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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**

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| **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 elsewhere  The 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** | |  |  |