# Railroads Program

| | | | |
|---|---|---|---|
| **Document Title:** Phosphates Railroads Program | | **Document Identifier:** <Generated by Content Server> | |
| **Applies To:** North America Phosphates | | **Managed By:** EHS PMO | |
| **Document Owner:** Director, NA Health & Safety Department | | **Document Approver:** VP, EHS | |
| **Current Version Effective Date:** | 05/15/2024 | **Formal Review Cycle Due Date:** | Annual |

## Table of Contents

# 1 PURPOSE

The purpose of this program is to ensure that all workers are protected from the hazards of railroad operations, loading, unloading, and maintenance, of Industrial Yard Tracks, within Mosaic facilities and on Mosaic right-of ways.

# 2 SCOPE

This program applies to all Phosphate and Distribution Unit employees and contractors engaged in railroad operations, and all associated rail operation activities.

# 3 APPENDICES

The following appendices are associated with this Program:

| Appendix | Appendix Title |
|---|---|
| A | Definitions |
| B | Roles and Responsibilities |
| C | Locomotive / Equipment Daily PM and Checklist |
| D | Railcar Mover (Track Mobile) Daily Prior-to-use Checklist |
| E | Railroad Hand Signals Chart |
| F | Railroad Lock Out Procedures |
| G | Sulfuric Acid Railcar Loading Procedure |
| G1 | Sulfuric Acid Railcar Loading Checklist |
| G2 | Sulfuric Acid Railcar Loading Filling Limits |
| G3 | Sulfuric Acid Railcar Manway Torque and Gasket Summary |
| H | Sulfur Railcar Unloading Procedure |
| H1 | Sulfur Railcar Unloading Checklist |
| H2 | Sulfur Railcar Unloading Devices and Tools |
| H3 | Sulfur Railcar Unloading Air Monitoring for H2S Exposure |

# 4 INSPECTION AND MAINTENANCE

## 4.1 Track Inspection and Maintenance

4.1.1 All active and serviceable tracks shall be inspected, by a qualified inspector, on a regular basis (at least monthly as a minimum).

4.1.2 Results of the inspection shall be documented and kept for record by the contract companies conducting the inspections.

4.1.3 Repairs shall be initiated based upon inspection results.

4.1.4 Any track being returned to service shall be inspected prior to its return to service.

4.1.5 FRA Track Safety Standards (TSS) do not apply directly to track located inside an installation that is not part of the general railroad system. FRA expects that trackage in a plant railroad, at a minimum, meet Class 1 standard.

**Reference:** DOT FRA Track and Rail Compliance Vol. II Chap 1 Track Safety Standards

## 4.2 Locomotive and Railcar Mover Inspections

4.2.1 All locomotives shall be inspected prior-to-use, each shift, using Appendix C, Locomotive / Equipment Daily PM and Checklist.

**Note**: *If deficiencies are found they will be reviewed with the supervisor who will approve or disapprove locomotive operations.*

4.2.2 All Railcar Movers shall be inspected prior-to-use, each shift, using Appendix D, Railcar Mover (Track Mobile) Daily Prior-to-use Checklist.

**Note**: *If deficiencies are found they will be reviewed with the supervisor who will approve or disapprove locomotive operations*

## 4.3 Railcar Maintenance

4.3.1 All rail and tank cars shall be visually inspected for the Imminently Hazardous Conditions listed below. These conditions are easily discoverable by train crew members and DOT hazmat trained loaders/unloaders during the course of a customary inspection:

- Car Body:
  - Leaning or listing to one side
  - Sagging downward
  - Positioned improperly on truck
  - Object dragging below
  - Object extending from side
  - Door insecurely attached
  - Broken or missing safety appliances

- Material leaking from any railcars, especially placarded hazardous material car

- Unsecured coupling
- Overheated wheel or journal
- Broken or cracked wheel
- Brake that fails to release or engage
- Any potential safety or security hazard likely to cause an accident.

4.3.2 Any railcar with defects shall be tagged "bad order" and placed on the appropriate track for handling or repair.

4.3.3 Railcar repairs shall be performed by Association of American Railroads (AAR) certified mobile repair unit and conform to all AAR and Federal Railroad Administration (FRA) standards.

4.3.4 **Sulfur Valve repairs** - Bottom outlet valve replacement-in-kind on loaded molten sulfur cars must be done per 4.3.3 above, after approval by the site management on a case-by-case basis. Approval for this work must include a car cooling period of 30 days minimum before work is permitted.

**Note**: Contractor performing the car repair should have a written procedure for the repairs. All safety precautions outlined on the mobile repair unit procedure and Mosaic's safe work permit must be satisfied before proceeding with repairs.

# 5 OPERATIONS REQUIREMENTS

## 5.1 Operators

5.1.1 All locomotive engineers shall receive a physical every two years per the CFR.

**Reference:** 49 CFR 240.121 and 240.207

5.1.2 Operators of railroad mobile equipment shall maintain control of the equipment while it is in motion.

5.1.3 Operating speeds shall be consistent with conditions of roadways, tracks, grades, clearance, visibility, traffic and the type of equipment used.

## 5.2 Locomotive Operations

5.2.1 Locomotive Engineers and Railcar Mover Operators shall always sound the whistle (horn), then pause before moving a train (two short sounds for forward and three

shorts sounds for reverse), when the locomotive has been standing for more than 15 minutes.

5.2.2 To provide for safe movement of railroad equipment:

- Rules governing speed, right of way, direction of movement, and the use of headlights to assure appropriate visibility shall be established and followed at each facility.
- Signs or signals that warn of hazardous conditions shall be placed at appropriate locations at each facility.

5.2.3 All trains shall adhere to the speed limits set at each location and must use caution and reduce speed in areas where the track conditions have deteriorated.

5.2.4 Movement of two or more pieces of rail equipment, operating independently on the same track, shall be controlled for safe operation.

5.2.5 Railcars shall not be left on sidetracks, unless there is enough clearance provided for traffic on adjacent tracks. On tracks where clearance marker is indicated, leave equipment beyond the clearance point.

**Note:** If a clearance mark is not indicated or visible, determine the clearance point by standing outside the rail of adjacent track and extend arm towards the equipment. When unable to touch the equipment, leave equipment at least 50 feet into the track to ensure equipment is beyond the clearance point.

5.2.6 Stop blocks, derail devices, or other devices that protect against moving or runaway rail equipment shall be installed wherever necessary to protect workers.

**Note:** See Appendix F – Railroad Lock Out Procedures.

5.2.7 It is prohibited to step on the drawhead or where a foot/feet could get caught between the drawhead or buffer casting.

5.2.8 Persons shall not go over, under, or between railcars. Exceptions to this rule include:

- When the train is stopped, the train operator is notified, AND the operator provides a positive acknowledgement.
- During car loading/unloading, when the track is protected by a lockout/derailer.

5.2.9 A Flag Person (Switchman), Rail Mover Operator, or groundman must be at the lead end or in visual control of any cut of cars being pushed by a locomotive or Railcar Mover. They must also remain in a position to visually determine that the lead end is clear.

5.2.10 A distance of at least ½ of a car length (approximately 25 feet) shall be maintained between parked railcars and an established crossover.

5.2.11 Designated and marked crossing areas for pedestrian and vehicle traffic should be established and used wherever feasible.

- If a crossing is available in an area, it shall be the only means of pedestrian crossing with the exception of rail crews or authorized rail repair workers who are in the process of conducting rail yard operations or maintenance.
- When designated crossing is not available in the area, the following apply:
  - Employees must keep a safe distance, at least 25 feet in all directions, from the end of standing cars or locomotives when crossing a track
  - There can be no locomotive or switch activity on the track(s) at the time of the crossing

5.2.12 A train operator shall sound a warning that is audible above surrounding noise level when:

- A train approaches pedestrians, crossings, or other trains on adjacent track
- Any place the train operator's vision is obscured

5.2.13 A continuous clearance of at least 8 feet from the centerline of the track should be maintained on at least one side of the track. Any areas less than 8 feet shall be marked as hazardous or no clearance areas.

5.2.14 In high activity work zones, the minimum 8 feet clearance zone should be clearly delineated by red barricade tape or the equivalent. Where there is high potential for workers, materials or equipment to cross into the 8 feet minimum clearance zone, the track will be blue flagged and locked out per the Railroad Lockout Procedures.

5.2.15 The air brakes, of at least 10 rail cars, shall be used when transporting 25 or more loaded cars with a locomotive.

5.2.16 The air brakes, on all rail cars, shall be used when transporting 25 loaded or empty cars with a Railcar Mover.

## 5.3 Car Riding

5.3.1 Only certified rail operator crew workers, with approval from Site Management, may ride moving rail equipment.

**Note**: Distribution sites prohibit the riding of railcars. Industrial track system at these sites is small, and workers have access to vehicles to manage railcar movement.

5.3.2 Riders shall only mount or dismount equipment in the stopped position.

**Warning:** Never mount or dismount moving equipment except in an emergency situation.

5.3.3 Before mounting equipment, visually scan it for defects or conditions that could cause injury (i.e. damage or missing steps, ladder rungs, grab irons, and handrails).

5.3.4 No one shall ride on any car in an area designated as “close clearance.”

5.3.5 Flag Persons (Switchmen) and Railcar Mover Operator may not ride between cars, but may only ride on side ladders of cars or trailing ends of trains.

5.3.6 Riding in the cubicles at the ends of a rail car is prohibited.

5.3.7 No one shall ride on any railcar in an area where the track condition cannot be clearly observed because of debris, water, mud, mineral, or product.

5.3.8 Riders may ride only if necessary and determined safe to do so. The following shall be considered in the decision to ride rail equipment:

- Repositioning the locomotive to pull instead of push railcars
- Use of vehicle transportation
- Repositioning of crew members
- Utilizing other employees to complete the task
- Selecting or repositioning other rail cars to ride
- The different designs and configurations of the railcars
- Employee’s physical characteristics and capabilities
- The amount of slack in the train or switch cut

5.3.9 When it is determined that an alternative cannot be used and moving equipment will be ridden, the rider shall;

- Notify the locomotive engineer of intent to ride
- Proceed only after the locomotive engineer has acknowledge there will be a rider
- Complete the coupling from the ground after the movement is stopped.

5.3.10 Riders of moving equipment shall comply with the following:

- Do not ride between cars
- Do not ride on the crossover platform or end ladder of any railcar

- Ride only if hand holds and stirrup configuration allow for a firm grip and erect and normal body position
- Maintain three-points of contact with the equipment at all times
- Do not ride on any part of the coupler apparatus, center sill, end sill or framework
- On tank cars, ride with both feet in the stirrup, or one foot in the stirrup and one on the horizontal grab iron
- Do not ride on the tank car middle ladder; it is intended for manway access
- Do not ride the side of a moving car, engine or other equipment under these conditions:
  - Through gates or doorways
  - Into, out of, or within enclosed buildings.

    **Note**: Prior to one of these 3 situations, the rider must precede (on the ground walking) the movement of the train checking that it is safe to do so. Movements must only be made on the flagman's signal within the building
  - Do not ride through areas where signs may be placed advising of close clearance.

### 5.4 Working on Top of Railcars.

5.4.1 No one shall occupy the roof of a freight car while moving under any circumstance.

5.4.2 Persons whose job duties require them to occupy the roof of a freight car may do only when the equipment is stopped and by utilizing fall protection.

**Warning:** *Be alert for faulty walkways and opened hatches.*
**Reference:** *EHS Phos Fall Protection Program.*

5.4.3 Loading platforms are the preferred means of providing access to the top of a railcar. Where it is necessary to step from one car top to another, fall protection trolley must be kept directly overhead. Workers cannot travel beyond trolley cable stops.

### 5.5 Switching and Spotting

5.5.1 To avoid injury or damage where locomotives may be working at both ends of a track or tracks, crews switching shall have a clear understanding of movements to be made.

5.5.2 Engineers, Flag Persons (Switchmen) and Railcar Mover Operators must expect the movement of trains, engines, or cars at any time, on any track, in any direction.

5.5.3 The engineer shall only move the train in response to a proper communication with the Flag Person (Switchman) or car unloader.

⚠ **Warning:** *Upon loss of sight or sound signal, the Engineer shall stop the train immediately.*

5.5.4 Switch handles should be of the "back saver" type with the exception of a tall stand switch.

5.5.5 Engineers, Flag Persons (Switchman) and Railcar Mover Operators must be certain the switches align correctly, and the railcars are properly coupled before a train is moved. No attempt shall be made to adjust knuckles and drawheads until the train is completely stopped.

⚠ **Warning:** *It is forbidden to make knuckle locks fall in position by placing a finger or fingers on the bottom thereof.*

5.5.6 Engineers and Railcar Movers must use caution and good judgement in starting and stopping trains to minimize slack action. Flag Persons (Switchman) and Railcar Mover Operators whose duties require them to ride on cars are likewise warned to be on guard to protect themselves against sudden stopping and starting of equipment.

5.5.7 Trains shall come to a complete stop at the entrance of wet bins, dry bins, loading or unloading sheds. Once stopped, a Flag Person (Switchman) or Railcar Mover Operator will then, on foot, inspect the condition of the track to determine it safe for travel. Walking speed of 2-3 mph is the maximum train speed allowed in these areas.

5.5.8 Before coupling to or moving cars on tracks where cars are being loaded or unloaded, car-puller hooks, derailers, dock-boards, tank couplings and similar connections must be removed and placed in the clear. Persons in and about the cars must be warned and required to vacate cars while being switched.

5.5.9 Couplings shall be made at speed of no more than 2 mph. Stretch the slack to ensure that all couplings are made.

5.5.10 After cars have come together for a coupling, Flag persons (Switchman), Railcar Mover Operators and car unloaders are prohibited between cars until all motion is stopped.

5.5.11 When coupling air hoses, be sure that hose heads are properly fitted and seated. Cut air in gradually and keep body out of range of the hose. If air brake is to be released, take a firm grip near the end of the hose before turning angle cock.

5.5.12 Flag Persons (Switchmen) and Railcar Mover Operator must know how to operate the type of brakes they are using. When hand brakes must control or prevent car movement, test the brakes to ensure that they are operating properly before using them.

5.5.13 Flag Persons (Switchmen) and Railcar Mover Operators leaving cars on tracks must set sufficient hand brakes to prevent them from rolling away when other cars are dropped or kicked against them. The minimum number of handbrakes to apply is:

| Number Cars Coupled together | Minimum number of handbrakes |
|---|---|
| 1-2 | 1 |
| 3-9 | 2 |
| 10-19 | 3 |

- Note: Add one additional handbrake for every 10 cars.
- Note: When securing cars on a slope, apply more than the minimum number of handbrakes. Apply handbrakes to cars at the lower end of the downward slopping track.

5.5.14 If a car is bad ordered with a defective hand brake, it must be coupled to a car with an operable hand brake.

5.5.15 In hurricane force winds, it is highly recommended that more than the minimum number of hand brakes be applied and to test hand brakes effectiveness.

5.5.16 It is necessary at times to Spike a Switch (hold switch point in place by a railroad spike). Train crews and railcar movers are not to drive or pull the spike into a switch until authorized by the supervisor.

5.5.17 Kicking or dropping of cars is permitted only in designated areas when it will not endanger employees, equipment, or contents of cars. Each site must specify designated areas of their railyard where kicking and dropping of cars will be permitted in a site-specific procedure.

5.5.18 Before moving engines or cars through gates, doorways, or similar openings, stop to ensure that the gates, doorways, or openings are completely open and secure. When overhead or side clearance are close, make sure movement is safe.

5.5.19 Do not return a main track switch to the normal position until movement is clear of the main track.

5.5.20 Crossover switches must be left in normal position (other than crossover) except when they are used for crossover movement. Both switches of a crossover must be opened before a crossover movement starts, and movement must be complete before either switch is returned to normal position.

5.5.21 If a rigid type switch is run-through (i.e. – passed through in other than direction intended to travel) it must be protected by Spiking the Switch. An engine or car that partially runs-through a switch must continue movement over the switch. The engine or car must not change direction over a damaged switch until it has been either spiked or repaired.

5.5.22 A switch that is damaged or defective shall be reported to the supervisor in charge.

5.5.23 Derailers shall be provided on spur railroad tracks where a rolling car could contact other cars being worked on, enter a building, or enter a traffic area.

5.5.24 Positive protection (brakes, wheel chocks) shall be provided to prevent railroad cars from being moved while Rail Dock Plates or Rail Dock Boards are in position.

5.5.25 No attempt shall be made to open or close doors or adjust couplings on any railcar while the car is in motion.

5.5.26 Car spotter "dogs" shall be in the down position and pinned when not in use.

5.5.27 Car spotters shall be equipped with audible alarms and a time delay.

## 5.6 Operation Over Road Crossings

5.6.1 When crossing road crossings, reduce throttle to the 5$^{th}$ notch or less before reaching the crossing and leave reduced until all locomotive units are over the crossing.

## 5.7 Moving Through High Activity Work Zones

5.7.1 Prior to the locomotive moving through a high activity wok zone, a Flag Person (Switchmen) will, on foot, inspect and determine the condition of the track for safe travel. Walking speed of 2 to 3 mph is the maximum train speed allowed in these areas.

## 5.8 Running Through Water

5.8.1 A locomotive is prohibited from running through water which is deep enough to touch the bottom of the traction motor frames.

⚠ **Warning:** *Water any deeper than 3 inches above the top of the rails is likely to cause damage to the traction motors*.

5.8.2 Always use very slow speed (2-3 mph) when passing through water.

## 5.9 Remote Control Locomotive (RCL) Operating Requirements

5.9.1 Each remote-controlled transmitter (RCT) should have the minimum following requirements:

- Directional control
- Graduated throttle or speed control
- Locomotive independent brake application and release control
- Train brake application and release control
- Audible warning device control (horn)
- Audible bell control
- Sand control, unless automatic
- Headlight control
- Emergency air brake application switch
- Vigilance protection to eliminate accidental movement of the locomotive
- Audio or visual indication of wheel slip/side

5.9.2 Each locomotive equipped with a remote-control receiver (RCR) should respond only to the RCT(s) assigned to that receiver.

5.9.3 The RCT should be designated to require at least two separate actions by the Remote-Control Operator (RCO) before RCL movement can begin (in order to prevent accidental movement).

**5.10 RCL Operating Practices**

5.10.1 Upon completion of duty, each RCO should:

- Place the RCL in manual operation and properly secure the locomotive

  OR

- Give the RCL directly to the relieving RCO

5.10.2 When operating an RCL, the RCO shall not:

- Ride on a car under any circumstances
- Mount or dismount moving equipment except in an emergency
- Operate any other type of machinery not related to loading Rail Cars
- Stand or walk within the gage of the track or Foul the Track on which the movement is occurring while physically located in front of the movement

5.10.3 RCOs shall ensure that the track is clear and properly aligned ahead of the remotely controlled movement while it is underway.

5.10.4 RCL operations shall be operated at a restricted speed not to exceed 10 mph.

**Note**: *Operate at a speed that will enable stopping the movement within half the range of vision assuring that all movements are protected.*

5.10.5 The RCO shall operate only one RCL at a time.

### 5.11 RCL Operations Security

5.11.1 RCTs shall be properly stored when not in use.

5.11.2 The operation control handles located in the RCL cab shall be removed or pinned in place to prevent accidental or intentional movement while the RCL is being operated in remote.

5.11.3 Each location shall have strict procedures in place to ensure that only the intended RCTs are assigned to the appropriate RCL.

### 5.12 RCL Operations, Inspections and Tests

5.12.1 The RCL system must be included as part of the Appendix C - Locomotive Equipment Daily PM Checklist Inspection.

5.12.2 Each time an RCT is used for the first time on each shift, a test of the air brakes and the RCT's safety features (i.e. the tilt switch and alert device) should be conducted.

5.12.3 The RCT and RCR shall be designated to perform a self-diagnostic test of the electronic components of the system. The system shall be designated to immediately "fail safe" (full service application of the locomotive tractive effort) in the event a failure is detected.

5.12.4 If any defects are noted in the RCT, the RCT shall be removed from service until repairs are completed.

### 5.13 Notification of RCL Use and Protection of Workers

5.13.1 Each RCL shall have a tag placed in the control stand throttle indicating the locomotive is being used in a remote mode. The tag should be removed when the locomotive is placed back in a manual mode.

5.13.2 In areas where RCL operations are being conducted, warning signs shall be posted indicating that there is no operator in the control compartment of the locomotive. These warning signs shall be highly visible and posted at conspicuous locations to maximize exposure to those most likely to encounter RCL operations.

5.13.3 All RCLs shall be equipped with an amber strobe light mounted on top of the cab that will flash when the locomotive is in remote control operation.

### 5.14 General Communications

5.14.1 When a train is under the direction of a Flag Person (Switchman) and the Engineer or Railcar Mover Operator cannot clearly recognize the Flag Person's

(Switchman's) or car loader/unloader's signals, the Engineer or Railcar Mover Operator shall bring the train to a stop.

5.14.2 The Engineer or Railcar Mover Operator shall only move the locomotive in response to a proper signal from a Flag Person (Switchman) or car loader/unloader. Engineers, Flag Persons (Switchmen), Railcar Mover Operators and car loader/unloaders shall identify each other during radio communications and confirm each command.

5.14.3 Engineers, Railcar Mover Operators, Flag Persons (Switchmen) and car loader/unloaders must know all hand signals for the movement of locomotives or trains in the event of radio communication failure.

5.14.4 Flag Persons (Switchmen) and Railcar Mover Operators will be responsible for proper communication devices (radio or phone) to be used on their shift.

5.14.5 Each site shall establish designated individuals who will serve as the contact person when CSX (or other railroad) train crews arrive.

5.14.6 Locomotive Engineers and Railcar Mover Operators are responsible to ensure good communications are established prior to any train movement.

## 5.15 Hand Signals for Railroad Movements

5.15.1 Hand signals for railroad movements are listed in Appendix E, Railroad Hand Signals Chart.

5.15.2 Signals shall be given from a point where they can be plainly seen and cannot be misunderstood. If there is doubt about the meaning of a signal, or for whom it is intended, it shall be regarded as a stop signal, and no further action taken until the signal is fully understood.

5.15.3 During the backing or slowing of a train, locomotive, or cars, and the employee giving signals (or light by which signals are given) disappear from view, then it must be interpreted as a stop signal.

## 5.16 Horn Signals

5.16.1 When approaching public highway road crossings, the locomotive engineer will sound a signal of: two long - one short - then one long - blow of the horn and ring the bell continuously until the locomotive passes over the road crossing. The last horn blow sound shall be continuously sounded until the locomotive enters the road crossing.

5.16.2 The horn shall be sounded prior to going over any road crossing.

5.16.3 The horn shall be sounded prior to movement if the locomotive or Railcar Mover has been motionless for more than 15 minutes.

## 5.17 Radios

5.17.1 Radios used in connections with train operations shall be tested at the start of each shift.

5.17.2 Engineers, Railcar Mover Operators and Flag persons (Switchmen) must listen to be sure that the channel is not in use before operating a radio.

5.17.3 When backing or pushing a train, locomotive, or cars, the direction and distance of the movement must be specified, and the movement must stop after traveling half the specified distance unless additional instructions are received.

- An exception to this rule applies at five car lengths before coupling or stop is to be made. In this case the Engineer, or Railcar Mover Operator will stop movement immediately after moving just one car length unless they are receiving additional instructions from employees directing the movement.

  **Note**: An example of an employee directing movement would call out a distance in car lengths, such as “five cars,” “four cars,” etc.

## 5.18 Hand Signals

5.18.1 The engineer shall be given advance notice before changing from radio to hand signal communications.

5.18.2 Employees giving hand signals must be constantly alert to prevent any unintentional movement of their hands or lanterns that might be misconstrued as a signal to move.

5.18.3 Hand signals shall be given in advance to allow sufficient time to comply. They shall be given from a point where they can be seen clearly and shall be clear and deliberate.

5.18.4 The hand signal STOP shall be acted upon without exception. All other hand signals must not be acted upon unless the indication is clearly understood.

5.18.5 When there is a low level of light hand signals shall be given with a lantern or flashlight.

5.18.6 Each occupied controlling locomotive or Railcar Mover in a train shall have a working radio, and a redundant means of communications.

5.18.7 Any emergency radio transmission shall be preceded by the word “emergency” repeated three (3) times. An emergency transmission shall have priority over all other transmissions on that frequency. Once an emergency transmission is made, all other non-emergency traffic shall be kept clear for the duration of the emergency.

## 5.19 Rail Tank Car Loading and Unloading of Hazardous Materials

5.19.1 Only DOT Hazmat certified workers that are designated, qualified and trained are authorized to load and unload hazardous materials.

5.19.2 A tank car must be protected against movement or coupling from the time it is spotted for loading/unloading until after all closures are secured and the car is in proper condition for transportation. The following measure shall be taken to protect the tank car:

- While the car is positioned for loading or unloading, blue caution signs (known as blue flags) must be placed on the tracks or the tank cars as required by DOT regulations to give necessary warning to persons approaching the cars from the open end of the tracks. The blue flags shall be left up until after the cars are unloaded and disconnected from the discharge connection. The word "STOP" must appear in letters 4-in. high. The letters must be white on a blue background.
- At least one wheel on a single tank car must be blocked against movement in both directions, and the hand brakes shall be set. A sufficient number of hand brakes shall be set, and wheels blocked to prevent movement in both directions when multiple tank cars are coupled together. See 5.4.13 for number of handbrakes considered sufficient.
- Place and lock derailer or dis-align and lock switches at least one car length from the end car on the tracks where switch engine entry may be obtained. Switches and derailers shall be locked out according to Appendix F, Railroad Lockout Procedure.
- Unloading connections must be securely attached to the bottom discharge outlets before any discharge valves are opened.
- Railcars shall be attended by a designated, qualified and trained employee at all times while they are being loaded or unloaded.
- Emergency response information must be readily available to workers performing loading/unloading activities.
  **Reference:** 49 CFR 174.67

5.19.3 Tank cars require examination before shipping. Prior to releasing a tank car containing hazardous materials or a residue of a hazardous material, a DOT certified worker must determine the tank car is in proper condition and safe for transportation. At a minimum, the tank car examination shall include external visual inspection of the following:

- Tank shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds
- Valves, fittings and gaskets for corrosion and any damage that makes the tank car unsafe for transportation
- All closures, plugs caps and fasteners on the tank are to be checked for tool tightness even if the item was not utilized during the loading/unloading process
- Missing or loose bolts and nuts
- Dome Protective housing properly secured. Top unloading valve handles (that are not enclosed in a protective housing) must be removed
- Pressure relief device, including a careful inspection of the rupture disc for corrosion or damage
- The required markings on the tank car for legibility
- The periodic inspection date markings to ensure that the inspection and test intervals are within prescribed intervals

  **Reference:** 49 CFR 173.31(d)

5.19.4 All items listed on a tank car inspection form or checklist must be checked and meet requirements for shipment. See Appendix G, Sulfuric Acid Railcar Loading Procedure and Appendix H, Molten Sulfur Railcar Unloading Procedure.

5.19.5 Digital photographs with a date stamp shall be taken of all closed and secured openings to create a record of proof showing completion of the loading/unloading inspection process.

**Note**: *Digital photographs shall be stored within Livelink with a one-year retention.*

## 5.20 Rail Lockout Procedures

5.20.1 Securing the track when maintenance, inspections, railcar loading/unloading, and cleaning are being performed shall be implemented using the safety measures listed in Appendix F, Railroad Lockout Procedures, and following the EHSS Phos Program Lockout Tagout.

**Reference:** EHSS Phos Program Lockout Tagout

5.20.2 Equipment owner locks shall not be required on switches or derailers when routine car loading, unloading or clearing operations are in progress.

5.20.3 If the track/area on which work is to be performed is unable to be locked out, portable derailers must be used as specified in Appendix F, Railroad Lockout Procedures.

**5.21 Wheel chocks**

5.21.1 Wheel chocks shall be used when loading or unloading hazardous materials cars and when making car repairs.

**5.22 Fusees**

5.22.1 When crossing an unguarded public road crossing at night, fusees or lighted flares shall be placed on both sides of the roadway.

5.22.2 Fusees shall only be used for intended purpose and when required by operating conditions. Fusses are ignited by uncapping the end and striking much like the common road flare.

⚠ **Warning:** *As fusses burn, they produce a molten slag of extremely high temperature. If this slag were to touch your skin or clothing, it would burn you. Do not place fusees where they may cause fires.*

**5.23 Public Crossing Signals**

5.23.1 Designated railroad crossings shall be posted with warning signs, signals or shall be guarded when trains are passing. These crossing shall be planked or filled between the rails.

5.23.2 The engineer shall ring the bell continuously and sound the horn as prescribed (see paragraph 5.16 Horn Signals) when the train is approaching a designated crossing. When cars are being shoved across a public road crossing, that is not protected by crossing lights or gates, a member of the crew must protect the road crossing from a point on the ground at the road crossing where he could be in position to stop a pedestrian or vehicular traffic. Each movement over the crossing must be made only on the Flag Person's (Switchman's) signal.

5.23.3 When a locomotive is operated, in the lead, over a public crossing that is not protected by crossing lights or gates, the crossing must be protected by a member of the crew, unless the Engineer or other member of the crew have an unobstructed view of approaching pedestrian and vehicular traffic.

5.23.4 Crewmembers must observe all automatic crossing warning devices and report any that are not operating properly to their supervisor immediately.

5.23.5 Cars and locomotives shall be left clear of road crossing and crossing signal circuits.

5.23.6 When practical, avoid leaving Locomotives or cars standing closer than 250 feet from the road crossing when there is an adjacent track.

5.23.7 If a train or cut of cars is parted to clear a road crossing or is left standing near the crossing, then an employee must be on the ground to warn oncoming traffic about trains or locomotives approaching the crossing on adjacent tracks.

5.23.8 Avoid actuating automatic crossing signals unnecessarily by leaving switches open or permitting equipment to stand within the controlling circuit. If this cannot be avoided and the signals are equipped for manual operation, a crewmember must manually operate the signal for movement of traffic. A crewmember must restore signals to automatic operation before a train or locomotive occupies or leaves the crossing.

5.23.9 A standing train or switching movement should avoid blocking a public crossing longer than 10 minutes.

# 6 SPECIFIC REQUIREMENTS – Sulfuric Acid Railcar Loading

## 6.1 General

6.1.1 The procedure for loading Sulfuric Acid railcars, followed by the proper examination before offering it for transportation is detailed on Appendix G. This procedure applies to all concentrate sites in the Phosphates Business Unit that load sulfuric acid railcars.

6.1.2 Appendix G provides the procedure for safe and efficient sulfuric acid railcar loading.

6.1.3 Appendix G1 is the sulfuric acid railcar loading inspection checklist.

6.1.4 Appendix G2 provides details on sulfuric acid railcar loading filling limits to avoid overloading a railcar by volume or weight.

6.1.5 Appendix G3 provides details on sulfuric acid railcar manway closure sequence and car manufacturer recommended torque values.

# 7 SPECIFIC REQUIREMENTS – Sulfur Railcar Unloading

## 7.1 General

7.1.1 This procedure for unloading Molten Sulfur railcars applies to all concentrate sites in the Phosphates Business Unit that unload molten sulfur railcars.

7.1.2 Appendix H provides the procedure for securing the cars and tracks; steaming the railcar to melt the sulfur; car unloading; empty railcar closing and examination before shipping.

7.1.3 Appendix H1 the sulfur unloading and railcars inspection checklist.

7.1.4 Appendix H2 provides details on a list of tools that help reduce exposure to sulfur emissions and contact with molten sulfur.

7.1.5 Appendix H3 details Air Monitoring for Hydrogen Sulfide (H2S) exposure.

# 8 PERSONAL PROTECTIVE EQUIPMENT (PPE)

**8.1** Refer to the Phos Personal Protective Equipment Program for list of personal protective equipment required.

**8.2** Flag Persons (Switchmen), Locomotive Engineers and other employees who frequently work with uneven walking and working surfaces are advised to select lace-up boots that are 6" or higher with 1" heels.

**8.3** Sulfuric Acid Railcar Loading Specific PPE Requirements

8.3.1 Basic PPE including a hard hat, safety glasses, steel toe boots, and hearing protection are the minimum PPE required.

8.3.2 Face shield

8.3.3 Acid resistant coat

8.3.4 Acid resistant gloves

**8.4** Molten Sulfur Railcar Unloading Specific PPE Requirements

8.4.1 Basic PPE including a hard hat, safety glasses, steel toe boots, and hearing protection are the minimum PPE required.

8.4.2 Additional PPE, specific to the tasks for molten sulfur railcar unloading are listed on PPE matrix below:

**Molten Sulfur Railcar unloading tasks PPE matrix**

| Task | Location | PPE |
|---|---|---|
| Secure cars and tracks | Not over the unloading pit | Long Sleeve shirt; Leather gloves |
| Connecting steam lines and fittings. | | FR Suit or long sleeve shirt or welding jacket. Leather gloves |
| Replacing Railcar BOV cap. | | |
| Disconnecting steam lines and fittings. | | Face shield; Leather gloves<br>FR Suit or long sleeve shirt or welding jacket |
| Removing Railcar BOV cap. | | |
| Opening / Closing Railcar dome lid. | On top of the railcar | FR Suit; FR hood; Air supplied respirator; Leather gloves |
| Replacing Railcar BOV cap | Over the unloading pit | FR Suit; FR hood; Air Supplied respirator; Leather gloves |
| Opening/ Closing Railcar BOV | | |
| Unplugging BOV (top or bottom method) | | |

# 9 TRAINING

## 9.1 Training

The following table outlines the training required for this program:

| Audience | Training Elements / Topics | Frequency | Method |
|---|---|---|---|
| Locomotive Engineer | Basic Railroad Training and Safety<br>Rail Yard Operating Procedures<br>Operating a Locomotive in actual train service | Every 3 years | On the Job |
| Flag person (Switchman) | Basic Railroad Training and Safety<br>Rail yard Operating Procedures<br>Performing the duties of Flag Person (Switchman) in actual train service | Every 3 years | On the Job |
| Railcar Mover (Shuttle Wagon) Operator | Basic Railroad Training and Safety<br>Shuttle Wagon Operations and Safety<br>Performing the duties of Railcar Mover Operator in actual train service | Every 3 years | On the Job |
| Railcar Loader / Unloader – non-hazmat | Basic Railroad Training and Safety<br>Railcar Loading/Unloading Operations and Safety<br>Perform the duties of a Railcar Loader / Unloader in actual train service | Initial Only | On the Job |
| Railcar Loader / Unloader / Movers of Hazmat | Basic Railroad Training and Safety<br>Hazmat General Awareness<br>Hazmat Security Awareness<br>Hazmat Safety Awareness<br>Hazmat Function Specific | Initial training within 90 days after employment of change of job function | On the Job<br>DOT – HazMat CBTs |
| Rail Inspector, Rail Team Lead | Basic Railroad Training and Safety | Initial Only | On the Job |

## 9.2 Retraining

9.2.1 DOT Hazmat employee recurrent training is required every three years.

9.2.2 In addition, an employee shall receive additional training (or retraining) if any of the following conditions exist:

- Program requirements change;
- Changes in the workplace render previous training obsolete;
- Inadequacies in the employee's knowledge is of concern

### 9.3 Training records

9.3.1 Successful completion of all training will allow the issuance of a site-specific Locomotive Engineer, Flag Person, Railcar Mover Operator site specific certificate.

9.3.2 DOT hazmat training records must include:

- Hazmat employee name
- Date of completion
- Description
- Name and address of person providing the training

9.3.3 Training records shall be maintained by the Phosphates Learning Management System (LMS).

9.3.4 Training records shall be maintained as per ***Mosaic Document and Record Control*** policy.

**Reference**: Mosaic Document and Record Control policy

## 10 SELF-ASSESSMENTS

**10.1** Site self-assessment shall be conducted in accordance with the MMS requirements.

**Note**: Recommend any changes to the Program EHS Project Management Office (PMO) via the PMO Change Request form

## 11 PROGRAM REVIEW

**11.1** Phosphates EHS team will review this program annually and update as required.

## 12 RECORD RETENTION

**12.1** Refer to the ***Mosaic Document and Record Control*** policy for record retention requirements.

**Reference:** Mosaic Document and Record Control policy

**12.2** Locomotive Daily Inspection Report (Checklist) shall be filled out and retained for at least 92 days. **Reference:** 49 CFR 229.92

**12.3** Hazmat employee training records must be created and retained as long as that employee is employed. **Reference:** 49 CFR 172.704(d)

**12.4** Track Inspection records shall be retained for at least two years after the inspection. **Reference:** 49 CFR 213.241

**12.5** Sulfuric Acid and Molten Sulfur rail car loading / unloading inspection forms (checklists) and photographs shall be retained for a period of one year from the date the car is released for transportation. Records of examining a loaded or residue tank car such as an inspection checklist and photographs, will help dispute a DOT/FRA presumption that a proper inspection was not performed before shipping.

## 13 REFERENCES

| References (Number and title) |
|---|
| MSHA 30 CFR Subpart T 56.23000 Safety Program for Surface Mobile Equipment |
| DOT 49 CFR Transportation Parts 100 to 199 PHMSA |
| DOT 49 CFR Transportation Parts 200 to 299 FRA |
| DOT FRA Track and Rail Compliance Manual – Track Safety Standards |
| EHSS-Phos Program – Lock Out Tag Out |
| EHSS- Phos Program – Transportation |
| EHSS-Phos Program Personal Protective Equipment |
| |

## 14 REVISION LOG

| Rev. No. | Rev. Date | Revised By | Reason for Revision |
|---|---|---|---|
| 0 | 08/21/2003 | Task Team | Initial release |
| 1 | 02/24/2004 | D. Allen | S&H Coordinators – add Track Mobile Daily Prior-to-use checklist |
| 2 | 11/21/2004 | J. Marshall | Logo Change |
| 3 | 05/10/2007 | J. Marshall | S&H review and revise to apply to all Mosaic Fertilizer facilities |
| 4 | 12/09/2009 | B. Roberts | At request of Taylor Abel |
| | 07/07/2011 | D. Allen | Reformat for ISO |

| Rev. No. | Rev. Date | Revised By | Reason for Revision |
|---|---|---|---|
| 5 | 12/03/2015 | SME Review | Review cycle |
| 6 | 03/01/2021 | G. Navar | S&H Review, applied new format. Added Hazmat railcar loading /unloading. Added three point of contact rule when riding on cars on Section 5 Locomotive Operations. |
| 7 | 07/08/21 | G. Navar | Revised section 5.5.17. Added definition for kicking and dropping cars to Appendix A. |
| 8 | 01/25/22 | G. Navar | Revised Section 2.34 Railcar movements of Appendix H. Sulfur unloading procedure. |
| 9 | 05/15/2024 | G. Navar | Program revision frequency moved to yearly basis per 30CFR56.23003 (b) |