Draglines & Ground Control Program

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1. PURPOSE

To establish a program for operational guidelines as defined by MSHA standards which are used in controlling activities on and around Draglines and Ground Control awareness. The objective of this program is to protect all personnel from the risk of hazardous conditions while working on or around draglines.

2. SCOPE

This program applies to all draglines used for Mosaic Fertilizer LLC Phosphates Business Unit mining operations for overburden removal, ore removal, reclamation, and for Ground Control around those draglines. Excluded from this procedure are the small draglines used for trenching and earth moving activities, such as on the gypsum stacks.

3. DEFINITIONS

3.1 There are no definitions.

4. PROCEDURE

4.1 General - Draglines

4.1.1 Dragline operators must make sure all people and equipment are clear before backing or swinging.

4.1.2 Equipment must be parked outside of the swing radius of the boom during normal dragline operation.

4.1.3 No work shall be performed within the swing radius of the boom except:

a. Grading behind the machine
b. Powercable movement
c. Walking Dragline
d. Prior to any of these activities commencing, workers shall notify the Dragline Operator using methods in Section 4.4

4.1.4 Persons working on and around the dragline:

a. Should avoid going under the drag cables at all times;
b. Should pass under the fairleads next to the tub;
c. Are forbidden to go under the drag cables when the machine is swinging, digging or dumping;
d. Are forbidden to go under a suspended bucket; and
e. Are forbidden from being on the dragline boom while it is in motion.

4.1.5 Mounting and dismounting of the dragline shall not be performed unless the dragline comes to a complete stop.

4.1.6 Always use handrails where provided when moving around on the dragline.

4.1.7 Non-slip or skid strips should be installed on the walk paths of the dragline shoes.

4.1.8 Keep away from equipment such as generators, gearing, etc., unless your job requires it.

4.1.9 The dragline operator must never swing the bucket over anyone. The operator should avoid swinging over an unoccupied pit car.

4.1.10 Whenever employees must inspect a dragline bucket or its contents:

a. The bucket must be placed on the ground and should be at least 25 feet away from the pit edge;
b. Slack placed in the drag chains;
c. The spreader bar suspended above the bucket by the hoist chains;
d. The dump rope free of contact with the arch; and
e. Power off the controls.

4.1.11 Whenever employees must work on a dragline bucket, the lockout / tagout procedures must be followed.


Reference: *Refer to the Dragline Equipment Specific Lockout Procedure.*

4.2 Inspections

4.2.1 An examination of the workplace – dragline and the area immediately surrounding it shall be conducted and documented at the beginning of each shift.

4.2.2 Any safety conditions shall be recorded on the Dragline Daily Service and Inspection Report. The supervisor must act on the deficiencies noted to ensure repairs are made.

4.3 Walking the Dragline

4.3.1 Walking Against the Cable - For the number of steps intended to be taken, when walking against the cable an adequate number of people shall be required in the rear area of the machine to manage the cable slack.

4.3.2 While walking the dragline (an extended walk):

a. Stay off draglines shoes during a walk unless your job requires your presence.

b. Be aware of high stress areas on the shoe and cam during propel. Do not stand near these areas during the load part of the propel cycle.

4.4 Notifying the Operator

4.4.1 Communicating with the dragline operator:

a. Use radios to communicate with the operator.

b. If radios are not available, the dragline operator will only take visual signals from one designated person who is familiar with proper hand signals, but will respond to an emergency stop signal when given by anyone.

c. The Dragline emergency stop signal is one long blow on the horn.

4.4.2 When vehicles and/or personnel are required to be in close proximity to the dragline, such as for unloading supplies or picking up trash, the driver must first contact the operator to stop excitation and set the brakes. The operator must not move the dragline until he has received an “all-clear” from the vehicle driver.

4.4.3 When employees are required to be in areas of the dragline which could present hazards when the machine is energized, they are required to inform the operator of their location, type of work to be done, and follow correct lockout/tagout procedures for Draglines.

4.4.4 Whenever personnel must work in the open cut or well, they must arrange with the dragline operator for an appropriate time in which to perform the work. They shall notify the dragline operator when they are exiting the area.

4.5 Handling Trailing Cables

4.5.1 Trailing cables shall be handled or moved as per the Electrical Policy - Power Cable Handling section.

4.6 Working Near Power Lines

4.6.1 Refer to the NAB High Voltage Lines and Cables Program for guidelines.

4.7 Inspecting Wire Ropes

4.7.1 A wire rope inspection program shall be developed which establishes inspection personnel, procedures, and frequency, and provides for reporting and record keeping. The inspection program should contain two general types of inspections:

a. Frequent inspections - Visual inspections by machine operators before, during, and after machine use in conjunction with routine inspection of other dragline components;

b. Periodic inspections - Careful and detailed wire rope inspection including diameter measurements, conducted by a person (or persons) who have extensive knowledge, training, and experience in inspection of wire rope and related equipment. The procedures used and the inspection frequency for each wire rope will vary depending on operating conditions, anticipated rope life, and critical nature of service.

4.8 Dragline Distances from Pit Cars

4.8.1 Appendix A – Procedure for assuring Dragline is ample distance from Pit Operators. This procedure standardizes the method of assuring boom point is at a safe distance from the pit operators in case of catastrophic failure of boom to the ground.

4.9 Hearing Conservation Administrative Controls Draglines

4.9.1 Dual Hearing Protection shall be worn while in the machine house of the draglines when generators or house fans are in operation as per Appendix B.

4.9.2 Appendix B – Hearing Conservation Administrative Controls Draglines. This program applies to Mosaic Phosphates employees, visitors and contractors required to perform work, or enter into an operating house of Draglines.

4.10 Housekeeping

4.10.1 Dragline decks, ladders and stairways shall be kept free from obstacles, oils, greases and other materials to prevent falls. Nevertheless, personnel must be vigilant to avoid slippery conditions on steel decking.

4.10.2 Trash should be accumulated and promptly removed.

4.11 Ground Control

4.11.1 Mining methods shall be used that will maintain wall, bank, and slope stability in places where persons work or travel in performing their assigned tasks.

4.12 Walking Working Surfaces

4.12.1 Annual Walking Working Surfaces surveys shall be completed on Draglines. Findings from that survey will be evaluated by the Safety and Health Dept. to determine the feasibility to meet appropriate safety standards.

5. TRAINING

5.1 Ground control training shall be provided to all miners annually during annual refresher training. The course shall include, where applicable, a review and instruction on the high wall and ground control in effect at the mine; procedures for working safely in areas of high walls, water hazards, pits, and spoil banks; the illumination of work areas; and safe work procedures during hours of darkness.

6. INSPECTIONS

6.1 Examination of the work place - dragline and area immediately surrounding the dragline – shall be conducted and documented at the beginning of each shift. Any safety deficiencies shall be recorded on the Dragline Daily Service and Inspection Report. The supervisor must act on the deficiencies noted to ensure repairs are made.

6.2 Inspections of the wire ropes will be conducted according to the inspection program developed for the draglines.

6.3 The annual inspection of the Walking Working Surfaces on the Draglines will be initiated by the Safety Department.

7. PROGRAM REVIEW

7.1 Mosaic EHS will review this program annually and update on an as needed basis.

8. CONTRACTORS

8.1 Contractors shall be responsible for being informed and understanding this procedure.

9. APPENDICES

9.1 Appendix A - Procedure for assuring Dragline is ample distance from Pit Operators

9.2 Appendix B - Hearing Conservation Administrative Controls Draglines

9.3 Appendix C - Dragline Ready-to-Cross Form

10. REFERENCES

10.1 MSHA

10.1.1 30 CFR 56.3130 Slope stability
10.1.2 30 CFR 56.3131 Wall perimeter
10.1.3 30 CFR 56.3200 Correction of hazardous conditions
10.1.4 30 CFR 56.3401 Examination of ground conditions
10.1.5 30 CFR 56.3430 Activity between machinery and bank
10.1.6 30 CFR 56.12014 Handling of energized power cables
10.1.7 30 CFR 56.12088 Splicing trailing cables
10.1.8 30 CFR 56.14100 Safety defects; examination, correction and records
10.1.9 30 CFR 56.14103 Operators stations
10.1.10 30 CFR 56.14200 Pre-operational warnings
10.1.11 30 CFR 56.14204 Lubrication
10.1.12 30 CFR 56.18002 Examination of working places
10.1.13 30 CFR 56.20003 Housekeeping
10.1.14 30 CFR Part 48, Sec. 48.25 Training of new miners
10.1.15 30 CFR Part 48, Sec. 48.26 Training of newly employed exp. miners
10.1.16 30 CFR Part 48, Sec. 48.28 Annual Refresher Training
10.1.17 30 CFR Part 48, Sec. 48.29 Records of training

10.2 MSHA Publication No. 43 - OJT Training Modules – Surface Metal and Nonmetal
10.2.1 Module No. 9 Dragline Operation
10.2.2 Module No. 14 Inspecting and Replacing Wire Ropes
10.2.3 Module No. 15 Ground Control

11. 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
	Reformat for ISO		D. Allen	7/7/2011
1	M. Neal – Review for compliance		J. Heaser	1/3/2012
2	Facility Review	Safety Dept.	J. Heaser	4/5/2012
3	Review Cycle	Director Phosphate Safety	SME	12/9/15
4	Past due for review cycle	Health and Safety	PMO	12/19/2022
5	PMO – Format fix review statement added	PMO	PMO	11/14/2024

Appendix A
Procedure for Assuring Dragline is Ample Distance from Pit Cars

1. SCOPE

1.1 This procedure standardizes the method of assuring boom point is at a safe distance from the pit operators in case of catastrophic failure of boom to the ground.

2. RESPONSIBILITY

2.1 The Assistant Mining Superintendent and Supervisor are responsible for implementing this procedure. The Dragline Operator is responsible to keep dragline at proper distance from the people car and operator.

2.2 The Pit Operator is responsible to report questionable distances to the supervisor. The Supervisor is responsible to react to Pit Operator concerns.

3. DEFINITIONS

3.1 Boom Point: The point sheave at the Top end of the boom.

3.2 Pit Operators: The pit operator in the control chair of operating pit.

3.3 Boom Point radius: The dragline operating radius at design boom angle

3.4 Boom Fall radius: The dragline operating radius at zero boom angle.

3.5 Dragline Setback Variance Form: This is the correct form for completion if variance is required due to inability of dragline to meet required distances.

4. PROCEDURE:

4.1 The dragline operator will attempt to avoid the boom point in direct line with the pit operator whenever practical as normal operating procedure. The boom point will be ample distance from the pit operator in case of catastrophic failure. This safety practice will be ensured with the following procedure:

4.2 After each dragline move, the dragline operator will inform the pit operator that distance to the people car is being checked.

4.3 The Dragline operator will swing the boom point toward the pit operator car and stop the dragline.

4.4 The dragline operator will check distances to ensure boom point is safe distance from pit operator in case of catastrophic boom failure.

4.5 Please refer to the Dragline Chart (below) for the Safe Boom Fall Distance for each Dragline

4.6 Measurements will be made mechanically with a range finder from predetermined locations or visually by pit operator and/or supervisor.

4.7 If for some reason, the dragline cannot be moved to proper distance then Dragline Setback Variance Form must be completed and situation changed as soon as possible.

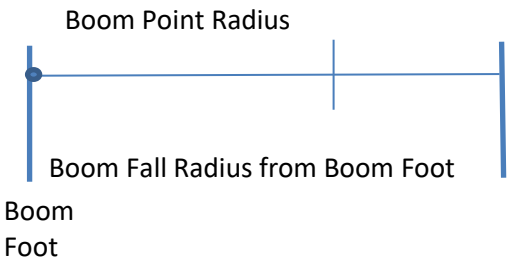
5. ATTACHMENTS

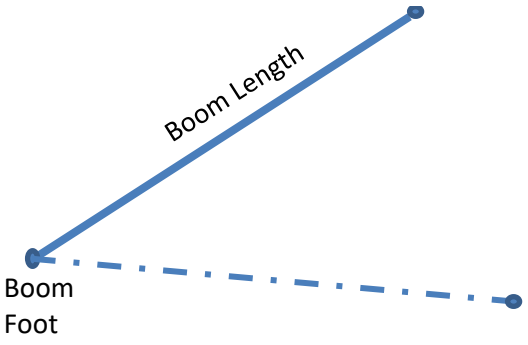
5.1 Dragline chart with all Mosaic draglines with design specs and safe distances calculated for each machine.

5.2 Dragline Setback Variance Form

5.1 DRAGLINE CHART

Facility	Number	Dragline	Model	Safe Boom Fall Distance (in Feet)
South Fort Meade	10A	Marion	8050	342
South Fort Meade	11	Marion	8050	342
South Fort Meade	16	Marion	8050	342
Hookers Prairie	14	Bucyrus	1370W	282
Four Corners	15	Bucyrus	1260W	239
Four Corners	17	Bucyrus	1350	300
Four Corners	17A	Bucyrus	1370	320
Four Corners	18	Bucyrus	1370W	308
Four Corners	19	Bucyrus	1570	340
Four Corners	20	Bucyrus	1370W	325
Four Corners	21	Bucyrus	1370W	325
Four Corners	26	Bucyrus	1260W	239
Four Corners	852	Page	852	265
South Pasture	39	Bucyrus	1370	310





* (Published)

5.2 DRAGLINE SETBACK VARIANCE

Date: _____ Location:_____ Dragline: _____

Reason for Variance:
Description of Variance:
Additional steps taken to ensure safety of workers:

_____	_____	_____
Supervisor Initiating Work	Work Group Superintendent	Equipment Owner Superintendent

Appendix B

Hearing Conservation Administrative Controls Draglines

1. PURPOSE

1.1 Establish Administrative Controls while working or entering into operating houses of Draglines..

1.2 Ensure Mosaic Phosphates is in compliance with applicable regulatory guidelines.

1.3 Prevent occupational noise induced hearing loss among Mosaic employees and supervised contractors on Draglines.

2. SCOPE

2.1 This program applies to Mosaic Phosphates employees, visitors and contractors required to perform work, or enter into an operating house of Draglines.

3. POST & LABEL EQUIPMENT AND WORK AREA

3.1 Post at all entrances into the Dragline house “Dual Hearing Protection Required when Entering the Operating House”

4. ADMINISTRATIVE CONTROLS

4.1 Employees, visitors and contractors shall wear dual hearing protection while entering or working in the operating house of the Dragline.

5. RESPONSIBILITIES

5.1 Employees are responsible for following these Administrative Controls.

5.2 Contractors are responsible for following these Administrative Controls.

5.3 Visitors are responsible for following these Administrative Controls.

5.4 Management is responsible for instructing, monitoring and enforcing these Administrative Controls.

6. TRAINING

6.1 Training will be provided for:

6.1.1 Initial Implementation

6.1.2 New Hire

6.1.3 Annual Refresher Training

6.1.4 Changes to these Administrative Controls

7. REFERENCES

7.1 30 CFR 62 Occupational Noise Exposure

Appendix C

Dragline Ready-To-Cross Form

Dragline # Location: Date:

Road Crossing Location:
Permitting Coordinator:
Mine Production Manager:

The Mine Production Manager shall designate a responsible person to complete this form.

Permitting Coordinator Pre-Crossing Checklist

(Must be completed prior to crossing or have notes if they do not apply)

☐ Coordinate with Operations to determine date of crossing __/__/____
☐ Inspect Bypass Road and have repairs made as necessary – striping, reflectors, asphalt condition
☐ Right of Way (ROW) permit to cross dragline and use bypass road (separate Temporary Traffic Control (TTC) permit may be required).
☐ Obtain Letter of No Objection / Encroachment Agreement from all utilities located at the crossing.
☐ If gas line is present, is air gap required? Y / N If Y, Install Air Gap (timber bridge) and notify gas company prior to work above the gas line / in their easement.
☐ Arrange for vendor to supply TTC.
☐ Arrange for installation of Visual Message Boards (VMBs) per TTC / permit conditions.
☐ Arrange for law enforcement coverage per the TTC.
☐ Provide notification per permit conditions.
☐ Provide notification to utilities and municipalities if the crossing date / time changes (a new or revised permit may be required).
☐ Inspect signage placement and VMBs per TTC plans prior to road closure. *To be completed after this form has been approved.

Operations Pre-Crossing Checklist

(Must be completed prior to crossing or have notes if they do not apply)

☐	Provide updated crossing date to permitting coordinator (if applicable) __/__/____
☐	Establish vehicular / equipment crossing location at the bypass road – install stop signs to keep vehicles from crossing the bypass road while it is in service. Note: signs to be installed at least two weeks prior to crossing. Completion Date: __/__/____
☐	Verify that fill required to cover the road and build dragline staging pad is on site. Fill height to be 8' if not provided on the dragline crossing plans / report.
☐	Install silt fence and hay bales at crossing limits to filter runoff from the crossing site in the event of rain/other runoff.
☐	Get survey data of existing ROW at crossing location on a 10' grid to document pre-crossing conditions. Supply a copy to the permitting coordinator for review.
☐	Install survey stakes (tee bars) at appropriate fill height above the roadway.
☐	If gas line is present, Y / N install survey stakes (tee bars) at appropriate fill height above the gas line per dragline crossing report / plans.
☐	Coordinate the energizing of the power line box and dropping of the power line with the appropriate power company through your E&I department.
☐	Notification of scheduled crossing sent to all EEs at the facility at least 24 hours prior to the use of the bypass road.
☐	When ready to push dirt across the road, move signage and barrels across the road to divert traffic to the bypass road (law enforcement must be present and block the road to move barrels and signage). *To be completed after this form has been approved.

Authorization for Dragline Crossing

General Manager / Ops Director: (Print)	(Sign)	(Date)
Actual crossing date: __/__/____	**Road Closure Time: ____:____ am/pm**	

IMPORTANT! **This document must be signed prior to dragline crossing and a copy must be kept on site. Return to Permitting Coordinator upon close out.**

Operations Post-Crossing Checklist

(Must be completed for crossing close out)

☐	Clear fill from the ROW and remove dirt from roadway (sweeper).
☐	Clear dirt form air gap if applicable.
☐	Grade ROW to pre-walk conditions and sod disturbed areas.
☐	Get survey data of ROW at crossing location on a 10’ grid to document post-crossing conditions. Supply a copy to the permitting coordinator for review.
☐	Remove signs and barrels to allow through traffic on main roadway and release law enforcement if they are no longer needed.
☐	Close off bypass road at the ROW line. Use gates / fencing with tape or signage for visibility of closure.
☐	If the bypass road crossing location is to be left in service, turn the stop signs to stop EEs if they will be traveling on the bypass road.
☐	Notify Permitting Coordinator when the ROW restoration is completed.

Permitting Coordinator Post-Crossing Checklist

(Must be completed for crossing close out)

☐	Once main roadway is open, coordinate for pick up and removal of TTC signage.
☐	Coordinate removal of the air gap if applicable and notify the gas company prior to removal.
☐	Inspect the ROW for damage to roadway, proper drainage, and sodding.
☐	Inspect pre and post survey data of ROW and address any discrepancies.
☐	Request permit close out with the appropriate municipalities per permit conditions.
☐	Have the bypass road apron milled and removed from the ROW / easement if it is a permit condition or it is the last time the bypass road is to be utilized.

Authorization for Close Out

Mine Production Manager: (Print)	(Sign)
Permitting Coordinator: (Print)	(Sign)
Road Open Time: ____:____ am/pm	**Final Close Out date: __/__/____**