

## Safety Awareness Topic of the Month

### High Pressure

High pressure in engineering and scientific circles is usually considered to be any pressure exceeding a thousand atmospheres (1013.25 bars or 14,700 psi.) However, the dangers of pressure are apparent at much lower pressures than this.

With the advent of more automated equipment on both offshore and onshore rigs yet more pressurised systems have been brought into play. There has for example been a massive increase in the use of electrically or pneumatically controlled hydraulic systems.

High pressure systems regardless of the medium should be maintained by competent persons in accordance with the manufacturer's recommendations. Records should be kept of all service, repairs and maintenance.

It is important when planning maintenance that each individual worker clearly understands the appropriate arrangements required to minimise their exposure to risk. Considerations to allow for include such items as: inspection methodology, pressure testing, isolation of the system, depressurisation of any accumulators and other storage devices, lock out / tag out of the operating controls, no go zones, verification of the safety arrangements by a competent person and any permit requirements.

Over recent years there have been a number of serious injuries and in some cases fatalities as a result of unexpected pressure discharges. The retention arrangements of pressurised hoses are often not clearly understood. With almost all pressure hose failures occurring close to the ferrule suitably installed rated whip socks prevent flail injuries.

Many of the newer rigs now enclose the hydraulic hoses in burst protection sleeves which help to eliminate fluid penetration injuries. Penetration of the skin can occur at pressures as low as 100psi (700kN/m<sup>2</sup>) and up to 4" (100mm) away from the fluid source.



A PERTH worker's arm following surgery to place an artificial vein in his forearm after a jet of grease, about one teaspoon, was injected into his little finger. If not treated promptly and effectively, these injuries can lead to amputation or death as the mechanical and chemical factors lead to compartment syndrome and subsequently systemic intoxication. The amputation risk is lowered if wide surgical debridement occurs within 6 hours of injury.

PLAN and implement the prevention and maintenance arrangements of all pressure systems to keep your personnel as safe as possible.

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