unless they are stopped and locked out.

4.1.7 Work under overhead conveyors, whether operating or not, shall only be allowed if inspection of the area above indicates that the work area will be safe from falling debris.

4.1.8 Personnel shall not climb over, under, or on a conveyor that is not properly locked out, except at designated areas to cross over or under.

4.1.9 Inspection, maintenance, and repairs shall be performed in accordance with manufacturer's recommendations and by trained personnel. When adjustments or maintenance is required while the conveyor is in operation, only trained personnel who are aware of the hazards shall be permitted to make the adjustment or maintenance. Grease points should be extended outside the guard. If lubrication is to be done while the conveyor is in motion, lubrication points shall be easily accessible and safe for lubrication. Only trained personnel who are aware of the hazards shall be permitted to make the adjustment or maintenance.

4.2 Guarding and Control Equipment

4.2.1 Screw conveyors shall not be operated unless the conveyor housing completely encloses the conveyor moving elements, and power transmission guards are in place, except:

a. If the conveyor must have an open housing as a condition of its use and application, the entire conveyor is then to be guarded by location per the Machine Guarding Policy.

b. Feed openings for shovel, front-end loader, or other manual or mechanical equipment shall be constructed in such a way that the conveyor screw is covered by grating meeting the requirements for guarding per the Machine Guarding Policy. If the nature of the material is such that a grating cannot be used, the exposed section of the conveyor is to be guarded by location per the Machine Guarding Policy.

c. The use of a railing as an alternate to the use of pull cords alongside conveyor travel ways is an acceptable alternative. (MSHA sites only)

4.2.2 All remotely operated conveyors shall be equipped with an audible alarm that shall be automatically actuated prior to starting the conveyor, which may be heard along the entire length of the conveyor. Each conveyor shall be equipped with a start delay of a minimum of 15 seconds and no more than 30 seconds from the time the alarm sounds.

4.2.3 Backstop devices are required on inclined conveyors and bucket elevators.

4.2.4 Personnel passage under conveyors shall be protected to prevent injury from falling material.

4.2.5 All unguarded belt conveyors shall be equipped with Safety Trip Cables located along access ways and walkways in such a way as to cause a conveyor to trip if a person were to fall into the conveyor. The trip cord shall be maintained to operate the Flag Switches when the movement of the wire is not greater than 11.5 inches in any direction and when a force of not greater than 28 pounds is applied.

4.2.6 Any mobile equipment which operates under a conveyor belt shall have solid protection from overhead falling debris.

4.2.7 Conveyor Flag Switches shall be checked a minimum of quarterly by electrical maintenance to assure they function properly, with documentation through the Repetitive Work Order program.

4.2.8 All guards and emergency stops shall be in place while the conveyor is operating. The only exception is when testing, repairs or adjustments cannot be performed without the conveyor operating. As soon as work is completed, the guards shall be replaced. Additional detailed guarding information is contained in the Engineering Standards and Specs No. 11301.

4.2.9 Return idlers should be guarded when there is a potential of contacting them. Guarding return idlers may be required where work or travel beneath the belt.

4.2.10 All Nip Points at terminals, drives, take-ups, pull-ups, and snub rollers shall be guarded.

4.2.11 Counterweights supported by belts, cables, chains, and similar means shall be guarded

4.2.12 Conveyor counterweights shall be equipped with pad eyes when rigging is used for lifting.

4.2.13 The weight of the counterweight shall be clearly labeled.

4.2.14 Safety devices-On all conveyors where reversing or runaway are potential hazards or the effects of gravity create a potential for hazardous uncontrolled lowering, anti-runaway devices, brakes, backstops, or other safeguards shall be installed to protect

persons from injury and property from damage. A Critical Safety Bypass permit is required if any safety device is removed or found inoperable. Devices such as hold backs, pull cords, zero speed switches, field switches fall into this category. Refer to the Critical Safety Bypass Program.

5. TRAINING

5.1 Training on conveyors shall be conducted by area supervision during safety meetings. The training shall include those topics applicable to the area.

5.2 Specific workforce training shall be conducted by area supervision for personnel in proper methods of working around or cleaning material from beneath a moving conveyor.

6. PROGRAM REVIEW AND PERIODIC INSPECTIONS

6.1 The Conveyors Policy shall be reviewed every three years. The Safety Department will initiate the review.

6.2 Quarterly testing of conveyor Safety Trip Cables and Flag Switches shall be conducted to ensure proper operation and adjustment of the cable. The inspections shall be included in the repetitive work order system.

7. CONTRACTORS

7.1 Annual Site Specific training shall inform contractors of procedures, training, documentation, and inspections required by this procedure.

8. REFERENCES

8.1 MSHA Conveyor Standards

8.2 OSHA Standards Interpretation and Compliance Letters - Installing crossovers to enable employees to cross conveyor belts

8.3 ASME B20.1b -1998 “Safety Standard for Conveyors and Related Equipment”

9. REVISION LOG

Revision Log				
Rev. No.	Requested By	Approved By	Revised By	Rev. Date
0	Initial Issue for Mosaic	Safety Dept.	Safety Dept.	5/14/07
1	Reformat for ISO		D. Allen	7/26/2011
2	Revision	Safety Dept.	Foster Thorpe	3/8/2012
3	Revision	Foster Thorpe	Reese Withers	3/23/2012
4	Revision	Mike Neal	Foster Thorpe	7/16/2012
5	Review Cycle Due	HSS Director – Phosphates	SME Review	12/3/15
6	Review Cycle Due	PMO	PMO	5/1/2023

Contact the Subject Matter Expert for additional information on this program.