



Plant Risk Assessments Report for: Isuzu NH Series NPR 200/275 Tipper

Prepared by:	Australian Risk Services (ARS)
Owner:	Isuzu Australia Limited
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1 Executive Summary

A risk review of the Operator activities for Isuzu Australia Limited has been conducted for a NH Series NPR 200/275 Tipper. The Plant Risk assessment involved discussions with the operator of the NH Series NPR 200/275 Tipper. Risks have been identified, categorised and assessed using ARS's Risk Management Approach. Risks have been rated from low to high using five-point likelihood and five point consequence matrix. **This risk review is to determine the risks associated with the use of the machinery in accordance with the Plant Regulations of 2007 and WHS Plant Regulations 2012 and Australian Standards AS 4024 for Safe Guarding of Machinery and AS 31000 Risk Management Standards.**

Operators of NH Series NPR 200/275 Tippers should have an appropriate vehicle license and be competent users of the equipment. The Operator activities have been assessed by analysing activities documented by personnel as part of their day to day tasks.

This report needs to be read in its entirety to understand all recommendations made. There is a summary of recommendations below.

2 Risk Management Approach

Risk Management Strategy

The Strategy requires the analysis of maintenance activities to determine:

- Likelihood of the risk eventuating,
- Standards of mitigation in place,
- The residual or risk exposure remaining after the mitigation effort,

In essence, the aim of the Risk Profile is to provide a common risk management framework to assist Management determine the appetite for, and tolerance to risk, and to communicate this throughout the industry as an aid to decision making and as a driver for maintenance improvement.

A Definition of Risk

Broadly speaking, risks are defined as uncertain future events that could influence the achievement of the organisation's strategic and operational goals and objectives. In practical terms, risk is the exposure to the threat of such things as economic, financial, reputational loss or gain, physical damage, injury or delay, as a consequence of pursuing or not pursuing a particular course of action.

Definition of Hazard

A HAZARD is any situation with the potential for human injury, damage to property, damage to the environment or a combination of these.

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Risk is defined in two dimensions:

- the likelihood of the risk occurring and
- the consequence to the business should that risk occur

Risk management is a management approach for identifying, analysing and treating risks so that industry operates in an environment where the risks are understood and are acceptable.

3 The Process

Identification of Risk

The underlying philosophy for the identification of risk exposure is to use directly the expertise of persons that have the responsibility for managing those risk exposures.

In practice this entailed structured discussions with individuals representing principle operator activities for the NH Series NPR 200/275 Tipper. The following individuals participated in the Risk Review process:

- Isuzu Australia Engineering Department

Greater detail on the identification process for risks is detailed below.

4 Risk Analysis and Evaluation

The following risk data collection and analysis was undertaken for each risk issue identified:

- A description of the risk (as far as was practicable the risk was described in the context of a hypothetical scenario).
- A description of the impact of the risk, describing a range of potential impacts on the individuals should the risk eventuate.
- A description of the control environment and estimation of its effectiveness is provided
- An estimation of the likelihood of the risk occurring and rated against the criteria below:
- An estimation of the consequence of the risk should it eventuate. Ratings for consequence are determined according to the table below
- Determination of an overall risk rating based on the formula:

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Risk Rating = Risk Likelihood X Risk Consequence

- Actual ratings are determined using the matrix on the following page:
- Where information was readily available, a preliminary description of the control environment and estimation of its effectiveness is provided
- An estimation of the likelihood of the risk occurring and rated against the criteria below
- An estimation of the consequence of the risk should it eventuate. Ratings for consequence are determined according to the table below

5 Codes of Practice and Hazard Identification

Remember, Codes of Practice are part of a strategy to raise the awareness of workplace health and improve safety practice. They have been developed for particular hazards and provide guidelines to help employers identify, assess and control risks arising from these hazards.

Unless cited in a Regulation, they are not compulsory for employers to implement, but their implementation signifies the employer's commitment to comply with their legal obligation to provide a safe and healthy workplace.

Notwithstanding the above, a Code of Practice may be used as evidence of a breach of the Act, or as a defence that all reasonably practicable steps were taken to prevent an injury or illness.

Identification and Classification of Hazards

Once hazards have been identified, the next step is to assess their significance. In assessing the significance of a hazard there are a number of important factors that need to be considered. **These factors include the following:**

- Probability of injury or illness, in considering the probability of injury or illness it is important to note that they can be caused either as a direct result of short term exposure to a hazard, or from long term exposure to a hazard. Injuries that may be a direct result of short-term contact with a hazard include cuts, burns, abrasions, fractures, crush and compression injuries. Long term exposure to some hazards can cause conditions such as deafness, cancers, respiratory damage and dermatitis.
- Potential severity of injury or illness.
- How often are people exposed
- Length of exposure.
- Level of exposure.
- Number of people exposed.
- Adequacy of existing control measures.
- Human differences:
 - skill level;
 - work experience;
 - training;
 - physical capabilities

As there are many types of workplaces and hazards (or combinations of hazards), the methods for assessing hazards will be quite different. The level of risk of a job or task may well have a number of contributing factors which also need to be considered.

The important factor to remember in assessing hazards is that this assessment will determine what priority is assigned to their elimination or control.

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Hazard Categories

CATEGORIES	EXAMPLES
Physical	Vibration, noise, temperature, lighting, radiation, manual handling, mechanical, electrical.
Chemical	Dust, fumes, vapours, gases, explosives, acids, solvents, flammable liquids/solids, oxidising agents.
Biological	Viruses, bacteria, mould, fungi, pollen, insect excrete, contaminated body fluids and contaminated air.
Ergonomic	Poor design of work, poor design of equipment, poor design of environment.
Psychosocial	Stress, poor training and communication, work overload/underload, inappropriate work assignments.

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6 RISK RATING SYSTEM - ISUZU AUSTRALIA LIMITED

Likelihood of Event	Consequence of occurrence				
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
A Almost Certain	Medium	Medium	High	Extreme	Extreme
B Likely	Low	Medium	High	High	Extreme
C Possible	Low	Low	Medium	High	Extreme
D Unlikely	Low	Low	Medium	Medium	High
E Rare	Low	Low	Low	Medium	Medium

Unacceptable Risks

Extreme = Senior Management and Resources required

High = Senior Management attention required

Acceptable Risks

Medium = Management Responsibility

Low = Standard Operating Procedures to handle

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LIKELIHOOD OF EVENT						
A. ALMOST CERTAIN	Is expected in most circumstances	<ul style="list-style-type: none"> Risk has a greater than 75% chance of occurring 				
B. LIKELY	Will probably occur in most circumstances	<ul style="list-style-type: none"> Risk has a 50% to 75% chance of occurring 				
C. POSSIBLE	May occur at some time	<ul style="list-style-type: none"> Risk has a 25% to 49% change of occurring 				
D. UNLIKELY	Could occur at some time	<ul style="list-style-type: none"> Risk has less than a 25% chance of occurring 				
E. RARE	May occur in exceptional circumstances	<ul style="list-style-type: none"> Not likely to occur 				
CONSEQUENCE						
RATING	DESCRIPTION	FINANCIAL	SAFETY	REPUTATION	OPERATIONS	ENVIRONMENT
5. CATASTROPHIC	Major business failure, multiple deaths, huge financial loss	Asset destruction greater than \$10m Revenue loss or opportunity cost of more than \$10m.	Multiple fatalities, or significant irreversible effects to a number of people (employees and/or public)	Irreparable damage to Isuzu Australia name. Parliamentary inquiry. Major public concerns raised.	Significant interruption or cessation of activities for two weeks or more.	Catastrophic irreversible environmental harm. Community outrage – potential large-scale class action.
4. MAJOR	Loss of business functionality/capability, extensive injuries, situation not contained, but no detrimental effects, major financial loss.	Loss of assets totalling \$1.5m to \$10m Revenue loss or opportunity cost of \$1.5m to \$10m.	Single fatality and/or severe irreversible disability to one or more persons	Significant damage to Isuzu Australia name.	Total Service cessation for one week.	Major environmental hazard caused – long term recovery. High-profile community concerns raised – requiring significant rectification measures.
3. MODERATE	Moderate disruption to daily activities, medical treatment required, high financial loss, situation contained with outside assistance	Loss of assets totalling \$150,000 to \$1.5m Revenue loss or opportunity cost of \$150,000 to \$1.5m.	Irreversible disability or impairment to one or more persons	Moderate damage to Isuzu Australia name.	Total service cessation for several days.	Measurable environmental harm – medium term recovery. Community complaints voiced privately – minor rectification measures.
2. MINOR	Minor disruption to day to day activities, first aid treatment required, situation immediately contained, medium financial loss.	Loss of assets totalling \$15,000 to \$150,000. Revenue loss of \$15,000 to \$150,000.	Transient health impact on staff or public	Minimal damage to Isuzu Australia name.	Business interruption over several days.	Medium term immaterial effect on environment/ community – required to inform EPA.
1. INSIGNIFICANT	Will not affect day to day performance, low financial loss, no injuries.	Loss of assets less than \$15,000. Revenue loss of less than \$15,000.	No health impact on staff or public	Reputation intact, internal knowledge only.	Negligible operational impact.	Short term transient environmental or community impact – negligible action required.

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7 HAZARD HEIRARCHY OF CONTROL

When developing solutions for identified hazards the risk assessment team members applied the Hierarchy of Controls. A hierarchy of hazard control measures has been established which is used on the basis that, the higher the control strategy is in the hierarchy, the more preferable and effective it is.

The hierarchy of hazard control in order of priority is:

1. Design

Before moving into new premises, or introducing new equipment or work process, all reasonably practicable steps should be taken to have the workplace plant, equipment and task designed and constructed so that potential hazards are removed or reduced to their lowest level. It is easier, and less costly to change a drawing or specification than it is to make changes after construction or installation.

2. Elimination/Substitution

Completely removing the hazard or substituting, that is, replacing the material, work process or machine with a less hazardous one is a very desirable strategy. This eliminates the risk of exposure to that hazard. For example:

- removing a noisy machine from the work area;
- substituting equipment that is ergonomically designed;
- jobs can be redesigned to remove the need for staff to maintain the same posture or carry out constant repetitive work

3. Isolation

When the above steps have been tried and have proved to not be the best solution for minimising the risk, then the separation of the hazard from employees, by use of guards on machines, enclosing noisy machines, relocating noisy portions of the plant or the use of remote handling devices should be considered. This allows for the physical separation of the hazard from the workplace.

4. Engineering Controls

Engineering control measures include such things as:

- modification of furniture, machinery and equipment;
- the use of controls such as local exhaust ventilation; and
- the provision of mechanical aids to assist staff with lifting and carrying tasks

5. Administrative Controls

Administrative procedures can also be introduced to reduce risk. Changing work procedures, for example, by introducing job rotation to reduce the exposure time to hazardous work processes or conditions is a common administrative control measure.

Administrative controls can also include education, adequate housekeeping procedures and supervision of employees in safe work practices.

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6. Personal Protective Equipment (PPE)

If engineering and other controls are not practical or feasible, then PPE may be required. PPE, which is appropriate to the hazards and properly fitted, is often used in the following situations:

- As a temporary measure till a more effective control can be established;
- If other controls are impossible or not as effective or efficient as personal protective equipment;
- During routine maintenance or emergency clean up procedures.

PPE is also sometimes required even when other control measures have been introduced, e.g. when handling hazardous substances.

Applying Control Measures

The higher the control strategy is on the hierarchy order, the more preferable and effective it is. Control measures can be used to reduce or eliminate the identified hazard.

Often, more than one control option may be used to minimise risk, e.g. exhaust ventilation plus the wearing of gloves and goggles.

In many cases there will be a number of control options available. The decision about the control measures to be used should be made in consultation with the affected employees, taking into account the hierarchy of control measures.

When considering control measures it is sometimes necessary to apply a control measure which is at the bottom of the hierarchy, for example PPE, as a short term solution until a more effective control measure can be instituted. However PPE may still be required even though control measures are in place e.g. construction item such as hard hat and boots.

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8 SUMMARY OF RISK PROFILE

The activities engaged by operator staff have been assessed for the NH Series NPR 200/275 Tipper. A total of 26 risks have been identified.

Rating	Profile	As a % of Total	Definition
Extreme			Life Threatening or permanent Disability
High	10	40%	Serious Injury
Medium	16	60%	Minor to moderate injury
Low			Minor to no injury
	25	100%	

Risk ratings of hazards include the application of current controls. Risks can be further reduced with the implementation of agreed additional controls.

Risk No.	Risk Rating	Risk Description
3	High	Striking low level branches and objects
4	High	Electrocution from overhead power lines
9	High	High pressure fluid release
11	High	Tipping from back of truck
12	High	Loads falling off back of truck
13	High	Poor weather conditions
14	High	Accessing tipper body
16	High	Hydraulics can lower without warning
18	High	Plant tipping or rolling over and/or operator being ejected
20	High	Exposure to rotating components of engine
1	Medium	Inadequate inspection intervals leading to mechanical failure or unroadworthy condition
2	Medium	Driving into bystanders
5	Medium	Unexpected movement of plant with or without operator
6	Medium	Accessing motor parts that are hot
7	Medium	Refuelling
8	Medium	Exposure to fumes in restricted area
10	Medium	Strains when accessing cabin
15	Medium	Battery exploding
17	Medium	Unexpected movement during maintenance
19	Medium	Lack of capacity for plant to be slowed, stopped or immobilized
21	Medium	Pinch point on tipper locking mechanism
22	Medium	Strains when loading or unloading tipper manually
23	Medium	Pinch point and crush from tipper tailgate
24	Medium	Carrying loads that can ignite or are classified as 'hot loads'
25	Medium	Sun exposure
26	Medium	Driving while under the influence of drugs/alcohol

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The reduction in risks identified below include Agreed new controls

Y- Risk has been reduced as far as practicable. X - Risk has **not** been reduced as far as practicable

Category	HAZARD	X	Y
1.1.	Entanglement		
	Can anyone's hair, clothing, gloves, necktie, jewellery, cleaning brushes, rags or other materials become entangled with moving parts of the plant, or materials in motion?	X	
1.2.	Crushing		
	<i>Can anyone be crushed due to:</i>		
	(a) material falling off plant?		Y
	(b) uncontrolled or unexpected movement of the plant or its load?	X	
	(c) lack of capacity for the plant to be slowed, stopped or immobilised?	X	
	(d) the plant tipping or rolling?		Y
	(e) parts of the plant collapsing?		Y
	(f) coming in contact with moving parts of the plant during testing, inspection, operation, maintenance, cleaning or repair?		Y
	(g) being thrown off or under the plant?		Y
	(h) being trapped between the plant and materials or fixed structures?		Y
	(i) other factors not mentioned?		Y
1.3.	Cutting, stabbing and puncturing		
	<i>Can anyone be cut, stabbed or punctured due to :</i>		
	(a) coming in contact with sharp or flying objects?		
	(b) coming in contact with moving parts of the plant during testing, inspection, operation, maintenance, cleaning or repair?	X	
	(c) the plant, parts of the plant or work pieces disintegrating?		
	(d) work pieces being ejected?		
	(e) the mobility of the plant?		Y
	(f) uncontrolled or unexpected movement of the plant?		Y
	(g) other factors not mentioned?		
1.4.	Shearing		
	Can anyone's body parts be sheared between two parts of the plant, or between a part of the plant and a work piece or structure?		Y
1.5.	Friction/Abrasion burn		
	Can anyone be burnt due to contact with the moving parts of surfaces of the plant, or material handled by the plant?		
1.6.	Striking		
	<i>Can anyone be struck by moving objects due to:</i>		
	(a) uncontrolled or unexpected movement of the plant or material being handled by the plant?		Y
	(b) the plant or parts of the plant or work pieces disintegrating?		Y
	(c) work pieces being ejected?		
	(d) mobility of the plant?		Y
	(e) other factors not mentioned?		Y
1.7.	High pressure fluid		
	Can anyone come into contact with fluids under high pressure, due to plant failure or misuse of the plant?	X	
1.8.	Electrical		
	<i>Can anyone be injured by electrical shock or burnt due to:</i>		
	(a) the plant contacting live electrical connections?	X	
	(b) the plant working in close proximity to electrical connections?		Y
	(c) overload of electrical circuits?		
	(d) damaged or poorly maintained electrical leads and cables?		
	(e) damaged electrical switches?		
	(f) water near electrical equipment?		

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	(g) lack of isolation procedures?		
	(h) other factors not mentioned?		
1.9.	Explosion		
	Can anyone be injured by explosion of gases, vapours, liquids, dust or other substances, triggered by the operation of the plant or by the material handled by the plant?		Y
1.10.	Slipping, tripping or falling		
	<i>Can anyone using the plant or in the vicinity of the plant, slip, trip or fall due to:</i>		
	(a) uneven or slippery work surfaces?		Y
	(b) poor house keeping?		
	(c) obstacles being placed in the vicinity of the plant?		
	(d) other factors not mentioned?		
	<i>Can anyone fall from a height due to:</i>		
	(a) lack of work platform?		
	(b) lack of proper stairs or ladders?	X	
	(c) lack of guard rails or other suitable edge protection?	X	
	(d) unprotected holes, penetrations or gaps?		
	(e) poor floor or walking surfaces, such as, the lack of a slip resistant surface?		
	(f) steep walking surfaces?		
	(g) collapse of the supporting structure?		
	(h) other factors not mentioned?		
1.11.	Ergonomic		
	<i>Can anyone be injured due to:</i>		
	(a) poorly designed seating?		Y
	(b) repetitive body movement?		Y
	(c) constrained body posture or the need for excessive effort?		
	(d) design deficiency causing mental or psychological stress?		
	(e) inadequate or poorly placed lighting?		
	(f) lack of consideration given to human behaviour?		
	(g) mismatch of the plant with human traits and natural limitations?		
	(h) other factors not mentioned?		
1.12.	Suffocation		
	Can anyone be suffocated due to lack of oxygen, or atmospheric contamination?		Y
1.13.	High temperature or fire		
	Can anyone come into contact with objects at high temperature?		Y
	Can anyone be injured by fire?		Y
1.14.	Temperature (thermal comfort)		
	Can anyone suffer ill-health due to exposure to high or low temperatures?		Y
1.15	Other hazards		
	<i>Can anyone be injured or suffer ill-health from exposure to:</i>		
	(a) chemical?		Y
	(b) toxic gases or vapours?		Y
	(c) fumes?		Y
	(d) dust?		Y
	(e) noise?		Y
	(f) vibration?		Y
	(g) radiation?		Y
	(h) other factors not mentioned?		

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ISUZU NH SERIES NPR 200/275 TIPPER



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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Inadequate inspection intervals leading to mechanical failure or un-roadworthy condition.

Risk No. 1

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Road accident/injury

CURRENT CONTROLS

- Truck is built to Isuzu standards.



AGREED ADDITIONAL CONTROLS (Administrative)

- The NH Series NPR 200/275 Tipper must be checked for fitness for purpose before and after every job.
- Before use inspect the relevant equipment. Develop a relevant “Vehicles/Equipment/Plant Daily/Weekly Checklist” that ensures the roadworthy condition of the vehicle before operation. All defects must be reported and rectified before operating equipment. Report faults to Management for repair. Do not use unsafe plant. Operators must tag unsafe plant with a “Do Not Operate Tag”.
- Operators must be trained in conducting vehicle inspection.
- Vehicle must be regularly serviced according to manufacturer specifications.
- Always wear appropriate PPE when performing minor maintenance. Always ensure the vehicle is appropriately isolated when conducting inspections and that all risks relating to raised truck cabin or vehicle requiring chocking of wheels is complied with prior to inspection.

Likelihood	Consequence	Overall risk rating
Possible	Moderate	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Driving into bystanders

Risk No. 2

RATINGS:

Likelihood: **D** Impact: **4** Total: **Medium**



IMPACT DESCRIPTION

Serious injury or death

CURRENT CONTROLS

- Licensed and competent operator
- Audible motion warning device fitted to operate automatically when machine is in reverse. (Minimum 90dBA).

AGREED ADDITIONAL CONTROLS (Engineering)

- Fit revolving amber hazard light to operate automatically when P.T.O is “**ENGAGED**”.

AGREED ADDITIONAL CONTROLS (Administrative)

- Licensed and competent operator
- Complete Risk Assessment (RA) or Hazard Assessment for tipper operation.
- If assistance is required when reversing vehicle or into a narrow space it is recommended that an observer is used to provide guidance and instructions to the driver in respect to maneuvering vehicle. The driver and observer should agree on communication protocols before engaging in activity. The observer is to position themselves a safe distance from the vehicle within view of the drivers R.H side rear view mirror.
- If the driver is required to communicate (Mobile or Radio) while driving, the use of a hands-free device should only be used.
- Fit “**PASSENGERS TO REMAIN IN CABIN AT ALL TIMES UNTIL VEHICLE COMES TO A COMPLETE STOP**” sign in proximity to operator and passenger locations.
- Fit “**DO NOT ALLOW PASSENGERS TO RIDE IN OR ON REAR OF TRUCK WHILST TRUCK IS IN TRANSIT**” signs to cabin in line of sight to driver.

Likelihood	Consequence	Overall risk rating
Unlikely	Major	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Striking low level branches and objects



Risk No. 3

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Serious injury or death

CURRENT CONTROLS

- Trained and competent operators.
- Operators within cabin.

AGREED ADDITIONAL CONTROLS (Administrative)

- Ensure No Go Zone has been established and adhered to for safe clearance of overhead electrical wiring (refer to Regulatory website for details).
- Ensure spotter is used when required.
- Ensure area is clear of obstructions and NH Series NPR 200/275 Tipper has sufficient room to carry out required task .
- Be alert. Look up as well as down.
- If unfamiliar with area or task being performed, complete Risk Assessment (RA) or Hazard Assessment
- Fit raised body height and lowered body height clearance decals in view of operator station in accordance with AS 1319.

Likelihood	Consequence	Overall risk rating
Possible	Major	High

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Electrocution from overhead power lines



Risk No. 4

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Serious injury or death

CURRENT CONTROLS

- Trained and competent operators

AGREED ADDITIONAL CONTROLS (Administrative)

- Complete Risk Assessment (RA) or Hazard Assessment
- Do not operate where an electrical hazard exists
- Request "tiger tails" from electricity company as necessary.
- Ensure No Go Zone has been established and adhered to for safe clearance of overhead electrical wiring (refer to Regulatory website for details)
- If working near overhead assets, ensure safe system of work has been implemented and spotter is used where required.
- Fit "**DANGER, LOOK OUT FOR OVERHEAD WIRE & APPLIANCES**" sign to tipper control station and front sides of tipper body.
- Fit raised body height and lowered body height clearance decals in view of operator station in accordance with AS 1319.
- In the event that the vehicle has struck over head power lines, the driver is to remain
- Fit "**DO NOT ATTEMPT TO ALIGHT FROM VEHICLE IF ELECTRICAL EQUIPMENT IS CONTACTED**" sign to operator's console.
- Document comprehensive and detailed step by step electrical strike procedure into operators' manual and training manual (what to do and what not to do in the event of contact with electrical cables). Fit "**FOLLOW SERVICES STRIKE PROCEDURE**" sign to operators' console. e.g. jumping clear of vehicle to prevent simultaneous contact with vehicle and ground and the shuffling of feet to maintain contact with ground at all times when moving away from vehicle.

Likelihood

Consequence

Overall risk rating

Possible	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Unexpected movement of plant with or without operator

Risk No. 5

RATINGS:

Likelihood: **D** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

- Pedestrians and operator being struck
- Damage to plant and equipment

CURRENT CONTROLS

- Trained competent operator
- Machine has a park brake
- Tipper safety stand fitted and painted yellow.
- Safety stand instruction sign fitted



AGREED ADDITIONAL CONTROLS (Engineering)

- Re-position **Hoist control** away from operator entry and exit path to prevent accidental crushing from lowering and raising of tipper body. Or
- Fit 2 stage release locking system to hoist control & mechanism to prevent accidental selection from neutral position.
- Fit tailgate lock safety warning audible and visual alarm system to cabin. (Warning system must warn operator tailgate is not locked.)

AGREED ADDITIONAL CONTROLS (Administrative)

- Fit **“HOIST SAFETY STAND MUST BE FITTED UNDER TIPPER BODY & LOCKED INTO PLACE AT ALL TIMES WHEN TIPPER IS TO BE LEFT IN RAISED POSITION”** signs to both sides of tipper body.
- Fit **“DANGER, CRUSHING ZONE DO NOT STAND UNDER RAISED TIPPER BODY PRIOR TO FITTING & LOCKING SAFETY STAND”** warning signs.
- Fit **“DANGER, KEEP CLEAR OF TIPPER TAILGATE”** signs to rear and sides of tipper body.
- Fit **“DO NOT RAISE TIPPER ON SOFT OR UNEVEN GROUND AS OVERTURNING IS POSSIBLE”** warning sign to tipper control station.
- Complete site hazard assessment.
- When conducting maintenance or positioning vehicle on slopes, ensure wheels are chocked and that handbrake and gear is in appropriate parking position.

Likelihood

Consequence

Overall risk rating

Unlikely	Moderate	Medium
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Accessing motor parts that are hot eg Exhausts

Risk No. 6

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Burns

CURRENT CONTROLS

- Operators and maintenance staff are trained

AGREED ADDITIONAL CONTROLS (Engineering)

- Fit heat shielding to all accessible exhaust system as necessary.

AGREED ADDITIONAL CONTROLS (Administrative)

- Fit **"DANGER, HOT SURFACES"** decal in proximity to exhaust areas in accordance with AS 1319.
- PPE gloves should be worn.



Likelihood

Consequence

Overall risk rating

Possible	Moderate	Medium
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Refueling

Risk No. 7

RATINGS:

Likelihood: **E** Impact: **4** Total: **Medium**



IMPACT DESCRIPTION

Fire and burns risk

CURRENT CONTROLS

- Trained operator
- "DIESEL FUEL ONLY" sign fitted.

AGREED ADDITIONAL CONTROLS (Administrative)

- When refueling ensure nozzle is in contact with the machinery (grounded).
- Fit refueling instruction sign "**SWITCH OFF ENGINE & ALLOW TO COOL BEFORE REFUELLING**" warning sign in proximity to fuel filler cap.
- When refueling with jerry cans ensure funnels are used.
- Always carry first aid facilities.
- Trained and competent operator.
- Refuel in designated fueling bay.
- No smoking or use of mobile phones.
- Compliance with refueling instructions at all times.

Likelihood

Consequence

Overall risk rating

Rare	Major	Medium
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Exposure to fumes in restricted area

Risk No. 8

RATINGS:

Likelihood: **D** Impact: **4** Total: **Medium**

IMPACT DESCRIPTION

Suffocation due to lack of oxygen

CURRENT CONTROLS

- Machine is generally only used in open space areas
- Trained and competent operator



AGREED ADDITIONAL CONTROLS (Administrative)

- The NH Series NPR 200/275 Tipper is not to be used in confined or restricted areas without detailed confined space risk assessments being carried out in line with Confined Spaces Procedure or when restricted air flow could lead to build up of noxious fumes.

Likelihood	Consequence	Overall risk rating
Unlikely	Major	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

High pressure fluid release

Risk No. 9

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Serious injury eg. Eye, skin

CURRENT CONTROLS

- Trained and competent operators.
- Impact shielding on hoist hose.

AGREED ADDITIONAL CONTROLS (Engineering)

- Fit anti-siphon valve & flow check to head port of lift cylinder (low pressure check valve, to prevent tipper lift cylinder draining out while tipper is held up into raised position & tipper control valve is in lowering position).
- Fit woven type shielding to all exposed hydraulic hoses in accordance with ISO 3457:2003 (burst protection).

AGREED ADDITIONAL CONTROLS (Administrative)

- PPE clothing eye protection goggles
- Pre-start checks on vehicles including hoses
- Hydrocarbon or Chemical Spill Kits must be carried as appropriate to vehicle operations
- Ensure all spills are cleaned up immediately using appropriate spill kit, block off drains, ensure used spill kit material is removed from site and placed in Depot Contaminated Waste Bin and that spill kit contents are replaced.
- Report spill to manager and complete Incident Report if spill enters drain or >1L
- Carry out full service to hydraulic system and reservoir at required intervals as per manufacturer's specifications.



Likelihood Consequence Overall risk rating

Possible	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Strains when accessing cabin

Risk No. 10

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Serious injury

CURRENT CONTROLS

- Trained and competent operators
- Ergonomically viable hand grips and access steps



AGREED ADDITIONAL CONTROLS (Administrative)

- Vehicle must be stationary before entering/exiting
- Prior to exiting vehicle ensure the handbrake is fully engaged and in first gear in manual trucks.
- Must have firm grip on the cabin handle with one hand when entering and exiting the cabin of the vehicle (go backwards when exiting)
- Check traffic conditions before getting out of vehicle whether driving from left or right hand driving positions.
- Practice three point contact when entering and exiting the cabin

Likelihood	Consequence	Overall risk rating
Possible	Moderate	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Tipping from back of truck

Risk No. 11

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**



IMPACT DESCRIPTION

Crushing from material falling off back of truck

CURRENT CONTROLS

- Trained and competent operator.
- Detailed operation decal for tailgate fitted.

AGREED ADDITIONAL CONTROLS (Engineering)

- Fit revolving amber beacon hazard light to roof of vehicle visible to 360 degrees. Wire revolving hazard light to operate automatically when "P.T.O" is engaged.
- Fit audible warning alarm / beeper to rear of tipper body to operate automatically when "P.T.O" is engaged. **(Must be clearly audible over plant noise levels to 8m).**

AGREED ADDITIONAL CONTROLS (Administrative)

- Complete Risk Assessment (RA) or Hazard Assessment for tipping body.
- Fit "DANGER, KEEP CLEAR OF TIPPER TAILGATE" signs to rear and sides of tipper body.
- Set up traffic management and ensure all personnel are clear of vehicle when tipping.
- Vehicle to be parked with controls adjacent to work area /curb where possible.
- Works area to be fully cordoned off from public access.
- Do not tip or leave waste that could cause potential injury or damaged to the public or other vehicles.

Likelihood

Consequence

Overall risk rating

Possible	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Loads falling off back of truck



Risk No. 12

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Serious injury or death

CURRENT CONTROLS

- Trained and competent operators.

AGREED ADDITIONAL CONTROLS (Engineering)

- Fit environmental protection roll up tarp system in accordance with local Road Traffic Authority & E.P.A. requirements.

AGREED ADDITIONAL CONTROLS (Administrative)

- Ensure vehicle is not overloaded in accordance with manufactures' specifications.
- Secure all loads appropriately in vehicles ensuring loads are stored within tray / tipper body area.
- Ensure that items are stored appropriately in truck cabins.
- Ensure all items are secured in accordance with load restraint guidelines.
- Load binders, straps, chains and load dogs are to be inspected before use.
- Ensure no loose items are within the passenger area as they may become projectiles in the event of an accident.
- Ensure hand tool e.g. rakes, shovels are restrained to prevent them falling from vehicles

Likelihood

Consequence

Overall risk rating

Possible	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Poor weather conditions

Risk No. 13

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**



IMPACT DESCRIPTION

Serious injury or death

CURRENT CONTROLS

- Trained and competent operators.

RECOMENDED ADDITIONAL CONTROLS (Engineering)

- Fit fog lights and day time running lights in accordance with local road regulations.

AGREED ADDITIONAL CONTROLS (Administrative)

- Operators should reduce their speed in adverse conditions; thus the margin for error is greatly reduced assisting drivers in recovering from a mistake or wrong judgement. (eg required stopping distances)
- Always remain aware of other vehicles around you; high winds are more problematic for drivers of trucks and large vehicles,
- Be mindful in high winds when moving from a protected area to an unprotected area, or when approaching/passing large vehicles to reduce your speed and correct you're steering
- Stay alert for slippery areas and debris on the road.
- Make sure you have a pair of sunglasses in your vehicle in case of bright sunlight.

Likelihood	Consequence	Overall risk rating
Possible	Major	High

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Accessing tipper body



Risk No. 14

RATINGS:

Likelihood: **B** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Falling from a height, serious injury or death

CURRENT CONTROLS

- Trained and competent operators
- Access steps on truck body

AGREED ADDITIONAL CONTROLS (Engineering)

- Fit serrated edge step treads with minimum 100 mm treads to access steps on tipper body. Steps must be fitted with SAA 59 ergonomic standard & AS 1657 compliant handrails and grab handles (slips, strains and falls protection).
- Fit static line system to top tipper body access steps and introduce fall restraint and safety harness P.P.E. system to work procedures.
- Remove existing non-compliant tipping body access steps (working at heights, falls injury risks, Introduce fall prevention systems to work process).

AGREED ADDITIONAL CONTROLS (Administrative)

- Fit “**DANGER, FALLS RISKS, PERSONNEL MUST CONDUCT A HEIGHT RISK ASSESMENT TO DETERMING APPROPRIATE CONTROLS**” sign in proximity to access ladders.
- Fit “**DANGER: WORKING AT HEIGHTS FALLS INJURY RISKS, DO NOT CLIMB ONTO BODY AT ANY TIME WITHOUT CONDUCTING HEIGHT RISK ASSESSMENT E.G. USE OF FALL PROTECTION SYSTEM**”, sign to both sides of tipper body at front and rear.

Likelihood

Consequence

Overall risk rating

Likely	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Battery exploding

Risk No. 15

RATINGS:

Likelihood: **D** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Burns

CURRENT CONTROLS

- Trained and competent operators

AGREED ADDITIONAL CONTROLS (Administrative)

- Ensure regular maintenance of battery
- Pre start checks
- Fit jump starting procedure decal in proximity to batteries.



Likelihood	Consequence	Overall risk rating
Unlikely	Moderate	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Hydraulics can lower without warning



Risk No. 16

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Serious injury or death, crushing, shearing

CURRENT CONTROLS

- Trained and competent operators
- Safety prop fitted, painted yellow and instructions fitted

AGREED ADDITIONAL CONTROLS (Engineering)

- Fit anti-siphon valve & flow check to head port of lift cylinder (low pressure check valve, to prevent tipper lift cylinder draining out while tipper is held up into raised position & tipper control valve is in lowering position).
- Fit flow check type or similar motion control system (Anti-burst valve) to head port of lift cylinder to control motion & drop rate of hoist. Hoist must lower at an even pace regardless of load. Drop rate must be controlled to over 20 seconds. **(fully loaded)**.

AGREED ADDITIONAL CONTROLS (Administrative)

- Fit **“HOIST SAFETY STAND MUST BE FITTED UNDER TIPPER BODY & LOCKED INTO PLACE AT ALL TIMES WHEN TIPPER IS TO BE LEFT IN RAISED POSITION”** signs to both sides of tipper body.
- Fit **“DANGER, CRUSHING ZONE DO NOT STAND UNDER RAISED TIPPER BODY PRIOR TO FITTING & LOCKING SAFETY STAND”** warning signs.
- Carry out periodic full service to hydraulic system and reservoir at required intervals as per manufacturer’s specifications.

Likelihood

Consequence

Overall risk rating

Possible	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Unexpected movement during maintenance

Risk No. 17

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Crushing

CURRENT CONTROLS

- Trained and competent operators
- Safety prop fitted



AGREED ADDITIONAL CONTROLS (Engineering)

- Paint cabin safety stand & locking system assembly **yellow** or **red** (**Colour of Safety system must be clearly discernible from background**) & fit instruction sign in close proximity to safety stand.

AGREED ADDITIONAL CONTROLS (Administrative)

- Never work under a vehicle that is only supported by a maintenance jack. Always fully support the vehicle with correctly rated jack stands or other suitable hardwood packing.
- When conducting maintenance work underneath or to the front or rear of the vehicle, position the vehicle on hard level ground as far as practicable and always apply the handbrake and chock the wheels.
- Fit “**CABIN SAFETY STAND MUST BE LOCKED INTO PLACE AT ALL TIMES WHEN CABIN IS TO BE LEFT IN RAISED POSITION**” signs to both sides of cabin latches.
- Fit “**DANGER, CRUSHING ZONE DO NOT STAND UNDER RAISED CABIN PRIOR TO FITTING & LOCKING SAFETY STAND**” warning signs.
- Ensure wheels are chocked before conducting maintenance.
- In the event of truck being jacked off the ground, multiple stands (load rated to vehicle GVM) are required to support fully loaded truck so that in the event of single stand failure, vehicle will not fall.
- Develop Safe Operating Procedures for all maintenance tasks.

Likelihood

Consequence

Overall risk rating

Possible	Moderate	Medium
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Plant tipping or rolling over and/or operator being ejected

Risk No. 18

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Crushing

CURRENT CONTROLS

- Trained and competent operators
- Seat belts fitted



AGREED ADDITIONAL CONTROLS (Administrative)

- Tipper to be driven on public roads in accordance with local Road Authority and regulations.
- Driver and passengers must always wear a correctly adjusted seatbelt.
- Do not exceed the maximum allowable load of the tipper.
- All loads must be evenly distributed and correctly secured to the tipper.
- Travel at speeds appropriate for the ground conditions e.g reduce speed on gravel, dirt, winding, slippery or bad roads.
- Fit **“DO NOT RAISE TIPPER ON SOFT OR UNEVEN GROUND AS OVERTURNING IS POSSIBLE”** warning sign to tipper control station.
- When driving 'off road' (e.g. construction sites, dirt tracks etc) avoid edges and "soft spots".
- Always assess whether "what you are seeing is what you are getting" e.g. is the ground you are about to drive over capable of supporting the tipper, or is it soft and not able to support the vehicle.
- If unfamiliar with area, conduct hazard/risk assessment.

Likelihood

Consequence

Overall risk rating

Possible	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Lack of capacity for plant to be slowed, stopped or immobilized.



Risk No. 19

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Crushing, serious injury or death

CURRENT CONTROLS

- Trained and competent operators

AGREED ADDITIONAL CONTROLS (Administrative)

- Do not exceed the grade ability of the tipper.
- Braking distances vary depending on road conditions. Travel at speeds appropriate for the ground conditions to allow for safe braking distance e.g. reduce speed on congested, unsealed gravel, dirt, winding, slippery or bad roads.
- When driving down along slope, ensure the exhaust brake is engaged. Using the exhaust brake in conjunction with the service (foot) brakes minimizes the likelihood of brake failure caused by excessive use of the service brakes.
- Ensure wheels are chocked when parking on slopes, uneven or unstable surfaces.

Likelihood

Consequence

Overall risk rating

Possible	Moderate	Medium
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Exposure to rotating components of engine.

Risk No. 20

RATINGS:

Likelihood: **C** Impact: **4** Total: **High**

IMPACT DESCRIPTION

Entanglement, serious injury or death

CURRENT CONTROLS

- Trained and competent operators



AGREED ADDITIONAL CONTROLS (Engineering)

- Fit AS 4024 compliant, fixed type guarding to rotating fan blade and drive belts on engine as far as practicable.

AGREED ADDITIONAL CONTROLS (Administrative)

- Fit "CAUTION - ROTATING COMPONENTS" sign to both sides of engine bay in accordance with AS 1319.

Likelihood

Consequence

Overall risk rating

Possible	Major	High
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Pinch point on tipper locking mechanism

Risk No. 21

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Crush and pinch risk, moderate injuries

CURRENT CONTROLS

- Trained and competent operators
- Instruction decals fitted

AGREED ADDITIONAL CONTROLS (Administrative)

- Fit "**CAUTION - PINCH POINT**" in proximity to locking mechanism in accordance with AS 1319.
- Fit reflective tiger tape to locking mechanism latch.



Likelihood

Consequence

Overall risk rating

Possible	Moderate	Medium
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Strains when loading or unloading tipper manually



Risk No. 22

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Serious injury

CURRENT CONTROLS

- Trained and competent operators

AGREED ADDITIONAL CONTROLS (Administrative)

- When manually loading/unloading, follow correct manual handling procedures and use a two man lift where required.
- Follow correct manual handling techniques.
- Vehicle must be stationary before entering/exiting
- Prior to exiting vehicle ensure the handbrake is fully engaged and in first gear in manual trucks.
- Check traffic conditions before loading or unloading material.
- Ensure operator has a stable balanced posture at all times that reduces the risk of falling when loading unloading. Operators are not to load or unload when risk of falling off side of tipper body.
- Do not stand in proximity of the tipper when being unloaded manually. Ensure no personnel can be struck when loading or unloading.

Likelihood	Consequence	Overall risk rating
Possible	Moderate	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Pinch point and crush from tipper tailgate

Risk No. 23

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Crush and pinch risk, moderate injuries

CURRENT CONTROLS

- Trained and competent operators
- Instruction sign fitted

AGREED ADDITIONAL CONTROLS (Administrative)

- Fit "**CAUTION - CRUSH AND PINCH POINT**" to both sides of tailgate in accordance with AS 1319.
- Fit reflective tiger tape to edges of tailgate and tipper body.
- Conduct pre-start check on tailgate locking mechanism to ensure correct operation.



Likelihood

Consequence

Overall risk rating

Possible	Moderate	Medium
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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Carrying loads that can ignite or are classified as 'hot loads'



Risk No. 24

RATINGS:

Likelihood: **D** Impact: **4** Total: **Medium**

IMPACT DESCRIPTION

Toxic exposure, fire, burns and explosion risks.

CURRENT CONTROLS

- Trained and competent operators.

AGREED ADDITIONAL CONTROLS (Engineering)

- Fire extinguisher to be fitted in accordance with AS 1841.

AGREED ADDITIONAL CONTROLS (Administrative)

- Drivers must ensure that when carrying loads, they are deemed safe and not self combustible.
- In the event of a hot load and if safe to do so, drivers are to drive to a safe clearance or closest landfill site and unload hot material into open space to allow emergency services to extinguish.

Likelihood	Consequence	Overall risk rating
Unlikely	Major	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Sun exposure

Risk No. 25

RATINGS:

Likelihood: **D** Impact: **4** Total: **Medium**

IMPACT DESCRIPTION

Skin Cancer and fatigue

CURRENT CONTROLS

- Cabin
- Air conditioned cabin



AGREED ADDITIONAL CONTROLS (Administrative)

- If in open areas use sun umbrellas for shading
- Hat and sunscreen protection
- Long pants and long sleeve shirts
- Sunglasses
- Rehydrating with water

Likelihood	Consequence	Overall risk rating
Unlikely	Major	Medium

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ISUZU NH SERIES NPR 200/275 TIPPER RISK ASSESSMENT

RISK DESCRIPTION

Driving while under the influence of drugs/alcohol

Risk No. 26

RATINGS:

Likelihood: **C** Impact: **3** Total: **Medium**

IMPACT DESCRIPTION

Serious Accident

CURRENT CONTROLS

- Trained and competent operators



AGREED ADDITIONAL CONTROLS (Administrative)

- Staff are not to be under the influence of illegal drugs or alcohol while operating equipment
- Develop workplace drug and alcohol policy.

Likelihood	Consequence	Overall risk rating
Possible	Moderate	Medium

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