



Meeting OEM Hydraulic Safety Obligations

Applying MDG41

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May 2007



Obligations – What?



- Ensure that the plant or substance is safe and without risks to health when properly used
and
- Provide, or arrange for the provision of, adequate information about the plant to the persons to whom it is supplied to ensure its safe use.



Obligations – How?



- Identify & review hydraulic safety hazards & controls and suggest improvements
- Risk Assessment & DFMEA
 - Consideration of MDG41 criteria
- Component Testing
 - Verify performance of possible controls
- Update the QA System
 - Lock in the improvements



Review of MDG41



Objective

To perform a comparison between the MDG41 requirements and the provisions of current and recent Joy equipment, the purpose of which is to provide:

- An application document for global designs.
- An application document that can be given to customers which outlines how Joy has applied MDG 41 to its designs.
- A documented process that can be used in a legal situation by both Joy and its Customers which will demonstrate how MDG 41 was considered in the machine design.

Team

Joy Design Personnel, Customers and Hose/Fitting Supplier

Third Party Facilitator



Review of MDG41



Scope of Initial Review

- Review MDG41 to identify the hazards behind each clause.
- Identify the existing Joy measures to control the hazards.
- Consider whether these existing controls were sufficient.
- Suggest further controls where the team considered the existing controls could be improved.

Review of Suggestions

- Suggested improvements reviewed by Joy Engineering Managers.
- Action plan developed to investigate &/or implement the accepted suggestions.



Summary of Actions



Develop Global Engineering Manual for hydraulic safety.

- Defines ‘*High Risk Areas*’, *Factors of Safety* and Requirements for: Isolation & dissipation & test points; return relief & blockage; ergonomics; guarding & sleeving; hose securing & restraint.

Update Risk Assessment, DFMEA & PPU processes.

- Checklists to ensure all hazards identified in MDG41 are considered.
- Establish statistical information on component failure (esp. hoses) for use in risk assessments. (*address on an industry wide basis?*)

Customer Documentation & Manuals .

- Review Safety File Requirements & advise customers to keep this up-to-date between overhauls.
- Review and update operating & maintenance procedures, including defined intervals for hydraulic safety checks & audits.



Summary of Actions...Cont'd



Ensure relevant quality system procedures and documents are updated in line with accepted suggestions and MDG41.

- RA, DFMEA & PPU procedures and checklists.
- Rebuild & component repair process & testing.
- Hose, hose assembly and fitting – manufacture, test & storage.
- Ensure NSW hydraulic safety requirements are included in the specification for any overseas or interstate supply.
- Ensure hydraulic safety issues are considered when quoting for rebuilds or overhaul of equipment.
- Review & update Longwall commissioning procedures & checklists.
- Ensure competencies to assure hydraulic safety are defined.
- Update Safety File requirements.
- Review Service & Safety Bulletin procedure to improve its expediency.



Progress To date



- MDG41 Review
 - Risk Assessment conducted
 - Suggested improvements reviewed
 - Actions initiated
- Risk Assessment & DFMEA
 - UK has commenced a review of prior analysis
 - Dimensional consistency of Joy & Parker staple porting confirmed
- Testing of possible controls
 - Review of various suppliers hose restraint test evidence in progress.
 - Mazzer Hi Tec Kevlar ‘Tex Sleeve’ testing reviewed & deemed inadequate ~ additional tests conducted using HP water emulsion.



Outcomes



- A Global Engineering Manual for hydraulic safety
- Improved Risk Assessment & FMEA processes incorporating checklists of specific hazards.
- Designs of existing and new equipment will meet NSW hydraulic safety expectations.
- Both locally manufactured and imported equipment will meet NSW hydraulic safety requirements.
- Equipment hydraulic safety issues will be appropriately addressed at repair and overhaul.
- Improved customer information and documentation



Making the Longwall A Safer Place to Work

