

## **JOINT STATEMENT BDA/HSE INCLINED DRILLING – PROTECTION AGAINST ROTATING PARTS**

The British Drilling Association (BDA) and the Health & Safety Executive (HSE) have worked together examining how compliance with the Provision and Use of Work Equipment Regulations (PUWER) 1998 as amended 2002 should be achieved for inclined drilling by contractors.

The BDA initiated a working group to consider the feasibility of guarding rigs during inclined drilling. The working group comprised leading contractors engaged in soil nailing, anchoring and other geotechnical works, and has sat on six occasions between June 2009 and February 2010. The HSE attended two of these meetings and provided guidance, thoughts and suggestions on the way forward.

Inclined drilling is defined as drilling at any angle greater than 10° from vertical. It should be noted that requirements for compliance with PUWER in “vertical drilling” are already defined by HSE and have been well publicised. Most inclined drilling is for soil nailing, anchoring and ground stabilisation e.g. grouting but this guidance note can also apply to other inclined drilling activities.

Legal requirements originate from the Health and Safety at Work etc. Act 1974 and Management of Health and Safety Regulations 1999. PUWER has specific requirements for the safe use of work equipment. Regulation 11 (Dangerous parts of machinery) requires the Employer to ensure effective measures are taken “to prevent access ... or stop the movement of any dangerous part ... before any part of a person enters a dangerous zone”.

The designer of any construction project, including drilling works, has a responsibility under the Construction (Design and Management) Regulations 2007 to consider the health and safety of those undertaking the project. HSE considers the provision of sufficient space for contractor’s staff to operate plant safely to be an essential aspect of providing for their health and safety.

The working group has concluded that it is practicable to guard drill rigs during inclined drilling. Access to dangerous parts involved in the drilling process shall be prevented by an interlocking guard or protective device such as a sensing or scanning device. Previous guidance for vertical drilling suggesting that guards should be a minimum of 2.0m high and not more than 0.5m above ground is not appropriate for inclined drilling.

The extent of the area to be guarded for inclined drilling shall be from a reference plane to a point where a person cannot reach the dangerous parts while these parts are moving. The reference plane shall normally be ground level but shall also include adjacent walkways or working platforms on the machine at higher level. Inclined drilling guards should extend upwards as far as necessary depending on the angle, to provide protection to a height of 1.8m above the reference plane. The guard should extend from the breakout clamps along the mast. Exposed rods between the clamps and the point of entry should also be protected with a site management solution. The material from which guards are constructed is not restricted. Any material is acceptable provided it is durable and prevents access to dangerous parts at all times.

Occasionally, inclined drilling is done in the upwards direction e.g. in tunnels, in which case it may be the end of the mast remote from the clamps which requires to be guarded.

When an interlocking guard is opened or a protective device is activated, the rotation and feed functions shall either stop or be reduced so that the rig can only be operated in a “restricted operating mode”, which shall include reducing rotation capability to slow speed (approximately 15 rpm) or inching mode. This “restricted operating mode” shall be maintained until the interlocking guard has been closed or the protective device is no longer triggered.

The “new” Machinery Directive requires that the interlock sequence should be “stop rotation and feed first before engaging the restricted operating mode”. It is recognised that it may not always be possible to achieve this sequence with existing rigs.

The HSE considers that “trip wires” do not fulfil the requirements of a protective device but are content for them to be fitted as secondary devices in addition to guards or other protective devices such as sensing and scanning devices at the user’s discretion. Importantly, guards or protective devices should not be removed or disabled in order to carry out drilling works.

Until the 30<sup>th</sup> September 2010 the inclined drilling industry shall be working towards compliance by fitting guards or protective devices to its company fleets. After this date no rig should be working on a job site unless it is suitably guarded. Rigs not in use and stored in a company yard can remain non compliant but must not be used on a job site. Up to and after 30<sup>th</sup> September there is no protection from the law in the event of an accident. HSE will take enforcement action if after 30<sup>th</sup> June a contractor cannot demonstrate that an acceptable programme to secure full compliance with PUWER is in place. HSE will take enforcement action if after 30<sup>th</sup> September guards conforming with PUWER are not in place.

Site / Project specific risk assessment is essential in providing the right guard and method of working as is appropriate training for all personnel and good supervision. The involvement of operational personnel in developing guards/protective devices that are functional will be beneficial in fostering a positive acceptance of guards or protective devices amongst those most at risk. The provision of practical guarding solutions and improvement in behavioural attitudes and safety culture are equally important in achieving best practice standards.

These requirements shall also apply to drill mast attachments mounted on booms, arms etc. of machinery – often on a 360<sup>0</sup> excavator.