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NEW ZEALAND

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New Zealand Drillers Federation
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Attention: Steve Faulkner, President NZDF

New Workplace Exposure Standard for Respirable Crystalline Silica

Introduction/Scope

On 20 June you asked me to check the new (June 2016) workplace exposure standard (WES) published by Worksafe to confirm whether it aligns with the NZDF submission on Respiratory Crystalline Silica (RCS).

I have reviewed or refamiliarised myself with the following documents in order to complete a high level overview:

- [1] WES and Biological Indices June 2016 8th Edition (~~WES~~, ~~new WES~~)
- [2] Health and Safety at Work (General Risk and Workplace Management) Regulations 2016
- [3] NZDF submission on WES for Quartz (crystalline silica) as respirable dust submitted to Worksafe in August 2015, prepared for NZDF by RAR Ltd
- [4] Consultation response report prepared for NZDF by RAR Ltd, August 2015

Background

The background to the new RCS WES is covered in [4] and should be known to the NZDF. In summary the NZDF submission, covered the following key points:

- The proposed new WES for RCS (0.025gm/m³, TWE) was overly conservative and long term exposure was considered to be unlikely given the H&S standards and work rosters in today's industry.
- Long term exposure in the manner anticipated by the proposed WES was not credible and potentially hazardous worksites are generally mines and quarries operated by site owners/operators, not drill sites where exploration, geotechnical and other forms of drilling are conducted.
- The level considered feasible by NZDF is the Australian WES of 1.0gm/m³
- It was recommended that 1. Worksafe consult with Worksafe Australia to tap into the size and complexity of their mining industry, and 2. Worksafe commission a new sampling programme in NZ before settling on a new WES for RCS.
- The level being proposed in consultation was considered impractical to achieve.

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New WES

For RCS the new WES is 1.0 mg/m³ as an 8 hour TWE. This standard is in line with the level adopted some years ago by the Worksafe Australia. This is a considerable improvement on the consultation level and the result should be seen as a win+for common sense.

The WES indices in [1] cover a comprehensive range of hazardous materials/substances in the work environment. A range of these materials are potentially relevant to the drilling industry and should be borne in mind when conducting site or project hazard risk assessments (Table 1).

Table 1: Hazardous substances potentially relevant to the drilling industry

Material/substance	WES (mg/m ³ unless stated otherwise)	Type
Asbestos	0.1 fibres/ml air	
Barium		
Limestone dust	10	r
Cement dust	10	r
Coal dust	3	r
Crystalline Silical	1	r
Gasoline	890	
Diesel particulates	0.1	r
Gypsum	10	
H ₂ S	14	
Methane	Explosive hazard	
Mica	3	r
N	asphyxiant	
Oil mist	5	
SO ₂	5.2	
Talc (no asbestos)	2	r
Talc (refer asbestos)		
Tungsten insoluble	5	
Tungsten insoluble	5	

The new WES [1] updates the previous version from 2012. Broadly the new indices cover the following matters.

An outline of employer (PCBU) and employee obligations as per the General Risk and Workplace Management regulations [2]. Key requirements include:

- Provide and maintain a work environment free of H&S risks
- Ensure worker health is monitored
- Ensure conditions at the workplace are monitored
- Provide suitable PPE
- Consult with employers on H&S issues

In short, hazardous materials must be identified if they are present, and the employer (PCBU) needs to assess the risk the hazard presents to the employee, and suitable controls put in place. Assessment in this context will entail monitoring to determine the concentration of the hazardous material/substance. Employee (worker) obligations are explained and their entitlements regarding H&S are outlined. Highly relevant requirements are:

- Access to the results of exposure monitoring at the workplace
- Be provided with health monitoring reports
- Receive information and training on the material/substances being handled or exposed to.

A section on airborne contaminants is included. The main thing to note is that Worksafe recommend that specialist advice is sought prior to engaging in a monitoring programme or exposure controls and do not recommend that untrained persons use WES to determine compliance.

The Legal requirements are outlined. Key points to note are:

- If hazardous substances exist in the work environment, and elimination is not possible, the PCBU must minimise and monitor worker exposure.
- If the level of exposure to the hazardous substance is uncertain, the PCBU must conduct exposure monitoring.
- The General Risk and Workplace Management Regulations prescribe PCBU and employee obligations.
- Note regulations 8, 30, 31, 32, and 39.

Personal sampling requirements for substances that have a WES-TWA (time weighted average) are outlined. TWA is derived on an 8 hour work day and 40 hour week. For worker rosters involving longer shifts than this the WES-TWA needs to be adjusted so that whole of shift exposure assessed. If the substance also has a WES-STEL (short term exposure limit) exposure over 15mins needs to be assessed. RCS is a TWA and the WES relates to respirable dust.

In my earlier report to NZDF [4], I set out the following in the appendices:

- Appendix 1: Air quality: managing dust and other airborne contaminants from the Mining Operations and Quarrying Regulations 2013
- Appendix 2: Testing for RCS
- Appendix 3: Respiratory PPE

NZDF is referred to these for more insight into legal, monitoring and personal protection in connection with RCS.

Finally, I attach the 2016 WES and the General Risk and Workplace Management Regulations 2016 for your information.

I trust this provides you with a suitable overview of outcome of the consultation process conducted between Worksafe and NZDF on this matter.

Yours sincerely



Dean Fergusson
Managing Director