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Risk Assessment on the ELBOC Set Clamp

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1 SUMMARY

1.1 Introduction

Mr. Fanie van den Berg from Elbroc Mining Products (Pty) Ltd. requested a risk assessment on the Elbroc Set Clamp.

1.2 Product Description

The **Set Clamp** is a steel clamp manufactured by ELBROC to be used in the construction of sets. The Set Clamp consists of a round clamp and a square beam support. The square beam support is welded to the round clamp and strengthened with diagonal flat bars.



Figure 1 : Elbroc Set Clamp

The **Coal Set Clamp** is a steel clamp manufactured by ELBROC to be used in the construction of sets. The Set Clamp consists of a round clamp and a square beam support. The square beam support is welded to the round clamp and strengthened with diagonal flat bars. A T-bar is welded to the round clamp for opening-up purposes.



Figure 2 : Elbroc Coal Set Clamp

The **Studdle** (distance piece) is a steel piece manufactured by ELBROC to be used in the construction of sets. The Studdle consists of a telescopic arm and two round clamps. The aim of the Studdle is to clamp individual prop support units.



Figure 3 : Elbroc Studdle (Distance Piece)

2 Objectives

The objective of the risk assessment is to identify, evaluate and risk rank the hazards and associated risks and to clearly identify the required controls to eliminate or reduce the severity and / or frequency should an incident occur.

3 The Scope of this Assessment

The scope of this assessment is to identify the functions and failures of the equipment that could lead to injuries or loss in production when failures occur.

4 Methodology

The FMECA process was used to identify the functions and failures of the equipment. This process allows you to identify the failure modes, the causes and the consequences of the failures. The assessment mainly deals with the equipment and not with the installation of the equipment.

4.1 Definitions

HAZARD	-	something that has the potential to cause harm
RISK	-	the likelihood that harm from a particular hazard will occur
SEVERITY	-	extent of the risk associated with the harm that a person might suffer as well as the number of persons likely to be harmed
FREQUENCY	-	the chance that a person will be harmed during the exposure period

RISK Rating is defined as the product of frequency and severity

4.2 Frequency and Severity categories

Frequency categories 1 – 6 and severity categories 1 – 8 were defined for various expected occurrences as follows:

Index	Frequency	Severity
1	Most likely event – can be daily.	Catastrophic – Multiple fatalities
2	Possible - probable events between 10 and 100 per year.	Disaster – One fatality
3	Unusual - probable events between 1 and 10 per year.	Very Serious – One fatality 600 –5999 Shifts lost
4	Remote - probable events between 1 per year and 1 in 10 years.	Serious – Amputation 60 – 599 Shifts lost
5	Very unlikely - probable events between 1 in 10 years and 1 in 100 years.	Important – Disability 6 – 59 Shifts lost
6	Impossible - probable events in less than 1 per 100 years.	Concern – Minor injury 1 – 5 Shifts lost
7		No incident – No time lost
8		Near miss

4.2 Risk Matrix and Categories

Risk categories were defined by combining the frequency and severity categories according to a matrix.

A risk score of 48 denotes the highest (most significant) risk; a risk score of 1 denotes the lowest (least significant) risk. Using the risk index, risk is grouped into three levels e.g. High (A), Medium (B) and Low (C), as illustrated by the table below:

Risk Index	Category	Action
28 – 48	A – High	Immediate remedial action required
16 – 27	B – Medium	Requires action when reasonably practicable
1 – 15	C - Low	Maintain risk at this level

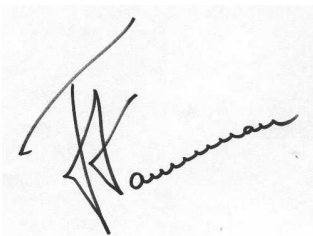
RISK MATRIX

		FREQUENCY					
		1	2	3	4	5	6
S	1	48	47	45	42	38	33
E	2	46	44	41	37	32	27
V	3	43	40	36	31	26	21
E	4	39	35	30	25	20	15
R	5	34	29	24	19	14	10
I	6	28	23	18	13	9	6
T	7	22	17	12	8	5	3
Y	8	16	11	7	4	2	1

4.4 Risk Assessment Team

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