Dredges and Tugboats Program

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1. PURPOSE

To establish a program for operational guidelines as defined by MSHA, Coast Guard and other affiliated standards which are used in controlling activities on and around Dredges and Tugboats. The objective of this program is to protect all personnel from the risk of hazardous conditions while working on or around Dredges & Tugboats. To establish a culture where everyone believes that no task is so important that an employee must violate a safety rule or put himself or herself at risk of injury or illness in order to get it done.

2. SCOPE

This program applies to all dredges & tugboats used for Mosaic Fertilizer LLC Phosphates Business Unit mining operations for overburden removal or ore removal. Excluded from this procedure are the small dredges used for trenching and earth moving activities.

For Concentrates Dredge Operations conducted in low pH waters (i.e. process water ponds), refer to the Water Safety Program, section 4.13 for specific requirements.

- Reference: Phosphates Water Safety Program

3. DEFINITIONS

3.1 Competent Person – One who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

3.2 Authorized Person – One who by possession of a recognized degree, certificate, licenses, or by professional standing, and by extensive knowledge, training, and experience has successfully demonstrated his/her understanding of subject matter and thus is authorized to perform certain tasks.

3.3 Buddy System – 2 or more people performing a task.

3.4 Dredge (Cutter Suction Type) – A specialized type of boat used to wet-mine phosphate on Mosaic Mine Sites. The dredge consists of a ladder suspended from the gantry A-frame, holding the pipeline and cutter head. The spuds in the back hold the dredge on a pivot point, while anchors placed off the sides of the dredge allow it to swing back and forth.

3.5 Dredging – an excavation activity or operation usually carried out at least partly underwater, in fresh water areas with the purpose of gathering up bottom materials and disposing of them at a different location.

3.6 Tugboats – the 'workhorse' on the water used to transport personnel from land to the dredges or elsewhere on the water. Also used to position the dredges, crane barges, pipelines, etc., at different locations on the water.

3.7 Bow – Front of tugboat or dredge.

3.8 Stern – Back of tugboat or dredge.

3.9 Port – Left side of tugboat or dredge.

3.10 Starboard – Right side of tugboat or dredge.

3.11 Aft – Toward the back of the tugboat or dredge.

3.12 Forward – Toward the front of the tugboat or dredge.

3.13 Beam – Width of tugboat or dredge.

3.14 Freeboard – the height of a vessel's deck above the water level.

3.15 Draft – the vertical distance between the waterline and the bottom of the hull.

3.16 Transom – the section on the stern where the power and maneuvering components are located.

3.17 Cleat – a device for securing a rope on the tugboat, crane barge, landing pier, etc., with a design featuring two "horns" extending parallel to the deck resembling an anvil or in the design of a cross.

3.18 Hatch – An opening in the deck leading to a hold, confined space, or enclosed space.

3.19 Hold – confined space which typically the wing tanks.

3.20 PFDs – United States Coast Guard (USCG) approved Personal Floatation Devices used whenever within 10' of unbermed/unbarricaded open water of unknown depth. The PFD shall be equipped with a whistle and light, if provided.

3.20.1 Type I PFD – A vest style PFD designed for use in open, rough or remote water and where rescue may be slow coming. Required to turn most unconscious wearers face-up in the water. Must be highly visible. If inflatable, the PFD has two CO_2 cylinder chambers, which inflate automatically when submerged.

3.20.2 Type II PFD – A vest style PFD designed for use in calm or inland water, or where there is a good chance of fast rescue. Required to turn some unconscious wearers face-up in the water. If inflatable, the PFD has one CO_2 cylinder chamber that will inflate automatically when submerged and be highly visible.

3.20.3 Type III PFD – A vest style PFD designed to provide a stable position in calm inland water for persons floating with their head tilted back where help is always nearby or where there is a chance of prompt rescue.

3.20.4 Type IV PFD – A throwable PFD. Is designed to be thrown to a person in the water. Throwable devices include cushions, ring buoys, and Frisbee style, or horseshoe buoys. 90 feet of rope is required to be attached to Type IV PFDs.

3.20.5 Vest style Type V PFD – A special use device. Special use PFDs including work vests, deck suits, and hybrids for use in specific situations. For the purposes of this procedure,

a Type V PFD is a flotation vest which is wearable and requires manual or automatic inflation, as appropriate.

3.20.6 Belt style Type V PFD's – ***This type has been rendered non-usable for Mosaic***. A special use device; includes a work belt with uninflated PFD, which can include either manual or automatic inflatable device.

3.21 Overburden – All material on top of phosphate ore.

3.22 Matrix – The layer of phosphate ore that is mined by the dredge and pipe transported to the beneficiation plant.

3.23 Crane Barge – a floating platform designed for a working crane that is used to lift anchors and other maintenance duties, as required.

3.24 Water Safety Hazard Training – training programs developed for personnel exposed to water hazards.

3.25 Water Safety Rescue Training – training programs developed for Emergency Response Team members performing rescue in or around water.

4. PROCEDURE

4.1 General – Dredges

- Dredges are normally manned by 2 personnel per shift; 1 operator and 1 oiler.
- Means of communication between Dredge Operators, Oilers & Tugboat Operators are normally done by radio & cell phone.
- Normally, a two-dredge system is used in mining the phosphate ore. One for the removal of the material on top of the phosphate ore (overburden) and one for the mining of the phosphate ore (matrix) layer. The overburden dredge removes the overburden and pumps this material back into the mined-out area. The matrix dredge removes the matrix and pumps it to the beneficiation plant.
- United States Coast Guard (USCG)-approved PFDs shall be worn by all persons on equipment and at locations concerning the dredges, crane barges and tugboats, where there exists the possibility of falling overboard and drowning. Such possibilities include:
    i. On open decks of floating plants, barges, and tugboats not equipped with standard guardrails or bulwarks meeting standard requirements.
    ii. On floating pipelines, anchor buoys, pontoons or floats.
    iii. Within 10 feet of the open edge of docks or the shoreline adjacent to water that would constitute a drowning hazard.

4.1.1 Hearing protection shall be worn in the winch room while in operation.

4.1.2 Any Oiler tasks, other than workplace inspection and housekeeping, the "Buddy System" should be used at all times.

4.1.3 When boarding or disembarking the dredge, the entry point shall be re-secured after use.

4.1.4 All personnel who board the dredge shall communicate to the operator that they are on board.

4.1.5 Protection against falls – Personnel working on unguarded platforms, catwalks, decks, and other surfaces where there is a potential for falling, shall be provided with, and wear, approved harnesses with lanyards properly secured. When possible, standard-railing-protected scaffolds should be provided for working at such heights.

4.1.6 Guardrails shall be provided for open-deck edges, deck openings, and similar locations where persons may be subjected to falling or slipping to a lower level. Inspections of these guardrails should be part of the daily Workplace Exam.

4.1.7 Anti-slip surfaces shall be provided on all working decks, stair treads, ladders, platforms, catwalks, and walkways of dredges and tugboats.

4.1.8 Fire extinguishers shall be provided and maintained in accordance with MSHA Regulations; 30 CFR 56.4201. (Visual inspections shall be conducted and documented at least monthly.)

4.1.9 Whenever employees must work on a dredge, Lockout / Tagout procedures must be followed. Refer to the Dredge Equipment Specific Lockout Procedure.

4.2 Inspections

4.2.1 An examination of the workplace – dredge deck and all compartments – shall be conducted and documented during each shift.

4.2.2 All unsafe conditions shall be recorded on the Daily Operations Report. The supervisor must act on the deficiencies noted to ensure repairs are made.

4.2.3 All hatches are to be secured in place as to keep someone from falling into the hold or secured with hard barricade.

4.3 Rigging and Material Handling

4.3.1 All rigging shall be done by experienced personnel in accordance with established safe procedures. All equipment shall comply with and be labeled as specified by ANSI/ASME standards.

4.3.2 The safe working load for each piece of equipment, chain falls, pull-lifts, trolleys, and other lifting equipment shall be clearly marked to show their capacity.

4.3.3 All gear and equipment provided for rigging and material handling shall be inspected before use, and at intervals during use when other than routine lifts are being made, to ensure that it is capable of handling the load.

4.3.4 Defective gear and rigging shall be removed from service immediately.

4.3.5 All hooks shall be provided with permanent throat safety latch or other equivalent means of preventing accidental disengagement of the load from the hook.

4.3.6 Portable ladders shall be lashed, blocked, or otherwise secured to prevent their being displaced.

4.4 Handling Trailing Cables

4.4.1 Trailing cables shall be handled or moved as per the EHSS High Voltage Lines and Cables Program

4.5 Working Near Power Lines

4.5.1 When operating mobile cranes, mobile equipment, aerial lifts, or any mechanical equipment under, by, or near power lines, they shall be operated in accordance with the following, except where the power lines have been de-energized and visibly grounded at the point of work:

a. For power lines rated at 69 KV (phase-to-phase) or less, the minimum clearance between the lines and any part of the equipment shall be at least 10 feet.

b. For lines rated at greater than 69 KV (phase-to-phase), the minimum clearance shall be 10 feet plus 4 inches for each 10 KV over 69 KV.

Reference: *EHS High Voltage Lines and Cables Program*

4.6 Inspecting Wire Ropes

4.6.1 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 dredge components;

b. Periodic inspections – Careful and detailed wire rope inspections, 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.

4.7 Housekeeping

4.7.1 Dredge 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.

4.7.2 Trash should be accumulated and promptly removed.

4.7.3 All containers shall be clearly labeled and carry the appropriate hazard warning, if required. Secondary containers will be used, if needed.

4.8 Emergency Preparedness

4.8.1 When danger from high winds caused by tornadoes, hurricanes, etc., are reasonably likely to create imminent danger to toss employees off of the Tugs or Dredges, operators and passengers on the equipment must wear a certified Type III PFD at all times while out of the control rooms. While in the control room, the Operator & Oiler must keep his/her PFD close to their location or on at all times.

4.9 Walking Working Surfaces

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

5. DRILLS

5.1 ***Person Overboard*** procedures should be posted on Dredge & Tugboats and drills initiated on a minimum of once per year.

5.2 ***Spill Response*** procedures should be posted on Dredges and drills initiated on a minimum of once per year.

6. TRAINING

6.1 All dredge and tugboat employees must complete both the water safety hazard training and water safety operator training as outlined in the EHSS – Phos Program – Water Safety Program.

Reference: Phosphates Water Safety Program

7. INSPECTIONS

7.1 Inspections of the wire ropes will be conducted according to the inspection program developed for the dredges.

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

8. PROGRAM REVIEW

8.1 Mosaic EHS will review this program every 7 years and update on an as needed basis.

9. CONTRACTORS

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

10. APPENDICES

10.1 None.

11. REFERENCES

11.1 MSHA

- 11.1.1 30 CFR 56.3200 Correction of hazardous conditions
- 11.1.2 30 CFR 56.3401 Examination of ground conditions
- 11.1.3 30 CFR 56.3430 Activity between machinery and bank
- 11.1.4 30 CFR 56.12006 Distribution boxes
- 11.1.5 30 CFR 56.12014 Handling of energized power cables
- 11.1.6 30 CFR 56.12018 Identification of power switches
- 11.1.7 30 CFR 56.12088 Splicing trailing cables
- 11.1.8 30 CFR 56.14100 Safety defects; examination, correction and records
- 11.1.9 30 CFR 56.14103 Operators stations
- 11.1.10 30 CFR 56.14105 Procedures during repairs or maintenance
- 11.1.11 30 CFR 56.14112 Construction and maintenance of guards
- 11.1.12 30 CFR 56.14204 Lubrication
- 11.1.13 30 CFR 56.18002 Examination of working places
- 11.1.14 30 CFR 56.20003 Housekeeping
- 11.1.15 30 CFR Part 48, Sec. 48.25 Training of new miners
- 11.1.16 30 CFR Part 48, Sec. 48.26 Training of newly employed exp. miners
- 11.1.17 30 CFR Part 48, Sec. 48.28 Annual Refresher Training
- 11.1.18 30 CFR Part 48, Sec. 48.29 Records of training

11.2 American National Standard-ANSI

- 11.2.1 ANSI/ASSE A10.15 – 1995 Safety Requirements for Dredging

11.3 EHS-Phos Program – Water Safety

12. REVISION LOG

Revision Log

Rev. No.	Requested By	Approved By	Revised By	Rev. Date
0	Initial Issue for Mosaic	R. Coghlan		7/31/12
1	Safety Dept.	Mike Neal	R. Coghlan	10/3/2012
2	Review date past due	PMO	PMO	6/30/2021
3	Formal Review	PMO	PMO	10/24/2022
4	Field request change	NA H&S	PMO	8/22/2023
5	PMO (add 7 yr review statement)	PMO	PMO	11/14/2024