ISSUE DATE: 3/23/2011
LAST VALIDATED: 3/26/2026

PROGRAM INFORMATION BULLETIN NO. P11-14

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SUBJECT: Reissue of P08-03 - Use of Stabilizers (Outriggers) on Chassis-Mounted Drills and Cranes

Who needs this information?
Mine operators, independent contractors, mobile equipment operators, miners' representatives, Mine Safety and Health Administration (MSHA) enforcement personnel, and other interested parties should have this information.

What is the Purpose of this Program Information Bulletin?
This Program Information Bulletin (PIB) informs all mobile equipment operators that stabilizers are considered to be safety devices that should be used and maintained in accordance with the original equipment manufacturer's specifications.

Types of Equipment Involved:
This PIB applies to chassis-mounted drills and cranes provided with stabilizers.

Information
Stabilizers are used to level and stabilize chassis-mounted drills and cranes after the equipment is moved to a location where it will be used. For example, the operator of a truck crane will deploy the stabilizers prior to picking up and swinging a load, as will a drill operator prior to elevating the mast.

Stabilizers are part of an integrated safety system that includes: 1) the stabilizer and its hardware (its ground-engaging base, hydraulically- or mechanically-operated vertical and horizontal jacking or positioning equipment, all fasteners and attachment devices); 2) load-spreading cribbing, timbers, mats or pads under the stabilizer bases; and 3) the ground itself.

The stabilizer should be structurally sound throughout and maintained in accordance with the equipment manufacturer's instructions. Structural members, attachment devices, welds, fasteners and jacks should be in place and inspected for cracks, wear, rust, corrosion or other damage that could affect their integrity or ability to carry or transfer a load. Hydraulic systems should be inspected for cylinder or hose wear, cracks, leaks or other damage or defects that could result in loss of hydraulic pressure while under load.

Because stabilizers transfer the weight of the equipment, its live loads and dynamic forces to the ground, ground conditions play a significant role in the stability of the machine and the ultimate safety of the operator and persons working nearby. Ground conditions that should be considered include the soil's load-bearing capacity, surface slope and evenness, the presence of nearby or previously backfilled excavations, and subsurface cavities. Soil support conditions should be similar under each stabilizer pad. Management and equipment operators should evaluate ground conditions before and during operation to ensure unsafe ground conditions do not develop.

Due to varying ground conditions and soil strengths, stabilizer bases are not necessarily large enough in their ground contact area to safely transmit all forces to the ground. Load-spreading devices such as cribbing, timbers, mats or pads may be required to spread the load over a sufficiently-sized area to support the machine during operation and prevent failure of the ground below. Supports placed under outrigger pads should be structurally sound, firmly and evenly supported and of adequate size. If these supports remain under outrigger pads for an extended period of time, they should be inspected often to ensure they have not shifted or deteriorated, and that the condition of the ground beneath remains sound.

Mine operators should obtain from the manufacturer the equipment's side-to-side and front-to-back load/lift limits and maximum operating slope conditions. Mine operators should also train equipment operators and supervisors to know, understand and adhere to those limits and ensure that they are not exceeded. Hard copies of operating manuals and safe operating instructions should be provided during task training and for permanent reference in the cab of the equipment. Pre-setup risk assessments should always be performed and appropriate control measures taken. Special precautions should be taken to assure safety when highly unusual conditions exist, such as when soils are particularly weak, ground conditions are deteriorating or loads or operating parameters approach the limits of the machine's safe operating range.

Before operating stabilizer-equipped machines, equipment operators should assure all stabilizers are in serviceable condition and rest firmly on ground capable of supporting the machine during all phases of its operation. Stabilizers should be fully extended to prevent machine tip-over, unless otherwise permitted by the equipment manufacturer. When space constraints prohibit full extension of stabilizers, machines should either be repositioned to allow for full extension of stabilizers or loads should be reduced to maintain stability and prevent exceeding lifting limits specified by the manufacturer. While elevating and operating the machine, operators should be alert to ground subsidence and the machine going out of level, as differential settlement could indicate impending failure of the stabilizers or the ground. Shifting loads, changing forces or the failure of a jack or the ground beneath it could result in the machine overturning.

What is the background for this PIB?
A fatal accident occurred when a drilling rig overturned while it was being operated on a sloped surface. Two other fatal accidents occurred when mobile cranes overturned while lifting material. Accident investigations indicate that improper utilization of the stabilizers, inadequate training, and failure to perform a pre-task risk assessment were, or may have been, contributing factors in these accidents.

What is MSHA's authority for this PIB?
The Federal Mine Safety and Health Act of 1977, as amended, 30 U.S.C. § 801 et seq.; 30 C.F.R. §§ 56/57.14100 Safety defects; examination, correction and records; 30 C.F.R. §§ 56/57.14205 Machinery, equipment and tools; 30 C.F.R.§ 77.404(a) Machinery and equipment; operation and maintenance; 30 C.F.R. § 77.1606 Loading and haulage equipment; inspection and maintenance; 30 C.F.R. § 46.7 New task training; 30 C.F.R. §§ 48.7 and 48.27 Training of miners assigned to a task in which they have had no previous experience.

Where is this PIB on the Internet?
This PIB may be viewed on the World Wide Web by accessing MSHA's home page and choosing "Compliance Info" and "Program Information Bulletins."

Who are the MSHA contact persons for this PIB?
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Who will receive this PIB?
MSHA Program Policy Manual Holders

Coal Mine Operators
Metal and Nonmetal Mine Operators
Miners' Representatives
Independent Contractors
Special Interest Groups