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| WSN_LogoWithTag_4CC-[Converted] | UNUSUAL OCCURRENCE REPORT FOR GROUNDFALL/ROCKBURST(UNDERGROUND MINE) |

**THIS REPORT IS FOR:**  **FALL OF GROUND**  **ROCKBURST**

## GENERAL

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| --- | --- | --- | --- |
| **Company**  **incident code**: | **Internal Report**  **Reportable Incident**  (see Sect. 21 of Ontario Regulation 854)) | | |
| **Company**: | **Mine**: | **Address**: | |
| **Date**: | Unknown | **Time of occurrence**:  AM  PM | Unknown |
| **Damage sustained by mine openings:** | None  Single location  Multiple locations | | |
| **General description of occurrence**: | | | |
|  | | | |

## workers

|  |  |
| --- | --- |
| **At time of incident workers were**:  Underground  Surface  No one Working  Unknown | |
| **Were workers normally required in area**:  Yes  No | **Was access to the area restricted?**  Yes  No |
| **Were workers in immediate area of damage**:  Yes  No | **To within what distance of the**  **incident were workers present:**  m  ft |
| **Were there any injuries**: Yes  No | **Nature of Injuries**: |

## seismicity (FOR rockbursts only)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Seismic event that**  **most likely triggered damage**: | Magnitude: | | | Coordinates: North East Depth  m  ft | | | | | | |
| Apparent seismic source mechanism: | | | Undetermined  Strain burst  Pillar burst  Fault slip | | | | | | |
| **Magnitude scale:**  Nuttli  Richter  Other: | | | | Magnitude of first event: | | | Magnitude of largest event: | | | |
| **Event magnitudes**: | < 1 | | | 1‑ 2 | | 2– 3 | | | > 3 | |
| **Number of events**: | Unknown | |  | Unknown |  | Unknown | |  | Unknown |  |
| **Period of time** over which events occurred (if more than one): | | | | | Unknown  Seconds  Minutes  Hours | | | | | |
| **Location of major events**: | | | Hanging wall  Footwall  Ore Zone  Not Located | | | | | | | |
| **Location determined by**: | | Visual Inspection  Seismic Monitoring Equipment  Other Monitoring Equipment  Estimated  Not Located | | | | | | | | |
| **The Rockburst**:  Triggered a fall of ground  Displaced material violently  Was contained by ground support | | | | | | | | | | |

## damage location #1

## description of occurrence

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mine level**: | | | | **Location**: | | | | | | | | | | | | | | | | | |
| **This area was**:  Active  Inactive  Abandoned | | | | | Coordinates: North East Depth  m  ft | | | | | | | | | | | | | | | | |
| **Geological zone**: H/W  F/W  Ore | | | | | **Rock type**: | | | | | | | | | | | | | | | | |
| **The incident occurred in:**  Raise  Drift/XC  Pillar  Shaft  Ore/waste pass  Stope  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Opening dimensions**: Height: | | | |  | Width: | | |  | | Length: | |  | | Span: | | |  | | ft | | m |
| **Damage sustained to**: | Excavation | | | | | Ground Support | | | | | Equipment | | | | Unknown | | | | |  | |
| **Associated mining activity**: | | | Nothing apparent Backfilling Blasting Bolting Drilling Mucking Scaling | | | | | | | | | | | | | | | | | | |
| **Ore Recovery in Immediate Area:**  None Primary Recovery  Pillar or Secondary Recovery | | | | | | | | | | | | | | | | | | | | | |
| **Mining Method**:  None  Shrinkage  Cut & Fill  Post Pillar Cut & Fill  Undercut & Fill  Blasthole  VRM  Slot & Slash  Uppers Retreat  Sublevel Caving  Block Caving  Other: | | | | | | | | | | | | | | | | | | | | | |
| **If pillar sustained damage:** Type:  Rib  Post  Sill  Crown  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Pillar dimensions** | | Height: | | | | | Width: | | | | | | Length: | | | | | m  ft | | | |
| **Material displaced from:**  Face  Back  Wall  Floor  Shoulder  Brow  Unknown  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Material displaced** | | From behind support (uncontained): | | | | | From unsupported ground: | | | | | | Contained by support: | | | | | Total: | | | |
| tonnes  tons | |  | | | | |  | | | | | |  | | | | |  | | | |
| **Damage dimensions** | | Length: | | | | | Width: | | | | | | Max. depth: | | | | | m  ft | | | |
| **Displaced material** | | Wedge  Tabular  Blocky  Thin/slabbing  Irregular  Shotcrete  Unknown | | | | | | | | | | | | | | | | | | | |
| **Rockburst damage mechanism** | | Rock bulking due to fracturing | | | | | | | Rock ejection due to seismic energy transfer | | | | | | | | | | | | |
| Rock fall due to seismic shaking | | | | | | | Unknown | | | | | | | Not applicable | | | | | |
| **Comments**: | | | | | | | | | | | | | | | | | | | | | |
| **Rock mass characteristics**  (choose one only) | | | | Massive  Bedded  Blocky/Chunks  Fractured  Slabbing  Unknown | | | | | | | | | | | | | | | | | |
| **Structural geology and water** | | | | Dyke Fault/shear  Contacts  Steeply dipping joints  Flat lying joints  Joint alteration/infilling  Water | | | | | | | | | | | | | | | | | |
| **Fault/dyke description** | | Orientation:  trend/plunge  dip/dip direction | | | | | | | | | | | Thickness:  m  ft | | | | | | | | |
| **Comments**: | | | | | | | | | | | | | | | | | | | | | |

## damage location #1

## rock support system

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Backfill Type** | | **Location or Opening Backfilled** | | | **Binder Type and Content** | | **Percentage Filled** | |
|  | |  | | |  | |  | |
| **Reinforcement** | **Type** | **Location** | | **Length** | **Pattern** | | **Performance** | |
| **Back** | **Walls** | **Wide** | **Long** | **Failed** | **Beyond** |
| Mechanical bolts |  |  |  |  |  |  |  |  |
| Resin rebars |  |  |  |  |  |  |  |  |
| Friction stabilizers |  |  |  |  |  |  |  |  |
| Expandable bolts |  |  |  |  |  |  |  |  |
| Dynamic bolts |  |  |  |  |  |  |  |  |
| Cable bolts |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Surface support** | **Type** | **Location** | | **Dimension or thickness** | **Performance** | | |  |
| **Back** | **Walls** | **Cracked or bulged** | **Broken** | **Failed** |  |
| Wire-mesh |  |  |  |  |  |  |  |  |
| Shotcrete |  |  |  |  |  |  |  |  |
| Straps |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Other system** | | **Used to support** | | **Performance** | | |  |  |
| **Back** | **Walls** | **Deformed** | **Broken** | **Failed** |  |  |
|  | |  |  |  |  |  |  |  |
| **Comments Regarding Effectiveness of Support Systems**: | | | | | | | | |
| **Follow-up Action**: | | | | | | | | |

## damage location #2

## description of occurrence

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mine level**: | | | | **Location**: | | | | | | | | | | | | | | | | | |
| **This area was**:  Active  Inactive  Abandoned | | | | | Coordinates: North East Depth  m  ft | | | | | | | | | | | | | | | | |
| **Geological zone**: H/W  F/W  Ore | | | | | **Rock type**: | | | | | | | | | | | | | | | | |
| **The incident occurred in:**  Raise  Drift/XC  Pillar  Shaft  Ore/waste pass  Stope  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Opening dimensions**: Height: | | | |  | Width: | | |  | | Length: | |  | | Span: | | |  | | ft | | m |
| **Damage sustained to**: | Excavation | | | | | Ground Support | | | | | Equipment | | | | Unknown | | | | |  | |
| **Associated mining activity**: | | | Nothing apparent Backfilling Blasting Bolting Drilling Mucking Scaling | | | | | | | | | | | | | | | | | | |
| **Ore Recovery in Immediate Area:**  None Primary Recovery  Pillar or Secondary Recovery | | | | | | | | | | | | | | | | | | | | | |
| **Mining Method**:  None  Shrinkage  Cut & Fill  Post Pillar Cut & Fill  Undercut & Fill  Blasthole  VRM  Slot & Slash  Uppers Retreat  Sublevel Caving  Block Caving  Other: | | | | | | | | | | | | | | | | | | | | | |
| **If pillar sustained damage:** Type:  Rib  Post  Sill  Crown  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Pillar dimensions** | | Height: | | | | | Width: | | | | | | Length: | | | | | m  ft | | | |
| **Material displaced from:**  Face  Back  Wall  Floor  Shoulder  Brow  Unknown  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Material displaced** | | From behind support (uncontained): | | | | | From unsupported ground: | | | | | | Contained by support: | | | | | Total: | | | |
| tonnes  tons | |  | | | | |  | | | | | |  | | | | |  | | | |
| **Damage dimensions** | | Length: | | | | | Width: | | | | | | Max. depth: | | | | | m  ft | | | |
| **Displaced material** | | Wedge  Tabular  Blocky  Thin/slabbing  Irregular  Shotcrete  Unknown | | | | | | | | | | | | | | | | | | | |
| **Rockburst damage mechanism** | | Rock bulking due to fracturing | | | | | | | Rock ejection due to seismic energy transfer | | | | | | | | | | | | |
| Rock fall due to seismic shaking | | | | | | | Unknown | | | | | | | Not applicable | | | | | |
| **Comments**: | | | | | | | | | | | | | | | | | | | | | |
| **Rock mass characteristics**  (choose one only) | | | | Massive  Bedded  Blocky/Chunks  Fractured  Slabbing  Unknown | | | | | | | | | | | | | | | | | |
| **Structural geology and water** | | | | Dyke Fault/shear  Contacts  Steeply dipping joints  Flat lying joints  Joint alteration/infilling  Water | | | | | | | | | | | | | | | | | |
| **Fault/dyke description** | | Orientation:  trend/plunge  dip/dip direction | | | | | | | | | | | Thickness:  m  ft | | | | | | | | |
| **Comments**: | | | | | | | | | | | | | | | | | | | | | |

## damage location #2

## rock support system

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Backfill Type** | | **Location or Opening Backfilled** | | | **Binder Type and Content** | | **Percentage Filled** | |
|  | |  | | |  | |  | |
| **Reinforcement** | **Type** | **Location** | | **Length** | **Pattern** | | **Performance** | |
| **Back** | **Walls** | **Wide** | **Long** | **Failed** | **Beyond** |
| Mechanical bolts |  |  |  |  |  |  |  |  |
| Resin rebars |  |  |  |  |  |  |  |  |
| Friction stabilizers |  |  |  |  |  |  |  |  |
| Expandable bolts |  |  |  |  |  |  |  |  |
| Dynamic bolts |  |  |  |  |  |  |  |  |
| Cable bolts |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Surface support** | **Type** | **Location** | | **Dimension or thickness** | **Performance** | | |  |
| **Back** | **Walls** | **Cracked or bulged** | **Broken** | **Failed** |  |
| Wire-mesh |  |  |  |  |  |  |  |  |
| Shotcrete |  |  |  |  |  |  |  |  |
| Straps |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Other system** | | **Used to support** | | **Performance** | | |  |  |
| **Back** | **Walls** | **Deformed** | **Broken** | **Failed** |  |  |
|  | |  |  |  |  |  |  |  |
| **Comments Regarding Effectiveness of Support Systems**: | | | | | | | | |
| **Follow-up Action**: | | | | | | | | |

## damage location #3

## description of occurrence

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mine level**: | | | | **Location**: | | | | | | | | | | | | | | | | | |
| **This area was**:  Active  Inactive  Abandoned | | | | | Coordinates: North East Depth  m  ft | | | | | | | | | | | | | | | | |
| **Geological zone**: H/W  F/W  Ore | | | | | **Rock type**: | | | | | | | | | | | | | | | | |
| **The incident occurred in:**  Raise  Drift/XC  Pillar  Shaft  Ore/waste pass  Stope  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Opening dimensions**: Height: | | | |  | Width: | | |  | | Length: | |  | | Span: | | |  | | ft | | m |
| **Damage sustained to**: | Excavation | | | | | Ground Support | | | | | Equipment | | | | Unknown | | | | |  | |
| **Associated mining activity**: | | | Nothing apparent Backfilling Blasting Bolting Drilling Mucking Scaling | | | | | | | | | | | | | | | | | | |
| **Ore Recovery in Immediate Area:**  None Primary Recovery  Pillar or Secondary Recovery | | | | | | | | | | | | | | | | | | | | | |
| **Mining Method**:  None  Shrinkage  Cut & Fill  Post Pillar Cut & Fill  Undercut & Fill  Blasthole  VRM  Slot & Slash  Uppers Retreat  Sublevel Caving  Block Caving  Other: | | | | | | | | | | | | | | | | | | | | | |
| **If pillar sustained damage:** Type:  Rib  Post  Sill  Crown  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Pillar dimensions** | | Height: | | | | | Width: | | | | | | Length: | | | | | m  ft | | | |
| **Material displaced from:**  Face  Back  Wall  Floor  Shoulder  Brow  Unknown  Other: | | | | | | | | | | | | | | | | | | | | | |
| **Material displaced** | | From behind support (uncontained): | | | | | From unsupported ground: | | | | | | Contained by support: | | | | | Total: | | | |
| tonnes  tons | |  | | | | |  | | | | | |  | | | | |  | | | |
| **Damage dimensions** | | Length: | | | | | Width: | | | | | | Max. depth: | | | | | m  ft | | | |
| **Displaced material** | | Wedge  Tabular  Blocky  Thin/slabbing  Irregular  Shotcrete  Unknown | | | | | | | | | | | | | | | | | | | |
| **Rockburst damage mechanism** | | Rock bulking due to fracturing | | | | | | | Rock ejection due to seismic energy transfer | | | | | | | | | | | | |
| Rock fall due to seismic shaking | | | | | | | Unknown | | | | | | | Not applicable | | | | | |
| **Comments**: | | | | | | | | | | | | | | | | | | | | | |
| **Rock mass characteristics**  (choose one only) | | | | Massive  Bedded  Blocky/Chunks  Fractured  Slabbing  Unknown | | | | | | | | | | | | | | | | | |
| **Structural geology and water** | | | | Dyke Fault/shear  Contacts  Steeply dipping joints  Flat lying joints  Joint alteration/infilling  Water | | | | | | | | | | | | | | | | | |
| **Fault/dyke description** | | Orientation:  trend/plunge  dip/dip direction | | | | | | | | | | | Thickness:  m  ft | | | | | | | | |
| **Comments**: | | | | | | | | | | | | | | | | | | | | | |

## damage location #3

## rock support system

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Backfill Type** | | **Location or Opening Backfilled** | | | **Binder Type and Content** | | **Percentage Filled** | |
|  | |  | | |  | |  | |
| **Reinforcement** | **Type** | **Location** | | **Length** | **Pattern** | | **Performance** | |
| **Back** | **Walls** | **Wide** | **Long** | **Failed** | **Beyond** |
| Mechanical bolts |  |  |  |  |  |  |  |  |
| Resin rebars |  |  |  |  |  |  |  |  |
| Friction stabilizers |  |  |  |  |  |  |  |  |
| Expandable bolts |  |  |  |  |  |  |  |  |
| Dynamic bolts |  |  |  |  |  |  |  |  |
| Cable bolts |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Surface support** | **Type** | **Location** | | **Dimension or thickness** | **Performance** | | |  |
| **Back** | **Walls** | **Cracked or bulged** | **Broken** | **Failed** |  |
| Wire-mesh |  |  |  |  |  |  |  |  |
| Shotcrete |  |  |  |  |  |  |  |  |
| Straps |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Other system** | | **Used to support** | | **Performance** | | |  |  |
| **Back** | **Walls** | **Deformed** | **Broken** | **Failed** |  |  |
|  | |  |  |  |  |  |  |  |
| **Comments Regarding Effectiveness of Support Systems**: | | | | | | | | |
| **Follow-up Action**: | | | | | | | | |

## attachements

|  |
| --- |
| Please, provide a list of attached documents (e.g. photos, mine plans, etc.) if applicable. |
|  |

## SIGN-OFF

|  |  |  |
| --- | --- | --- |
| **Date Report Completed** | **Name of Person Completing Report** | **Title** |
|  |  |  |
| **Phone: ( )** | **Fax: ( )** | **E-Mail:** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Name** | **Signature** | **Date** |
|  |  |  |  |
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**If this is a reportable incident, please send report to:**

* **District Office, Mining Health and Safety Program, Ontario Ministry of Labour** [**Mike.Kat@ontario.ca**](Mike.Kat@ontario.ca)
* **Ground Control Specialist, Workplace Safety North, 690 McKeown Avenue, PO Box 2050, North Bay, Ont. P1B 9P1** [**GCS@workplacesafetynorth.ca**](mailto:GCS@workplacesafetynorth.ca)

**To obtain a copy of the *Guidelines for completing the Unusual Occurrence Report for Groundfall/Rockburst*, or for additional information, please contact WSN’s Ground Control Specialist, (705) 474-7233** [**GCS@workplacesafetynorth.ca**](mailto:gcs@masha.on.ca)