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| OTML Logo Orange Cyan | **JOB SAFETY ANALYSIS** |

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| **Description of** **the Job:** |  | **JSA Control No.:** |  |
| **Effective Date:** |  | **Version No.:** |  |
|  |
| **Highest ranked risk before control** |  | **Work Order #:** |       |
| **Highest ranked risk after control** |  | **Date:** |  |
| **Equipment Name:** |  | **JSA Team Member** |
| **Equipment No.:** |  | **Skills** | **Name** | **Signature** |
| **Area** |  |  |  |  |
| **Tools** |  |  |  |
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| **Isolation Required?** | [ ]  Yes | [ ]  No | [ ]  NA | **JSA Prepared By:**  |
| **Required Permit**  |  |  |  |
| [ ]  None | [ ]  ATW | **(Team Leader) JSA Reviewed By:**  |
| [ ]  High Voltage | [ ]  Confined Space |  |  |  |
| [ ]  Hot Work | [ ]  Work at Height | **(Permit Issuer) JSA Verified By:**  |
| [ ]  Excavation | [ ]  Radiation |  |  |  |
| **Special PPE Required:** | **Special Tools or Equipment Required:** |
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| **Fire Emergency Equipment Required:** | **Hazardous Materials:** |
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| **Job Steps** | **Hazards** | **Risks** | **Inherent Risk** | **Control and actions** | **Residual Risks** |
| **Without any controls** | **After control** |
| **C** | **L** | **R** | **C** | **L** | **R** |
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| ‘’Ç’’: Consequence ‘’L’’ Likelihood (see Attachment A: Risk Matrix) | \* If the risk after control are added is greater than “Medium refer to your “Team Leader” before you begin the job. |

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| **Job Steps** | **Hazards** | **Risks** | **Inherent Risk** | **Control and actions** | **Residual Risks** |
| **Without any controls** | **After control** |
| **C** | **L** | **R** | **C** | **L** | **R** |
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| **POTENTIAL HAZARD/ RISKS WHICH MAY BE PRESENT** |
| People* Awkward working posture
* Manual handling (Lifting lowering, pushing pulling)
* Electrical Circuit energised
* Can machine be accidentally started
* Can the machine roll
* Can I hurt someone?
 | Equipment* Tapping into cooling systems
* Breaking hydraulics lines or components
* Set of fire suppression systems
* Using lifting slings or cranes
* Jacking machine up
* Stored energy sources (air, hydraulic, etc)
 | Environment* Hazardous Chemical
* Rotating components nearby
* Operator assistance required
* Noise, Compressed air
* Tasks performed alone in remote are (in the field )
* Follow MSDS
* Chance of spills or pollution?
 | Process and procedures* Using electrical equipment
* People working below
* Falling objects
* Exposure to exhaust fumes/gases
* Working at height
* Working near hot surfaces (eg. Turbo or exhaust
* Isolation)
 | Permits* Hot work (welding, grinding, oxy, cutting, brazing
* Live work task
* Confined space entry
* Man-lift box
 |
| **Below are definitions of the words/ terms used in JSA form.** |
| **CONSEQUENCE** | **EXPOSURE** | **LIKELIHOOD** | **FREQUENCY** | **RISK** |
| Result | Contact | Probability  | Incidence | Danger |
| Penalty | Experience | Chance | Occurrence | Jeopardy |
| Cost | Introduction |  | Regularity | Threat |
|  |  |  | Rate of Reoccurrence | Hazard |

**Consequence Table**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Level** | Safety | **Health** | **Environmental** | **Community** | **Reputation** | **Production Loss** | **Financial** | **Life of Mine Impact** | **Compliance** |
| **1** | First Aid Treatment | Reversible health effects of little concern, no known or suspected adverse health effects. | < 1 day | Individual Community Complaint, | Local short-term media attention and negative public reaction | < 1 shift | No effect on Work Schedule, Product and Quality – less than $50,000 loss | Resource loss would have minor impact on life of mine < 1 year | Minor technical / legal compliance issue that is dealt with on site.Incident requires reporting in routine internal incident report system.Minor breach of internal standards |
| **2** | Medical Treatment.  | Health impact requiring medical treatment/intervention, not permanent | 1 day to one week | Multiple Community Complaint. | Local prolonged media attention and negative public reaction | <1 days | Minimal effect on Work Schedule, Product and Quality - $50,000 - $500,000 loss | Resource loss would have consequences on life of mine > 1 but < 5 years | Technical / legal compliance issue which may attract a low level administrative response from regulator. Continuing occurrences of minor breaches. Incident requires reporting in routine reports (e.g. monthly) and to OTML corporate.Moderate breach of internal standards |
| **3** | Hospitalisation. | Health impact requiring hospitalisation, not permanent | 1 week to 1 month | Community stops job or task. | Negative reaction by public, or interest groups and short term national media attention | 1 - 7 days | Serious effect on Work Schedule, Product and Quality - production halted for 1 day to 1 week - $500,000 - $5,000,000 loss | Resource loss would have substantial consequences life of mine > 5 but <10 years | Serious breach of regulation.Incident requires immediate (within 48 hours) notification to Government and OTML Corporate).Major breach of internal standards. |
| **4** | Single fatality. | Chronic health effects causing illness or partial impact on body function | > 1 month | Community shuts site. | Widespread public discontent Prolonged adverse national media attention or coronial inquest | > 7 days | Major effect on Work Schedule, Product and Quality - 1 week to 1 month production suspended - $5,000,000 to $20,000,000 loss | Resource loss would have severe consequences on life of mine > 10 years | Major breach of regulation resulting in investigation by regulator. Prosecution, penalties or other action likely. |
| **5** | Multiple fatalities. | Life threatening or permanent disability or Long term chronic health effects or illness, major impact on body function  | Permanent environmental impact. | Community outrage resulting in violence, significant damage to company property, attacks on staff | Widespread public condemnation Long term media condemnation or formal Government inquiry | > 1 month | Project suspended for more than 1 month – more than $20,000,000 lost revenue.  | Resource loss would have permanent consequences on life of mine | Operation suspended, licenses revoked. |

**Likelihood Table**

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| **Level** | **Description** | **Probability (for defined time activities)** | **Criteria (read as either/or)** |
| **A** | ***Almost Certain*** | 99% chance | The consequence will occur.The consequence is expected to occur many times per annum or happens often. |
| **B** | ***Likely*** | 50% chance | The consequence will occur under some circumstances.The consequence is expected to occur once or twice per annum. |
| **C** | ***Possible*** | 10% chance | The consequence has happened elsewhereThe consequence typically occurs once in every 5 years |
| **D** | ***Unlikely*** | 1% chance | The consequence has happened elsewhere.The consequence is expected to occur once in 15 years |
| **E** | ***Rare*** | 0.1% chance | The consequence may occur in exceptional circumstances.The consequence has rarely occurred in the industry and is not expected in the life of the mine. |

**Risk Matrix**

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| **Likelihood** | **Consequence** |
| **1** | **2** | **3** | **4** | **5** |
| **A****Almost Certain** | ***Moderate******(11)*** | ***Significant******(16)*** | ***Significant******(20)*** | ***High******(23)*** | ***High******(25)*** |
| **B****Likely** | ***Moderate******(7)*** | ***Moderate******(12)*** | ***Significant******(17)*** | ***High******(21)*** | ***High******(24)*** |
| **C****Possible** | ***Low******(4)*** | ***Moderate******(8)*** | ***Moderate (13)*** | ***Significant******(18)*** | ***High******(22)*** |
| **D****Unlikely** | ***Low******(2)*** | ***Low******(5)*** | ***Moderate******(9)*** | ***Significant******(14)*** | ***Significant******(19)*** |
| **E****Rare** | ***Low*** ***(1)*** | ***Low******(3)*** | ***Low******(6)*** | ***Moderate******(10)*** | ***Significant******(15)*** |
|  |  |  |  |
| ***1 – 6 LOW*** | ***7 – 13 MODERATE*** | ***14 – 20 Significant*** | ***21 – 25 High*** |
|  |  | ***Significant Risks*** |

APPROVAL RANKING

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| **HRI** | **Risk Level** | **Notification / Approval Level** |
| **21 *–* 25** | High | GM Approval Required (refer to Major Hazard Scenario bowties for risk and control data) |
| **14 *–* 20** | Significant | Area Manager Approval Required |
| **7 *–* 13** | Moderate | Line Manager / Superintendent Supervisor Notification Required |
| ***1 – 6*** | Low | No approval or notification required |

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| **JSA Control No.:** |  |
| **REVISION HISTORY** |
| **Version** | **Date** | **Description** | **Reviewed By:** | **Approved By:** |
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| **JSA REVIEW LOG SHEET** (Note: User to sign prior job execution) |
| **No.** | **Position** | **Name** | **Signature** |
| **JSA Users** |
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| **Supervisor** (Note: Supervisor to sign after job execution) |
| **Supervisor** |  |  |
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| **JSA REVIEW FOR COMPLIANCE** |
| **Comments:** |
| **Safety & Training** |  |  |