# Unit IG2: Risk assessment

**Declaration:** By submitting this assessment (Parts 1 – 4) for marking I declare that it is entirely my own work. I understand that falsely claiming that the work is my own is malpractice and can lead to NEBOSH imposing severe penalties (see the NEBOSH Malpractice Policy for further information).

**Important note:** You must refer to the document 'Unit IG2: risk assessment – Guidance and information for learners and Learning Partners' while completing all parts of this assessment. Your Learning Partner should provide you with a copy, but it can also be downloaded from the relevant resources section for this qualification on the NEBOSH website.

## Part 1: Background

**You should aim to complete this section in 150 - 200 words.**

| Topic | Comments |
|---|---|
| Name of organisation* | **Gohar Marbles** |
| Site location* | **Industrial Area, Kahuta, Pakistan** |
| Number of workers | **350** |
| General description of the organisation | In 1987, Gohar Marbles was established in Kahuta, Pakistan. The company manufactures high-quality marble goods and supplies them throughout the country. The company's head office is in Kahuta, Pakistan, and there are no additional branches. The company has ISO 9001 accreditation.<br>The company manufactures a wide range of marble products, such as shower bases, bathtubs, kitchen slabs, sinks, and vanity tops. Cutting and shaping, polishing, cleaning, finishing, sealing, fabrication, packaging, and shipping are some of the processes used to make the aforementioned products.<br>The company works one 8-hour shift, Monday through Friday, with a 1-hour lunch break and a prayer break in between. |
| Description of the area to be included in the risk assessment | The risk assessment will include the manufacturing site (quarrying & heating area, storage area, cutting area, design & customization area, packing area, canteen and washrooms). |
| Any other relevant information | I went to Gohar Marbles on September 3, 2024 (10 a.m.-1 p.m.). The Safety Manager is in charge of comprehensive workplace EHS management. |

* If you're worried about confidentiality, you can invent a false name and location for your organisation but, all other information provided must be factual.

**You should aim to complete this section in 100 - 200 words.**

Note: this section can be completed after you have competed your risk assessment.

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| Outline how the risk assessment was carried out this should include:<br>• sources of information consulted;<br>• who you spoke to; and<br>• how you identified:<br>- the hazards;<br>- what is already being done; and<br>- any additional controls/actions that may be required. | During my risk assessment, I sought assistance from a variety of sources.<br><br>I learned about stone shop safety at:<br>https://www.stoneworld.com/articles/83049-stone-shop-safety<br><br>I took help from following sources to learn about OH&S hazards in marble industry and their controls:<br>http://www.sciencepub.net/nature/ns0911/018_7160ns0911_144_153.pdf<br>https://iprotectu.com/working-with-granite-and-stone-creating-a-safe-work-environment/<br>https://www.ijser.org/researchpaper/occupational-health-and-safety-issues-in-the-marble.pdf<br><br>To learn about OH&S in marble industry, I studied:<br>https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_190242.pdf<br><br>I also looked at RRC-IG2 course data to learn about hazards at work and associated controls.<br><br>After consulting outside sources, I visited the company and spoke with Operations Manager, Admin Manager, Workers' Supervisors and Safety Manager.<br><br>The Safety Manager assisted me in analyzing company documents such as risk assessments, accident and near-miss reports, and worker leave records. During my site tour, I watched machinery and manufacturing facilities in operation. Both of them helped me discover occupational hazards.<br><br>I also looked at the basic SOPs, emergency protocols, and H&S policy of the company. During my visit to the facility, I interviewed workers to assess what steps are being taken to control identified hazards at work.<br><br>I finished my risk assessment by studying all of the above sources, including the RRC-IG2 course, and presented the findings to upper management, along with additional controls for identified hazards. |

## Part 2: Risk Assessment

Organisation name: **Gohar Marbles**
Date of assessment: **September 3, 2024**
Scope of risk assessment: **Manufacturing site (quarrying & heating area, storage area, cutting area, design & customization area, packing area, canteen and washrooms)**

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
|---|---|---|---|---|---|
| **1. Hazardous substances:**<br><br>Workers were exposed to hazardous marble dust generated by cutting machines in the cutting area. | Workers operating or working near marble-cutting machines are at risk of inhaling marble dust particles.<br><br>Marble-cutting machines emit fine dust particles when they cut through the material. Workers can readily inhale these particles because there are no dust suppression mechanisms in place. Workers also inhaled marble dust on a regular basis due to a lack of appropriate PPE, which could cause respiratory disorders such as cough, phlegm, wheezing, shortness of breath, chest | The cutting area had windows for ventilation but because of the extensive material storage, the windows were always closed and obscured. | Install LEV systems with effective dust collection mechanisms to capture and remove dust at the source. | 2-Months | Operations Manager |
| | | | Use water sprays or misters to suppress dust at the cutting area. | 2-Weeks | Admin Manager |
| | | | Conduct regular air quality assessments to measure dust levels in the workplace. | 2-Weeks | Admin Manager |
| | | | Remove any stored materials or other obstructions from the windows to ensure they can be opened and used for ventilation. | 1-Week | Area Supervisor |
| | | | Provide frequent rest breaks and job rotation to workers to minimize exposure to marble dust. | 3-Weeks | Area Supervisor |
| | | | Implement a health surveillance program to monitor workers for signs | 2-Months | Medical Officer |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | tightness, chronic bronchitis, and byssinosis, as well as death in severe cases. | | of respiratory issues or other health effects related to dust exposure. | | |
| | | | Provide training for workers on the hazards associated with marble dust, including the potential health effects and the importance of using protective measures. | 1-Month | Safety Manager |
| | | | Provide workers with appropriate respiratory protection, such as N95 respirators or powered air-purifying respirators (PAPRs), to prevent inhalation of dust particles. | 2-Weeks | Safety Manager |
| **2. Electricity:**<br><br>In the design and customization area, workers may come into contact with a damaged electrical control panel of CNC machines. | Workers in the area who handle or work near damaged electrical control panels of CNC (Computer Numerical Control) machines are at risk.<br><br>The CNC machine's electrical control panel was badly maintained, resulting in damage and inadequate insulation. This exposed live electrical components, including cables, connectors, and | Only authorized personnel were allowed to operate CNC machines. | Repair or replace the damaged control panel of the CNC machine with a new properly insulated one to prevent exposure to live electrical parts. | 2-Weeks | Electrical Engineer |
| | | | Install ground fault circuit interrupters (GFCI) and automatic shut-off mechanisms that disconnect power in the event of a fault or short circuit. | 2-Weeks | Electrical Engineer |
| | | | Develop a routine inspection and maintenance schedule for the electrical control panels and the CNC machines. | 2-Weeks | Electrical Engineer |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | wiring, within the machine. Workers operating the machine may come into contact with active electrical parts unintentionally, resulting in electric shocks. As a result, workers may suffer electric shocks, electrocution, electric burns, cardiac arrest, nerve damage, or even death in severe circumstances. | | Place warning signs around the CNC machine and control panel, clearly indicating the electrical hazard and reminding workers of safety precautions. | 4-Days | Area Supervisor |
| | | | Provide workers with comprehensive electrical safety training, including how to recognize electrical hazards, safely operate machines, and respond to incidents involving electric shocks. | 1-Month | Safety Manager |
| | | | Provide rubber-insulated safety gloves, shoes, and coveralls to CNC machine operators. | 2-Weeks | Safety Manager |
| **3. Work-related driving:**<br><br>At the manufacturing site, roadside accidents may occur due to faulty delivery trucks. | Drivers of delivery trucks, other road users, and pedestrians are at risk.<br><br>Delivery vehicles used to transport marble were leaking steering fluid due to damaged fluid hoses. This leaking fluid may cause a failure to generate the hydraulic pressure required to turn the wheels. It may also make steering problematic, | The truck drivers had a valid driving license. | Replace the damaged fluid hoses in the power steering of trucks to prevent the risk of fluid leaking. | 2-Weeks | Mechanical Engineer |
| | | | Equip vehicles with sensors that detect steering fluid leaks early, alerting drivers and maintenance teams before the issue escalates. | 3-Weeks | Mechanical Engineer |
| | | | Install hydraulic pressure monitoring systems that alert drivers if the pressure drops below safe operating levels. | 3-Weeks | Mechanical Engineer |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | making it difficult for drivers to turn the wheel and manage their vehicles, particularly in emergency situations. As a result, accidents on public roadways may occur, resulting in cuts and grazes, head injuries, broken bones, tissue damage, spine injuries, or even death in the most catastrophic cases. | | Establish and implement a proactive inspection and maintenance program for all work-related vehicles. | 1-Month | Maintenance Manager |
| | | | Get all the delivery trucks third-party certified by a renowned and qualified organization. | 1-Month | Safety Manager |
| | | | Educate drivers on how to manage vehicles in emergencies, such as steering difficulties or hydraulic system failures, to reduce the risk of accidents. | 1-Month | Safety Manager |
| | | | Provide PPEs like safety shoes and helmets to truck drivers for added protection. | 2-Weeks | Safety Manager |
| **4. Load Handling Equipment:**<br><br>Tow tractors with faulty brakes were used in the packing area. | Workers in the packing area are at risk of being struck or run over by tow tractors with faulty brakes.<br><br>Tow tractors are used to move packed goods around the site. Because of mechanical wear, the tow tractor's brakes were malfunctioning and not operating. The tow tractor could easily hit any worker | Only authorized personnel were allowed to operate tow tractors.<br><br>PPEs such as Safety shoes with metal toes were provided to the workers. | Replace old and unreliable tow tractors with newer models equipped with modern, more reliable braking systems. | 2-Months | Operations Manager |
| | | | Repair or replace tow tractors with faulty brakes with properly functioning ones. | 2-Week | Maintenance Manager |
| | | | Install braking failure detection alarms that alert drivers and nearby workers when the brake system is malfunctioning. | 2-Weeks | Mechanical Engineer |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | or pricey equipment if it didn't have brakes. Workers may experience bruises, broken bones, limb injuries, blood loss, fractures, and temporary disability. | | Implement a preventive maintenance program for all tow tractors, with regular inspections to detect early signs of mechanical wear or brake malfunction. | 1-Month | Maintenance Manager |
| | | | Implement load-handling equipment safety procedures, and tow tractor daily. | 3-Weeks | Area Supervisor |
| | | | Train operators on the importance of brake functionality and proper vehicle handling in the event of brake failure. | 1-Month | Safety Manager |
| | | | Provide high-visibility vests to increase their visibility to tow tractor operators | 2-Weeks | Safety Manager |
| **5. Work equipment and machinery:**<br><br>In the cutting area, workers might suffer amputations due to an unguarded bridge saw blade. | Workers operating or working near the bridge saw in the cutting area are at risk of serious injury.<br><br>The bridge saw machine lacked the necessary safeguards. The circular saw blade of the bridge saw was bare, with no protection. Workers' neglect during cutting operations may result in | Workers were provided induction training on safe bridge saw operations.<br><br>Basic PPE like gloves and safety glasses were provided. | Install appropriate and effective safety guards around the bridge saw blade to prevent accidental contact. | 1-Month | Mechanical Engineer |
| | | | Equip the saw with emergency stop buttons that are easily accessible to operators to quickly halt the machine in case of an emergency. | 2-Weeks | Mechanical Engineer |
| | | | Install a perimeter fence with interlocked guards around the bridge saw to limit movement in its vicinity. | 1-Month | Admin Manager |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | them coming into contact with a fast-revolving saw blade accidentally. This can result in cuts, lacerations, muscle and tendon injuries, amputations, crush injuries, and profuse bleeding. | | Develop and implement plans for periodic inspection and maintenance of bridge saw to ensure all guards are well in place. | 1-Month | Maintenance Manager |
| | | | Implement work practices that limit workers' exposure to the moving parts of the saw and ensure that they do not reach the danger zone while the machine is in operation. | 1-Month | Admin Manager |
| | | | Post clear and visible safety warnings around the bridge saw to remind workers of the hazards and the importance of using safety guards. | 4-Days | Area Supervisor |
| | | | Equip workers with cut-resistant gloves to offer additional protection when handling materials near the saw. | 2-Weeks | Safety Manager |
| **6. Noise**<br><br>Workers are exposed to excessive noise from the operation of heavy bridge saws in the cutting area. | Workers operating or working near heavy bridge saws in the cutting area are at risk of exposure to excessive noise levels.<br><br>Heavy bridge saws, which are designed to cut hard materials such as stone or metal, make a lot of noise while operating. Due to the | Basic personal protective equipment (PPE) such as earplugs or earmuffs are available, but not enforced | Replace existing bridge saws with newer models designed to operate more quietly. | 1-Month | Operations Manager |
| | | | Install sound-dampening enclosures around bridge saws to contain and reduce noise emissions. | 1-Month | Operations Manager |
| | | | Install acoustic barriers around the bridge saw to contain and dampen the noise | 1-Month | Operations Manager |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | cutting process and mechanical components of the machinery, the operation of the bridge saws created significant noise levels of 95 dB, which exceeded the OSHA Permissible Exposure Limit of 85 dB averaging over 8 working hours. High-level noise can cause tinnitus (ear ringing, whistling, buzzing, or humming), severe headaches, and both temporary and permanent hearing loss. | | Rotate workers in and out of the cutting area to limit their daily exposure to high noise levels, ensuring that no individual exceeds the OSHA Permissible Exposure Limit of 85 dB over 8 hours. | 3-Weeks | Area Supervisor |
| | | | Implement a routine maintenance schedule to ensure that the mechanical components of the bridge saws are well-lubricated and in good working condition. | 1-Month | Maintenance Manager |
| | | | Conduct regular health surveillance programs for the workers to detect and treat illnesses caused by noise. | 2-Months | Medical Officer |
| | | | Place clear and visible warning signs in areas with high noise levels to remind workers to use hearing protection and be aware of the noise hazards. | 4-Days | Area Supervisor |
| | | | Educate workers about the risks of noise exposure, the importance of hearing protection, and best practices to minimize exposure. | 1-Month | Safety Manager |
| | | | Provide PPEs such as full acoustic helmets fitted with standardized | 2-Weeks | Safety Manager |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | | | earmuffs of high Noise Reduction Rating (NNR) to the workers. | | |
| **7. Slips and trips:**<br><br>In the canteen, workers could slip due to spilled food particles on the floor. | Canteen staff, workers, and visitors are at risk of slipping on food particles that may have fallen to the floor.<br><br>The canteen feeds a large number of workers during meal breaks, and food and drink spills are usual. Due to unsanitary conditions, the canteen floor experienced regular food particle spillages, and the slippery canteen floor remained greasy since it was not properly cleaned. Furthermore, poor lighting in the canteen may lead workers to slip and fall on spilled food particles. As a result, workers may suffer cuts, bruises, scrapes, brain injuries, fractures, and back injuries. | There was good natural ventilation in the cafeteria. | Implement a no-food-spill policy encouraging workers to handle food with care to minimize spills. | 2-Months | Admin Manager |
| | | | Install proper drainage on the canteen floor to prevent the pooling of liquids that can create slippery surfaces. | 1-Month | Operations Manager |
| | | | Install non-slip flooring in the cafeteria to prevent slips and falls. | 1-Month | Operations Manager |
| | | | Improve lighting conditions in the canteen by installing adequate overhead lighting and ensuring proper maintenance to avoid dim areas. | 1-Month | Admin Manager |
| | | | Install anti-slip mats and rugs in the areas prone to greases and food spillages. | 2-Weeks | Admin Manager |
| | | | Implement good housekeeping procedures for regular cleaning of the cafeteria while appointing specific housekeeping staff there. | 1-Week | Area Supervisor |
| | | | Place clear signage encouraging workers to dispose of food properly and avoid dropping items on the floor. | 4-Days | Area Supervisor |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | | | Train workers to be cautious in the canteen and how to report spills or unsafe conditions. | 1-Month | Safety Manager |
| | | | Require workers in the canteen to wear non-slip footwear, especially kitchen and cleaning staff who are at higher risk of encountering slippery conditions. | 2-Weeks | Safety Manager |
| **8. Mental ill-health:**<br><br>Workers in the quarrying and heating area may develop mental ill-health due to the pressure of excessive workload. | Workers in the area, particularly those exposed to harsh physical environments and long working hours, are at risk of developing mental health issues.<br><br>Workers faced an overwhelming workload. The demanding nature of duties, combined with an overwhelming volume of work, can result in an environment of increased stress and pressure for employees. They were also not allowed to rest during rest periods, and | Recreational facilities such as indoor sports were provided to workers in the workplace. | Hire more workers to speed up the work to handle the workload. | 1-Month | HR Manager |
| | | | Review and restructure work assignments to ensure a manageable distribution of tasks. | 2-Weeks | Operations Manager |
| | | | Provide opportunities for workers to voice concerns about excessive workload and suggest improvements | 1-Month | Operation Manager |
| | | | Appoint a company counsellor for helping workers with issues related to mental ill-health. | 1-Month | HR Manager |
| | | | Monitor workloads regularly to ensure that employees are not being overburdened. | 2-Weeks | Admin Manager |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | their bosses asked them to work throughout breaks as well. This much job pressure without a break can cause mental health problems such as stress, weariness, sadness, decreased ability to concentrate, poor physical energy, and irritability. | | Implement better work scheduling by introducing shift rotations and regular rest breaks. | 3-Weeks | Area Supervisor |
| | | | Conduct medical check-ups of workers to detect and treat early signs of mental ill-health. | 2-Months | Medical Officer |
| | | | Train supervisors to identify signs of stress or burnout in workers. | 1-Month | Safety Manager |
| **9. Working at height:**<br><br>At the Manufacturing site, falls due to a faulty stepladder. | All the workers using faulty stepladder were at risk of falling from height.<br><br>Maintenance workers were given a metal stepladder to perform maintenance tasks at height, such as installing and repairing light fixtures or elevated machinery. The given metal stepladder was old, with rusted steps and joints caused by moisture exposure. This may damage the ladder's structural strength, allowing it to fail or collapse during use and | Trained maintenance workers were appointed to work at height. | Provide alternative safer access platforms such as scissor lifts for working at height. | 1-Month | Operations Manager |
| | | | Replace the old metal stepladder with a new, high-quality, and well-maintained ladder made from non-corrosive materials (e.g., fiberglass) that are suitable for the tasks at hand. | 3-Weeks | Admin Manager |
| | | | Implement a regular maintenance and inspection schedule for all ladders and access equipment to ensure they are in good condition. | 1-Month | Maintenance Manager |
| | | | Develop and implement a PTW system for working at height. | 2-Weeks | Safety Manager |
| | | | Get the step ladder third-party certified. | 1-Month | Safety Manager |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | causing workers to fall from height, resulting in cuts and scratches, bruises, knee injuries, head injuries, back injuries, fractures, or broken bones if they fall from a significant height. | | Place clear signage to warn of the potential dangers of using faulty equipment and to report any defects immediately. | 4-Days | Area Supervisor |
| | | | Provide training for workers on ladder safety, including how to inspect ladders before use and safe climbing practices. | 1-Month | Safety Manager |
| | | | Provide personal fall arrest systems such as safety harness and knee pads to workers accessing the step ladder. | 2-Weeks | Safety Manager |
| **10. Manual handling:**<br><br>In the storage area, manual handling of heavy marble slabs. | Workers involved in the manual handling of heavy marble slabs are at risk of MSDs.<br><br>Due to a lack of automation, workers had to manually transport massive marble slabs weighing roughly 50 kg each over a distance of about 50 meters between storage areas. Workers who handle these high loads on a regular basis may get strains and sprains, shoulder injuries, | PPEs such as safety gloves with good grip were provided. | Provide slab carts, or hand trucks to handle the weight and awkward shape of marble slabs, reducing the need for manual carrying. | 1-Month | Operations Manager |
| | | | Replace heavy marble slabs with lighter materials or use pre-cut slabs that require less handling. | 2-Weeks | Admin Manager |
| | | | Create and enforce standard operating procedures for manual handling tasks, including guidelines for proper lifting techniques | 1-Month | Admin Manager |
| | | | Rotate workers through different tasks to minimize prolonged exposure to | 3-Weeks | Area Supervisor |

| Hazard category and hazard | Who might be harmed and how? | What are you already doing? | What further controls/actions are required? | Timescales for further actions to be completed (within …) | Responsible person's job title |
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| | back injuries, neck injuries, and limb or joint pain. | | heavy lifting, reducing the risk of musculoskeletal injuries. | | |
| | | | Ensure workers take regular breaks to reduce physical strain and allow for recovery from repetitive or heavy lifting tasks. | 3-Weeks | Area Supervisor |
| | | | Provide training for workers on proper lifting techniques, body mechanics, and the use of mechanical aids. | 1-Month | Safety Manager |

## Part 3: Prioritise 3 actions with justification for the selection

**Suggested word counts**
Moral, general legal and financial arguments for all actions: 300 to 350 words
**For EACH action:**
Specific legal arguments: 100 to 150 words
Likelihood AND severity: 75 to 150 words
How effective the action is likely to be in controlling the risk: 100 to 150 words

## Moral, general legal and financial arguments for ALL actions

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| Moral, general legal and financial arguments | **Moral:**<br><br>Companies have a moral and ethical obligation to provide workers with safe equipment, workspaces, and tools. They also have an obligation to abide by safety laws and guidelines. Workplace accidents inflict mental and psychological damage in addition to physical discomfort. It also has a negative impact on the workers' families. People cannot work safely in their occupations unless the aforementioned control measures are put into place. It fulfills the moral responsibility of the employer. The implementation of these control measures will not only ensure worker safety but will also improve the industry's productivity and output.<br><br>**General Legal:**<br><br>As an ILO member, Pakistan is legally required to make sure that companies in the nation give their workers a safe workplace and safe working conditions. The ILO Convention C-155 and Recommendation R-164 set forth explicit legal obligations for employers to protect the health and safety of their employees. Pakistan has established governmental institutions, such as the Pakistan Factories Act 1934, the Pakistan Police Department, and the Pakistan Fire Department, to safeguard the rights of workers to safety. Employers who violate these regulatory requirements and disregard employee health and safety risk serious legal repercussions, including hefty fines, the incarceration of responsible management, the need to compensate impacted parties, and civil lawsuits against the business. Legal authorities may even cancel the business's operating license in more serious situations. |

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<tr>
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Financial:<br>
In the event of an accident, industries are required to bear the financial losses. The price of an accident is a lot higher than the expense of putting workplace safety regulations into place.<br><br>
Costs from accidents can be both direct and indirect.<br><br>
<table>
<tr><th>Direct costs:</th><th>Indirect costs:</th></tr>
<tr><td>Compensations</td><td>Higher insurance rates</td></tr>
<tr><td>The cost of replacing damaged goods and equipment</td><td>Strained labour relations</td></tr>
<tr><td>The price of rehabilitation</td><td>Remediation costs</td></tr>
<tr><td>Price of a doctor</td><td>Enforcement costs</td></tr>
<tr><td>First aid care cost</td><td>Loss in face value and reputation.</td></tr>
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<br>
Proper implementation of the aforementioned management mechanisms can prevent reoccurring accident costs and protect industry finances.
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## Justification for action 1

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| Action (Taken from column 4 of risk assessment) | Replace the damaged fluid hoses in the power steering of trucks to prevent the risk of fluid leaking.<br>**(Hazard category: Work-related driving)** |
| Specific legal arguments | As per **ILO C167 – Safety and Health in Construction Convention, 1988 (No. 167), Article 16.1 (b)**, employer has to make sure that all vehicles are maintained in good working order.<br>ILO C167 – Safety and Health in Construction Convention, 1988 (No. 167), |

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| | Based on **ILO C155 – Occupational Safety and Health Convention, 1981 (No. 155), Article 16.1,** it is employer's responsibility to ensure that so far as is reasonably practicable, machinery, equipment (trucks) and processes under their control are safe.<br><br>https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C155<br><br>According to **ILO Safety and health in the use of machinery, Article 8.4.5,** it is employer's duty to make sure that machinery (trucks) is equipped with adequate systems for safe steering.<br><br>ILO Safety and health in the use of machinery<br><br>Failure might cause accidents resulting in enforcement actions and fines. |
| Consideration of likelihood AND severity<br><br>• types of injury or ill health<br>• number of workers at risk<br>• how often the activity is carried out<br>• how widespread the risk is | Delivery vehicles used to transport marble were leaking steering fluid due to damaged fluid hoses. This leaking fluid may cause a failure to generate the hydraulic pressure required to turn the wheels. It may also make steering problematic, making it difficult for drivers to turn the wheel and manage their vehicles, particularly in emergencies, leading to accidents. Hence, there is very high likelihood of road accidents due to leaking steering fluid of vehicles.<br><br>Accidents on public roadways may occur, resulting in cuts and grazes, head injuries, broken bones, tissue damage, spine injuries, or even death in the most catastrophic cases. therefore, as per the hazard categories below, the severity is categorized as Catastrophic.<br><br>12 truck drivers were appointed to drive vehicles and members of the general public were exposed to risk as these drivers drove the trucks for 5-6hours daily for delivery. So, frequency of activity is high.<br><br>This risk was present at the manufacturing site and throughout the route of the trip (general public roads).<br><br>**Catastrophic: Fatality-fatal-diseases or multiple-majors-injures**<br><br>**Major: Serious-injuries or life-threatening-occupational-disease** |

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| | **<u>Moderate</u>: Medical-treatment or ill-health-leading-to-partial-disability**<br>**<u>Minor</u>: Injury or ill-health-requiring-first-aid-treatment-only**<br>**<u>Negligible</u>: Not-likely-to-cause-injury or ill-health** |
| How effective the action is likely to be in controlling the risk. This should include:<br>• the intended impact of the action;<br>• justification for the timescale that you indicated in your risk assessment; and<br>• whether you think the action will fully control the risk | The suggested additional control measure of repairing damaged fluid hoses in truck power steering will reduce the risk of accidents caused by fluid leakage since steering fuel will no longer leak and the steering will receive proper lubrication and hydraulic power given by the fluid. As a result, drivers will be able to manage the steering and the car better.<br><br>I recommended that Mechanical Engineer finish this task within two weeks. This task must be completed as soon as possible since it poses a major risk to the lives of drivers and the general public. Two weeks is enough time to gather the required resources and get the problematic parts replaced in a few vehicles.<br><br>The above-mentioned additional control measure of replacing damaged fluid hoses in truck power steering will fully control the risk of road accidents since faulty components that cause leaks will be replaced. However, further road safety can be achieved by installing sensors that detect steering fluid leaks early and establishing routines for proactive inspection and repair of all work-related vehicles. |

## Justification for action 2

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| Action (Taken from column 4 of risk assessment) | Repair or replace the damaged control panel of the CNC machine with a new properly insulated one to prevent exposure to live electrical parts.<br>**(Hazard category: Electricity)** |
| Specific legal arguments | Based on **Article 16.1 of ILO C155 - Occupational Safety and Health Convention, 1981 (No. 155),** it is the responsibility of employer to ensure that, so far as is reasonably practicable, workplace, machinery and equipment under their control are safe and without risk to health. https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C155 |

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| | According to **ILO C167 - Safety and Health in Construction Convention, 1988 (No. 167), Article 26.2**, it is the duty of employer to take adequate steps to ascertain the presence of and to guard against danger to workers from any live electrical cable or apparatus which is on the site.<br><br>https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C167<br><br>**ILO Safety and health in the use of machinery Article 2.4.7.5** states, where there are specific hazards such as electricity employers have a responsibility to ensure such hazards are identified and controlled so that workers in the workplace are not endangered.<br>ILO Safety and health in the use of machinery<br><br>Failure might cause accidents resulting in enforcement actions and fines. |
| Consideration of likelihood AND severity<br>• types of injury or ill health<br>• number of workers at risk<br>• how often the activity is carried out<br>• how widespread the risk is | The CNC machine's electrical control panel was badly maintained, resulting in damage and inadequate insulation. This exposed live electrical components, including cables, connectors, and wiring, within the machine. Workers operating the machine may come into contact with active electrical parts unintentionally, resulting in electric shocks. So, there is a high likelihood of electrocution due to damaged control panel of CNC machine.<br><br>Accidental contact with damaged control panel might result in electric shocks, electrocution, electric burns, cardiac arrest, nerve damage, or even death in severe circumstances. So, severity of this hazard is catastrophic based on categories in action 1 justification.<br><br>30 workers including CNC machine operators were exposed to risk of electric shock. These workers performed their duties close to CNC machine for entire 8-Hour shift daily (excluding break). So, frequency of activity is very high.<br><br>This risk was present only in design and customization area. |

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| How effective the action is likely to be in controlling the risk. This should include:<br>• the intended impact of the action;<br>• justification for the timescale that you indicated in your risk assessment; and<br>• whether you think the action will fully control the risk | The suggested additional control measure of repairing or replacing the damaged control panel of a CNC machine with a new properly insulated one to prevent exposure to live electrical parts will keep workers from coming into direct contact with the machines' live electrical components, thereby eliminating the risk.<br><br>I advised two weeks for an Electrical Engineer to implement this action because this is a very delicate issue that requires immediate attention. Furthermore, the task is rather inexpensive; replacing the damaged control panel requires only a small amount of money. As a result, it is recommended that you allow enough time.<br><br>The above-mentioned additional control measure of repairing or replacing the damaged control panel of a CNC machine with a new properly insulated one to prevent exposure to live electrical parts will fully control the risk of electrocution because the CNC machine's live electrical components will no longer be exposed as the control panel is replaced. Thus, eliminating the risk. |

## Justification for action 3

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| Action (Taken from column 4 of risk assessment) | Install LEV systems with effective dust collection mechanisms to capture and remove dust at the source.<br><br>**(Hazard Category: Hazardous Substances)** |
| Specific legal arguments | As per **ILO-Working Environment (Air Pollution, Noise and Vibration) Convention, 1977(No. 148)**, **Article 9(a),** it is employer's responsibility to make sure that the working environment is kept free from air pollution by technical measures (LEV) added to existing plants or processes.<br><br>https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312293<br><br>As per **ILO-C170 – Chemicals Convention, 1990(No.170), Article 13.1(b),** it is the duty of the employer to protect the workers against exposure to hazardous substances by the use of adequate engineering control measures (by Installing local exhaust ventilation systems)<br><br>https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::p12100_instrument_id:312315 |

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| | Therefore, employer must take suitable actions to save workers from hazardous substances hazards at workplace in order to avoid legal prosecutions. |
| Consideration of likelihood AND severity<br>• types of injury or ill health<br>• number of workers at risk<br>• how often the activity is carried out<br>• how widespread the risk is | Marble-cutting machines emit fine dust particles when they cut through the material. Workers can readily inhale these particles because there are no dust suppression mechanisms in place. Workers also inhaled marble dust on a regular basis due to a lack of appropriate PPE. So, there is very high likelihood of ill health due to hazardous marble dust.<br><br>This could cause respiratory disorders such as cough, phlegm, wheezing, shortness of breath, chest tightness, chronic bronchitis, and byssinosis, as well as death in severe cases. So, severity of this hazard is catastrophic based on categories in action 1 justification.<br><br>40 workers were exposed to risk of hazardous substances (marble dust) as they spent 7-hours in the area during their 8 hr work shift every day. Hence, the frequency of risk exposure is high.<br><br>This risk was only present in the cutting area. |
| How effective the action is likely to be in controlling the risk. This should include:<br>• the intended impact of the action;<br>• justification for the timescale that you indicated in your risk assessment; and<br>• whether you think the action will fully control the risk | Installing local exhaust ventilation systems with effective dust collection mechanisms captures and removes dust at the source, reducing the risk of workers inhaling hazardous marble dust by moving hazardous pollutants away from the work area, thus making the air safe.<br><br>I proposed to the Operations Manager that this control measure be deployed over two months, as it will require budgetary resources, procurement, and installation.<br><br>The proposed control measure will adequately control the risk of hazardous marble dust inhalation since dust will be extracted as soon as it forms, yet personnel are still operating without personal protective equipment (PPE). However, providing adequate respiratory protection, such as N95 respirators or powered air-purifying respirators (PAPRs), will fully control the risk. |

## Part 4: Review, communicate and check

**Suggested word counts for each section:**

- Planned review date or period and reasoning for this: **50 - 100 words**
- How the risk assessment findings will be communicated and who needs to know the information: **100 - 150 words**
- Follow up on the risk assessment: **100 - 150 words.**

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| Planned review date/period with **reasoning** | Every year, Gohar Marbles has established a procedure for reviewing its safety protocols. So, on September 2, 2025, will be my next planned review. The company's review policy or any applicable rules and regulations pertaining to safety in Pakistan may need an adjustment or an earlier selection of the reviewing date. Regular events and the commissioning of new equipment could call for an early evaluation. |
| How the risk assessment findings will be communicated **AND** who you need to tell | After doing a risk assessment, it's important to communicate the findings to those in charge of health and safety to implement appropriate control measures for identified hazards. I will meet with the company's senior managers to present my risk assessment findings.<br><br>In order to communicate my risk assessment results to management, I will also use electronic mail. I will hold separate sessions with workers' managers and share my risk assessment findings for future communication.<br><br>Management will be instructed to arrange worker safety trainings. I will also post my risk assessment findings on notice boards throughout the workplace so that they are easily accessible to everyone. I will make a copy of my risk assessment findings available on the business intranet so that everyone may access them.<br><br>Workers will receive safety training, and handbooks will be created and distributed to help them understand the identified hazards and their controls. |
| How you will follow up on the risk assessment to check that the actions have been carried out | Following up with management to make sure that recommended extra controls are being appropriately implemented is a crucial stage in the risk assessment process.<br><br>I will schedule bimonthly visits to the business and conduct workplace tours in order to monitor the progress of implementing the recommended extra controls. I will hold weekly video conferences with the Admin Manager and request visual confirmation of the controls' implementation. I will also communicate with the Safety Manager through phone calls and social media. |

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| | I will send emails to the Safety Manager and request updates on the situation. I will form social media groups with workers and supervisors to solicit their feedback on the subject.<br><br>I will also conduct surprise visits to the organization to ensure that the suggested control measures are effectively implemented, and I will speak with top management if there are any delays in the process. |