FORM

Application for an enforceable undertaking

June 2019

Part 4, Health and Safety at Work Act 2015

The commitments in this application are offered to WorkSafe New Zealand by

Name of entity or, partnership or individual applying for this undertaking

Enviro Waste Services Limited

New Zealand Government

WORKSAFE
Mahi Haumaru Aotearoa

WORKSAFE
Mahi Haumaru Aotearoa

FORM

Application for an enforceable undertaking

Part 4, Health and Safety at Work Act 2015

The commitments in this application are offered to WorkSafe New Zealand by

Name of the person or persons who will be signing this undertaking in section 4:

Chris Aughton, Chief Executive Officer

On behalf of:

Enviro Waste Services Limited

Name of the entity giving this undertaking (if an individual or sole trader, leave blank – complete in all other cases)

Enviro Waste Services Limited

This enforceable undertaking is given on the day and date that it is accepted and signed by WorkSafe. The undertaking and its enforceable terms will operate as a legally binding commitment on the part of the person from the date it is given.

Do not refer to the victim by name in this document. Please refer to the victim/worker/employee/volunteer/or other term as appropriate.

WorkSafe respects your privacy and is committed to protecting personal information. The information provided in this document is for the purpose of an undertaking given to WorkSafe under Part 4 of the *Health and Safety at Work Act 2015*. This information will be managed within the requirements of both the *Privacy Act 1993 and the Official Information Act 1982*.

There is an expectation that WorkSafe will generally publish the undertaking in full on its website.

TERM	DEFINITION
Contravention	An action which offends against the *Health and Safety at Work Act 2015* and/or any Regulations made under it. It includes both health and safety contraventions. A contravention also includes an alleged contravention.
HSMS	A Health and Safety Management System.
Person	An individual who or a legal entity which has a duty under the *Health and Safety at Work Act 2015* and can give a written undertaking. The term includes individuals, each partner in a partnership, corporations, trustees of trusts, and crown organisations.
Health and Safety legislation	*Health and Safety at Work Act 2015* and associated regulations.
Enforceable undertaking	An enforcement pathway that allows a duty holder to voluntarily enter into a binding agreement with WorkSafe. The agreement outlines actions the duty holder will undertake to address the contravention. It is expected to deliver activities which benefit workers, the wider industry or sector and/or the community as well as acceptable amends to any victim(s).

1. General information

1.1 Details of the person/persons/entity giving the undertaking

Name of person(s) making this undertaking: (in all cases complete with the name(s) of those who are signing this undertaking under Section 4)

Chris Aughton

Name of entity: (if applicable, leave blank if an individual)

Enviro Waste Services Limited "EnviroWaste"

Type of legal entity: (complete in all cases, for example individual, sole trader, partnership, trust, company, etc)

Limited Liability

Nominated contact person: (the same person listed above/one of those listed above)

Chris Aughton

Physical address:

Level 2, Building A, Millennium Centre,
602 Great South Road, Ellerslie, Auckland, 1051.

Postal address: (if different from physical address)

Private Bag 92810 Penrose, Auckland 1642

Work phone: +64 9 6228849

Mobile phone: [redacted]

Email: chris.aughton@environz.co.nz

Industry: Waste and Recyclables Industry

Workers (enter numbers):

Full-time: 1100 Part time: Casual: 62 Own/Drivers

Description of the products and services provided by the business or undertaking:

It provides waste and recyclable materials minimisation and management services to both local government and commercial clients countywide. In New Zealand, EnviroWaste employs approximately 1100 workers and operates out of 36 locations nationwide, including Auckland, Hamilton, Tauranga, Wellington and Christchurch.

Comments:

EnviroWaste has been in existence since 1995.

1.2 Detail of the contravention

EnviroWaste has been charged with one offence under section 36(1)(a), 48(1) and (2)(c), of the Health and Safety at Work Act 2015 in relation to an event on the 16th of March 2020, which resulted in the death of an EnviroWaste employee.

The alleged contraventions are that EnviroWaste being a PCBU, and having a duty to ensure, so far as is reasonably practicable, the health and safety of workers who worked for the PCBU, while the workers are at work in the business or undertaking, did fail to comply with that duty, and in doing so, exposed a worker to a risk of death or serious injury.

The charging document claims that in order to ensure the health and safety of its workers, EnviroWaste should have taken these reasonably practicable steps:

(a) To have developed, documented and implemented a site specific traffic management plan that achieved separation of vehicles and pedestrians;
(b) Provided a means of communication between all vehicle drivers and the points person, including truck drivers;
(c) Provided radar or sensor equipment to alert pedestrians and drivers when they are within four metres of each other;
(d) Provided workers with appropriate training and monitoring about vehicle operation;
(e) Monitored traffic at the Pad, maintained communication with vehicle operators and alerted the loader driver that the victim had got out of his vehicle, [through attribution of the point persons conduct to EnviroWaste]; and
(f) To have checked whether there were any hazards before reversing the loader and driving into and killing the victim ("attributing" the driving decisions of the loader operator who was charged and convicted for careless driving causing death) to EnviroWaste as a company and a PCBU.

1.3 Detail the events surrounding the contravention

EnviroWaste operates a Power and Resource Recovery Centre for waste management at the Hampton Downs site of 360 hectares in the North Waikato region. The operations at the site include;

- Landfill operations and management of household and commercial waste;
- Landfill operations and management of hazardous and special waste such as asbestos;
- Leachate collection, treatment and disposal systems;
- Storm water and sediment treatment systems;
- Electrical generation from landfill gas reticulation;
- Aerobic composting of greenwaste and foodwaste;
- Ongoing development and construction of landfill areas; and
- Aftercare and remediation of filled or capped landfill areas.

The area where the event occurred was in the landfill operations area.

The landfill area receives many thousands of tonnes of waste each day, with hundreds of daily waste vehicle movements. The majority of those waste vehicle movements are third party commercial operators. Those third party commercial operators, deliver various waste and organic material to the site in a wide range of truck and trailer configurations, of varying age with a wide ranging variety of safety systems and configurations.

The landfill is a controlled site and is not open to the public.

Trucks containing various forms of waste from a variety of commercial operators arrive at the weighbridge entry of Hampton Downs site, and following an induction process, are directed to the tip pad area, which is controlled by a points person, who directs the trucks towards the edge of the tip wall (4 metres), where preparation of disposal occurs, which includes opening door, raising lid nets etc (depending on the truck type), the truck is then directed again by the points person to reverse to the wall of tip pad (called a tip wall). The waste is ejected from the trucks and over the tip wall and down into the refuse push chute, where other machinery then moves and disperses the refuse through the landfill (see Figure 1 below).

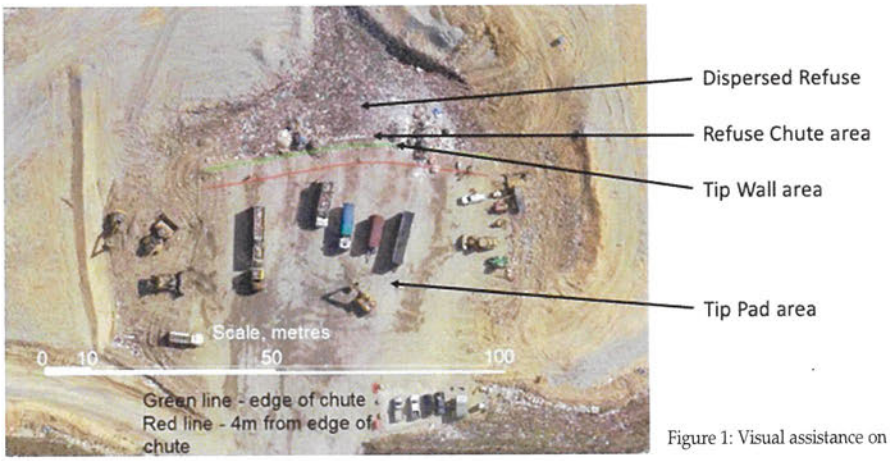

Figure 1: Visual assistance on waste terminology

There are many forms of trucks from a variety of commercial operators who travel from both the northern and southern parts of the north island to dispose of their waste. The design of these commercial vehicles are very different and include, for example;

1. Truck and trailer unit(s) with a walking floor (the waste is ejected by opening the rear doors of the trailer unit and operating a moving floor which allows the waste to eject.
2. Truck and trailer unit(s) that raise the trailer unit (the waste is ejected by opening the rear doors of the trailer unit. Hydraulic rams raise the trailer unit to eject the waste.
3. Combined cab and chassis units that have a compactor body and an opening tailgate which is raised by hydraulic rams to eject the waste.
4. Gantry bin trucks, a truck and chassis with a bin receptacle which is lowered and raised by chains in a frame operated by hydraulics.

CONTINUED AT APPENDIX A - SECTION 1.3

1.4 Detail any enforcement notices issued that relate to the contravention as detailed in term 1.2

DATE	NOTICE TYPE	NOTICE NUMBER	CONTRAVENTION OR PROHIBITED ACTIVITY	ACTION TAKEN IN RESPONSE TO NOTICE
/ /	Non-disturbance notice for scene/wheel loader			
/ /	S172(1) Take wheel loader for inspection			
/ /	Prohibition Notice - Wheel loader		Braking Performance	Lifted and issued to rental

1.5 Detail the rectifications to the workplace or work practices made as a result of the contravention (1.2), events (1.3) and the enforcement notices issued (1.4)

The following rectifications have occurred following the event:
1. Review of controls in the loader at the time of the event in May 2020 which verified;
(a) An operator from the single seat in the loader would be able to see the truck when reversing using the left and right side external mirrors for a distance of 19 metres.
(b) A secondary reversing aid, being a reversing camera and monitor (located in the top right corner of the cab in line with the external mirror), was found to be in good working condition and would have displayed the presence of a truck for a distance of 19 metres.
(c) A secondary reversing aid, being an audible white noise "squawker" reversing alarm was fitted to the loader and found to be in good working condition. The testing of this equipment showed the dB level of the alarm at 78dB (at 10 metres from the loader) and 96dB at 2 metres from the loader.
2. Fitting of further 3 metre high visibility flags to all EnviroWaste light vehicles at the tip head to aid in the visibility for loader operators to see the presence of light vehicles (such as "Utes").
3. Purchase of additional RT's for civil earthmoving contractors onsite, who need to work or travel through the tip head area, to assist communication with the points person and loader operators.
4. Submissions to WorkSafe NZ as the Regulator on the draft and proposed Safe Reversing and Spotting Guidelines in August 2020 especially in the areas of;
(a) The use of hand signals in both day and night time operations, by points person "signallers" to the driver of the mobile plant as a primary method of communication, as this overcomes issues of English as a second language and the uncertainty of RT communications being available 100% of the time.
(b) Jack knifing of truck and trailer units during the reversing process, and if the driver can't see the points person, or the point persons can't see the driver, then the operation stops.
(c) Identifying the difference between a pedestrian (being a worker on foot), versus a worker who may be involved in work directing the movement of mobile plant.
5. Increased random drug testing from 30% to 50% of the workforce.
6. A review of the published guidelines for Managing Mobile Plant and Safe Reversing in February 2021 to validate current controls against the guidelines.
7. A review of the Traffic Management Plan and the creation of traffic management working groups.
8. Use of red and green working lights, called "Working Pedestrian Safety Lights" affixed to heavy vehicles operating at the tip head.

1.6 Total amount of money spent on rectifications

A total of $160,675 was spent, including; (a) Purchase of 30 additional RTs for Hampton Downs, (b) External support for WorkSafe NZ Mobile Plant and Reversing Guidelines submissions, (c) High visibility flags for light vehicles, (d) Working pedestrian safety lights for heavy mobile plant, (e) Independent review of Traffic Management Plan, and (f) Increased drug testing from 30% to 50% (cost per annum).

Other internal costs incurred for these rectifications have not been included in the costed amount above.

1.7 Detail the injury sustained or illness suffered by victim(s) or other(s) as a consequence of the contravention or, (as applicable) the *potential* for fatal injury or future fatal illness

The victim suffered fatal injuries as the result of being crushed between the moving wheel loader and stationary semi-trailer unit.

1.8 Detail any offer of amends or payments made to the victim(s) who sustained injury or suffered illness (the total monetary amount here is also to be included in the table at 3.12.3)

Describe the victim(s) relationship to you/the entity in question: (eg employee(s)/shareholder/director/family member/contractor, etc. If the relationship has more than one dimension, for example a family member who is also an employee and a director and/or shareholder of the business, or an employee who is a shareholder (etc) – then please describe this)

The victim was a full-time employee of EnviroWaste.

Detail offer of amends or payments:

The impact of this accident has had a profound impact on the business in many ways. We have made payments to the victim's widow by way of initial amends of $62,563 which includes:

[redacted]

Offers of counselling and victim support have also been provided to the family.

EnviroWaste would offer further amends of $99,410 upon execution of this enforceable undertaking to bring the total offer of amends to the victim's widow of $161,973.

The further amends would be comprised of;

[redacted]

The balance of amends, will be paid no later than 30 days from the execution of this EU or on another date within the period of the EU, as requested by the victim's widow.

1.9 Detail any consultation with the victim(s) as to their views on whether an enforceable undertaking would be an acceptable alternative to prosecution

Since the event, an EnviroWaste Senior Executive has been liaising and supporting the widow and the family through this tragic event. When we decided to consider an Enforceable Undertaking at all – we worked with the family to explain the concept and the benefits of an Enforceable Undertaking and the discretionary nature of such an application. We explained the need to propose offerings across the worker/workplace, industry/sector, and community areas to a level well beyond what might be directed by way of any sentencing process.

It was important that especially the widows' ideas, input and views be recognised alongside the victim's contribution to both his work and family life. We also wanted to acknowledge the additional stressors that were felt by the family when the entire country moved into Level 4 Lockdown status at the very beginning of the COVID-19 pandemic very shortly after the event emphasising perhaps the sense of loss.

CONTINUED AT APPENDIX A - SECTION 1.9

1.10 Detail any consultation with unions/sector/industry as to their views on whether an enforceable undertaking would be an acceptable alternative to prosecution

EnviroWaste has consulted with a wide group of organisations and people in the development of this Enforceable Undertaking.

The primary consultation in the development of this application has been with:
(a) WasteMINZ (Waste Industry body and Health and Safety Sector lead);
(b) The Aggregate and Quarry Association;
(c) MINEX (Health and Safety in NZ extractives); and
(d) Business Leaders' Health and Safety Forum.

1.11 Detail the support provided or proposed by the person to the victim(s), other(s)

DATE	DESCRIPTION OF SUPPORT	COMMENTS
/ /	SEE APPENDIX A - SECTION 1.11	
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1.12 Detail any current HSMS implemented and maintained by the person

Describe how health and safety risks are managed, including types of procedures or policies or standards:

EnviroWaste operate a management system for quality, safety and the environment. The safety management system is accredited to ISO 45001:2018 (with that status being formally certified on 1 March 2022).

The HSMS at a national level includes;
1. Leadership and Worker participation processes;
2. Risk management and planning opportunities for new risks, risk reviews, incidents and events;
3. Organisational and PCBU "Contract Chain" consultation, communication and co-operation practices;
4. Operational planning and control for hazardous substances and emergency response planning;
5. Monitoring, measurement and analysis of performance evaluation of systems and standards across the sites;
6. Continuous improvement application and governance reporting.

This is supported at the local organisation levels, with system and processes to support the achievement of ISO 45001 and the application of Acts and Regulations based on the nature of work that is undertaken. The safety system is also aligned and integrated with the quality and environmental systems for shared improvement opportunities.

1.13 Detail the level of auditing undertaken on the HSMS, including compliance audits and audit frequency

The EnviroWaste management system for quality, safety and the environment is independently audited by Kiwi Certification, a division of ECASS Pty Ltd, who are an accredited body by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) to undertake auditing in:
(a) ISO 9001:2015 for Quality Management Systems;
(b) ISO 14001:2015 for Environmental Management Systems, and;
(c) ISO 45001:2018 for Occupational Health and Safety Management Systems

The audit cycle is annually, with a full certification audit every third year. The audits are site specific and are not a desktop audit of the system. Interviews are conducted at worker, supervisor, manager and senior leadership level with site observations undertaken by the auditor to validate findings and note any improvements to move forward. Hampton Downs was audited during 2021 and certification to these standards was issued on the 1st of March 2022.

1.14 Detail the consultation undertaken or proposed to be undertaken, in relation to this undertaking

EnviroWaste has consulted with the victim's widow and family and a variety of industry groups and safety bodies. EnviroWaste intends to communicate the progress of the Enforceable Undertaking within the organisation, with the Regulator, the victim's widow, the industry groups consulted during the Enforceable Undertaking development and the beneficiaries identified in section 3.4 Industry/Sector and section 3.5 Community.

2. General terms

The person acknowledges and commits to the general terms set forth in the sub-terms below.

2.1 Acknowledgement that WorkSafe alleges a contravention occurred as detailed in term 1.2

EnviroWaste acknowledges that WorkSafe alleges a contravention occurred.

2.2 Statement of regret that the contravention occurred

EnviroWaste deeply regrets the harm suffered as a result of the incident and it acknowledges the affect this incident has had on the victim's family. The business has been shaken by this loss.

We are committed to our obligations under the Health & Safety at Work Act 2015 and we acknowledge that compliance is not sufficient to justify WorkSafe accepting this undertaking in lieu of proceeding with the prosecution of the charge that has been laid against EnviroWaste.

We offer this undertaking as an opportunity to support the victim's family, to honour the wishes of the widow in respect to the victim, to help industry better understand how to manage dynamic risk and for EnviroWaste to learn from this event and continually improve health and safety outcomes for everyone.

2.3 Statement of the reasons why, on balance, the person considers this undertaking is the most appropriate response to the contravention

EnviroWaste understands that the stated purpose of an Enforceable Undertaking in WorkSafe's policy is to benefit the workers or the workplace, the wider industry or sector and/or the community while also taking into account the nature of the misconduct, submissions from any interested party (including the victim's family), past history of compliance and current commitment to remedy the misconduct.

EnviroWaste believes that the intent, scope, expenditure, industry engagement and community benefits proposed here will provide greater benefits than what might be possible via the criminal justice process in Court.

In submitting this Enforceable Undertaking EnviroWaste has considered the views of the victim's widow and attempted to balance potential benefits recognising:
1) The victim's family;
2) The spirit of doing safety "differently" by applying the WorkSafe NZ, BetterWork principles for the worker/workplace and industry projects. This allowed us to consider the human factors at play in every workplace;
3) How we might build upon the submissions made by EnviroWaste to WorkSafe NZ around the publishing of the guidance for keeping healthy and safe around vehicles and mobile plant at work sites. (WorkSafe NZ - Managing Work Site Traffic - February 2021).
4) Worker engagement and participation practices for those working in "dynamic risk" environments;
5) By supporting the wider community of Waikato with additional funding for youth based drug & alcohol support and the ongoing professional development of existing drug & alcohol practitioners in the Waikato region to support knowledge growth and retention of resources in a high demand environment; and
6) By reference to the formal criteria of the Enforceable Undertaking operational policy to improve health and safety.

In summary, EnviroWaste;
(a) Acknowledges a previous conviction for health and safety offending in 2015, which resulted in a worker becoming entrapped in glass recycling collection mechanism on a truck and dying from the injuries. EnviroWaste accepted the failings, redesigned access to the lifting mechanisms and entered a guilty plea at the earliest opportunity.
(b) Acknowledges previous enforcement actions for the period 2007 to 2020 at 6 locations across the country. These actions relate to machinery risks, hazardous substances, notifiable events and the 2015 offending.
(c) Has cooperated fully with WorkSafe in its investigation of this incident.
(d) Has made amends and support of $62,563 to the victim's widow and offers additional amends to the widow on execution of this undertaking of $99,410 for a total of $161.973.
(e) Will benefit and support Workers/Workplace to the value of $250,000 by undertaking an innovation project on the use of Artificial Intelligence technology to support workers in the "dynamic risk" of managing work site traffic and publishing a study (with comparative analysis) of the project and the findings.
(f) Will benefit and support both the waste and quarry industry groups and the broader community of innovation safety sector, to the value of $350,000 by undertaking an innovation project with multiple industry stakeholders on the different ways and means of managing dynamic risks across the waste industry using the WorkSafeNZ BetterWork principles and worker engagement practices to learn and improve on every day successful work, and to publish a study on the innovation practices and the findings.
(g) Will benefit the wider community of the Waikato Region, by supporting the wishes of the victim's widow, to recognise the contributory factors of the presence of an illicit substance on the day of the event by providing funding to a community-based drug and alcohol provider, who delivers drug and alcohol training programmes and support to youth in schools in the Waikato region. This will complement the support to the community-based provider in gaining and retaining counsellors and other health workers by providing scholarships to practitioners in the field of adolescent drug and alcohol. This commitment totals to a combined value of $200,000.

EnviroWaste believes this proposal achieves tangible benefits to workers, industry and the community which could not be addressed elsewhere.

CONTINUED AT APPENDIX A - SECTION 2.3

24 Statement of commitment that the behaviour, activities and other factors which caused or led to the contravention has ceased and will not reoccur

EnviroWaste is committed to ensuring, as much as possible, that the events and the failures which led to the contravention will not be repeated.

The PCBU / business is not in a position here to confirm the issue is "rectified" as might be the case in other investigations and prosecutions. Significant steps and improvements have been made and the business has reached new standards of safety compliance (such as ISO 45001:2018) but, as in many cases, there were human factors involved with the decisions made on the day by several workers. There was also a criminal driving charge and a conviction which resulted directly from the behaviour(s), the activities and other factors behind the failure(s) and the breach of duties on the day of the accident.

The various rectifications undertaken by EnviroWaste are significant risk mitigations which should significantly reduce the risks associated with the work being undertaken.

2.5 Acknowledgment of the policy published by WorkSafe for the acceptance of an undertaking

(write the name of the person(s) or entity giving the undertaking)

EnviroWaste

has read and understood the Enforcement undertaking Operational Policy.

2.6 Acknowledgement that this undertaking will be published and publicised in full

(write the name of the person(s) or entity giving the undertaking)

EnviroWaste

acknowledges that the undertaking will, if accepted, be published on WorkSafe's website in full and referenced in WorkSafe material.

2.7 Statement of the person's ability to comply with the terms of this undertaking and meet the projected costs of the activities

(write the name of the person(s) or entity giving the undertaking)

EnviroWaste

has the financial ability to comply with the terms of this undertaking and have provided evidence by way of

(type of evidence provided)

Financial accounts (https://app.companiesoffice.govt.nz/companies/app/ui/pages/companies/4205538/documents)

with this undertaking to support this declaration.

In the event of impending receivership, liquidation or sale of the entity, (write the name of the person(s) or entity giving the undertaking)

EnviroWaste

will advise WorkSafe of the relevant circumstances and its capacity to comply with the outstanding terms of this undertaking.

2.8 Statement outlining any relationship between the person and any corporations, officers, employees, contractors, proposed beneficiaries of donations or scholarship or other recipient of financial benefit contained in this undertaking

EnviroWaste is a member of WasteMINZ and WasteMINZ itself will derive benefit of a safety webinar series in Section 3.4.

2.9 Statement regarding Intellectual Property

(write the name of the person(s) or entity giving the undertaking)

EnviroWaste

grants WorkSafe a perpetual, non-exclusive, worldwide and royalty-free licence to use, for any purpose, all Intellectual Property Rights in relation to any material developed as a result of this undertaking. This licence includes the right to use, copy, modify and distribute the materials.

2.10 Acknowledgement that the person may be required to provide a statutory declaration

(write the name of the person(s) or entity giving the undertaking)

EnviroWaste

acknowledges that it may be necessary for WorkSafe to obtain a statutory declaration outlining details of any prior convictions (safety related) outside of New Zealand and that it will provide such declaration if required by WorkSafe

2.11 Statement of commitment from the person to participate constructively in all compliance monitoring activities for this undertaking

1. It is acknowledged that responsibility for demonstrating compliance with this undertaking rests with the person.
2. Evidence to demonstrate compliance with the terms will be provided to WorkSafe by the due date for each term.
3. The evidence provided to demonstrate compliance with this undertaking will be retained by the person until advised by WorkSafe, that this undertaking has been completely discharged.
4. It is acknowledged that any failure to meet the due date for an enforceable term will result in the matter being escalated and may lead to enforcement action.
5. It is acknowledged that WorkSafe may undertake other compliance monitoring activities to verify the evidence and compliance with an enforceable term, and cooperation will be provided to WorkSafe.
6. It is acknowledged that WorkSafe may initiate additional compliance monitoring activities, such as inspections, as considered necessary at WorkSafe's expense.
7. It is acknowledged that details of all seminars, workshops and training conducted by a non-registered training provider must be notified to WorkSafe, by email, at least one week prior. Notification should include time, date, location and the trainer/facilitator.

(write the name of the person(s) or entity giving the undertaking)

EnviroWaste

3. Enforceable terms

The person acknowledges all activities set forth in the enforceable terms below must be auditable and include a date for completion and an estimated cost for each activity.

The person commits to performing the activities below diligently, competently and by the respective completion date.

3.1 A commitment by the person to perform activities that will ensure the ongoing effective management of risks to health and safety in the future conduct of its business or undertaking

Detail the management strategies to be employed that will satisfy and demonstrate to officer/s of the person that this commitment is being met:

EnviroWaste is committed to the performance of the activities as detailed above in this application and specifically commits to perform the activities detailed in section 3.3, 3.4 and 3.5 below, which will ensure the ongoing effective management of risks to health and safety in the future conduct of the business and this enforceable undertaking.

Project governance, assurance and management of change are critical elements to the successful delivery of this EU. EnviroWaste had budgeted $100,000 of internal cost for a Project Manager during the life of the project, to ensure those critical elements of governance, assurance, and management of change can be met.
That plan includes:
1) Creating terms of reference for project governance and makeup of project review team, including monitoring agreement from WorkSafe EU Team;
2) Appointing an internal project manager and finalising project milestones and monitoring requirements from WorkSafe EU Team;
3) Appointing members to the project governance team;
4) Appointing members to the project delivery team;
5) Monthly meeting with project delivery team on project status, completion rate, potential issues, and reporting to Project Governance Team;
6) Quarterly review with the Project Governance Team; and
7) Six Monthly reporting to WorkSafe EU Team, outside of any project milestones or monitoring requirements.

3.2 A commitment by the person to disseminate information about this undertaking to workers, and other relevant parties

(this may include to work health and safety representatives and in the organisation's annual report, if applicable)

Dissemination will be achieved by doing the following:

Engaging and consulting with the victim's family no later than 10 days from the execution of the EU.
Engage and communicate with EnviroWaste workers no later than 45 days from the execution of the EU.
Engage and communicate with the safety bodies and interest groups (identified in Section 3.3.3.4 and 3.5) no later than 90 days from the execution of the EU.

Dissemination will occur by: / /

3.3 Activities to be undertaken to promote the objectives of the health and safety legislation that will deliver benefits for workers and/or work and/or the workplace

ACTIVITIES Outline the activity and the expected outcomes	**COST ($)**	**TIMEFRAME**
3.3.1 Purchase of AI (Artificial Intelligence) technology at the Hampton Downs Site	100,000	12/6/24 (18 months)
3.3.2 Development of a risk-based competency framework and assessment tool for tip head points	30,000	12/3/23 (6 months)
3.3.3 Development and implementation of worker engagement tool for work variability and adaption	70,000	12/6/24 (18 months)
3.3.4 Publish and present findings of the three activities to industry and safety groups	50,000	12/9/24 (3 months)

SEE APPENDIX A - SECTION 3.3

Total estimated cost of benefits for workers/others	$ 250,000	12/9/24 (24 months)

3.4 Activities to be undertaken to promote the objectives of the health and safety legislation that will deliver benefits for the wider industry or sector

ACTIVITIES Outline the activity and the expected outcomes	**COST ($)**	**TIMEFRAME**
3.4.1 Engagement, selection and scoping of 3 Waste Industry stakeholders for the innovation project	82,500	12/3/23 (6 Months)
3.4.2 Develop and implement a methodology for worker critical analysis and thinking skills	75,000	12/12/24 (18 Months)
3.4.3 Develop and implement a methodology for PCBUs to better understand dynamic risks	90,000	12/12/24 (18 Months)
3.4.4 Publish and present findings of the three activities to the waste industry body	32,500	12/3/25 (3 Months)
3.4.5 Waste Industry Community learning programme	50,000	31/12/23 (12 Months)
3.4.6 Community of Safety Innovation (COSI) group learning programme	20,000	12/3/25 (12 Months)
SEE APPENDIX A - SECTION 3.4		
Total estimated cost of benefits for industry	$ 350,000	12/3/25 (30 Months)

3.5 Activities to be undertaken to promote the objectives of the health and safety legislation that will deliver benefits for community

ACTIVITIES	COST ($)	TIMEFRAME
3.5.1 Fund Waikato Youth INtact for youth alcohol and drug programme in the Waikato region	100,000	12/9/23 (12 Months)
3.5.2 Fund at least four scholarships for Adolescent Drug and Alcohol practitioners in the Waikato	100,000	12/9/24 (24 Months)
SEE APPENDIX A - SECTION 3.5		
Total estimated cost of benefits for the community	$ 200,000	12/9/24 (24 months)

3.6 Where WorkSafe considers appropriate in the circumstances, undertaking a SafePlus Onsite Assessment

Further information about SafePlus can be found here: worksafe.govt.nz/about-us/who-we-are/our-priorities/safeplus/about-safeplus

3.6.1 The suitability of a SafePlus assessment will be determined by the Enforceable undertakings Panel when your application is considered.

3.6.2 In addition to the total cost below (3.7) all costs of a SafePlus Onsite Assessment will be met by the person making this undertaking. The fee charged for an Onsite Assessment is a commercial matter between your business and the SafePlus Accredited Assessors that you commission.

3.7 Minimum spend

(write the name of the person(s) or entity giving the undertaking)

3.7.1 EnviroWaste

commits to a minimum spend of $ 961,973 for this undertaking.

(write the name of the person(s) or entity giving the undertaking)

3.7.2 EnviroWaste

agrees to spend any residual amount arising from an original term not being completed or being less costly than estimated in this undertaking. Agreement on how to spend this residual amount will be sought from WorkSafe

(write the name of the person(s) or entity giving the undertaking)

3.7.3 EnviroWaste

Acknowledges the minimum spend comprises of the:

TOTAL COST	MINIMUM SPEND
Financial amends paid to victims (if applicable)	161,973
Benefits to workers/others	250,000
Benefits to industry	350,000
Benefits to community	200,000
Estimated cost of the undertaking Plus GST (if any)	$ 961,973

4. Execution

Authorised representative of an organisation

undertaking given by (name of authorised representative)

Chris Aughton

In my own right and in my capacity as (eg President, Chairperson, etc)

Chief Executive Officer

of (eg organisation name) Enviro Waste Services Limited

On the (day) 2nd day of (month) September , 2022 (year).

Signature of the person giving the undertaking:

[redacted]

undertaking given before me:

Witness name: Christopher Lobb

Witness address: [redacted]

Witness signature

5. Acceptance

This undertaking is accepted by WorkSafe.

On the (day) 6th day of (month) September , 2022 (year).

Signature of person accepting the undertaking:

[redacted]

Name of WorkSafe representative: (General Manager, WorkSafe (or delegate))

Catherine Gardner

Level 6, 86 Customhouse Quay, Wellington

undertaking given before me: 06/09/2022

Witness name: Cordell Weir

Witness address: WorkSafe NZ, Bower Street, Napier

Witness signature: [redacted]

Additional information in respect of relevant sections of EnviroWaste's enforceable undertaking application is set out below.

1. General Information

1.3 Detail the events surrounding the contravention

CONTINUED FROM THE EU APPLICATION FORM – Section 1.3

The size, scale and design of these commercial vehicles (hundreds of vehicles per day) are constantly changing throughout the period of operation with majority of those vehicles owned and operated by third party operators. As the trucks arrive at the tip pad, a points person co-ordinates and directs where the trucks are to reverse to the tip head and then tip wall, for the ejection of the waste material to commence. The use of a points person assists to ensure that trucks and trailer units are not exposed to a fall over the tip wall.

The landfill operation uses heavy machinery such as bulldozers and landfill compactors to spread and manage the waste that has been ejected down into landfill with wheel loaders to clear any waste debris on the tip head and at the tip wall.

The environment is constantly changing throughout the day. There are periods where there may be few trucks on site and there are occasions where many trucks are queued and staged before entering the tip head. The area called the tip wall also changes. If a truck operator was to enter the tip head at the beginning of the week and again at the end of the week, there would be visible differences to the tip head and tip wall location and ground conditions as the waste is moved around the active landfill pit. However, the main tipping processes remain the same.

During trials, EnviroWaste found that this dynamic environment creates operational challenges around the effectiveness of using technology which scans obstacles and pedestrians and the impact of false alarms to warn people of changing risk conditions. Unlike a more constant (or static) warehouse workplace with designated and colour coded pedestrian areas the entire work site here continues to evolve as the landfill expands - in three dimensions – by the hour.

The Event

The victim was employed by EnviroWaste in June 2019 as a truck driver.

On the day of the event, the dedicated thermal CCTV cameras (monitoring heat signatures for possible fires) reveals that the victim had arrived for his second disposal run of the day (from the Tauranga area to Hampton Downs) in a large tractor unit and semi-trailer (a walking floor configuration of approximately 18m long x 4.23m high x 2.5m wide). The tip pad was quiet at the time with only one other truck entering the tip pad at the time of the event.

At the time of arrival, the points person signalled the victim to reverse his semi-trailer unit onto the tipping area and signalled the driver to stop the semi-trailer unit approximately 4 metres from the tip wall. This 4-metre exclusion zone (see **Figure 2** next page) is in place to:

1. Prevent a vehicle from coming too close to the tip wall, which could impact the tip wall, or result in the vehicle reversing and falling down / over the tip wall; and to
2. Prevent the driver of the vehicle from falling over the edge into the tip wall when opening the rear doors or gantry bin; and it
3. Allows the wheel loader to clear any debris or waste that was not properly ejected over the tip wall at a safe distance.

The points person signalled the victim to commence the process of ejecting the waste into the tip head. As part of this typical process, for that vehicle type, the victim exited the cab of the truck to commence typical operations, which included:

1. Using controls on the side of the trailer to open the nets of the top of the trailer unit (which prevents any waste material from being ejected whilst being transported);
2. Moving to the rear of the trailer unit to open the rear doors;
3. Returning to the cab of the truck to reverse back following the directions of the points person and then to operate the controls of the walking floor which ejects the waste out of the rear of the trailer and over the tip wall into the landfill area.

Upon completion of this process above the CCTV footage shows the tipping process was completed as expected and in accordance with the organisational safe systems of work. The victim then moved his truck forward about four metres, exited the cab, closed the rear doors, he lowered the nets and then drove forward 29 metres (taken from Police and SCU measurements) and he stopped.

This was an unusual and unexpected situation which arose, and through the review of the HD/thermal CCTV footage, EnviroWaste has not been able to ascertain why the driver stopped at this point and what may have occurred to attract his attention. He exits the cab of the truck and moves to the rear doors of the truck. During this time the tip head was unusually quiet, with no other waste truck present at the tip pad. There is a dedicated large workshop area on the exit road prior to travelling through the wheel wash, where mechanics are available to help with any truck or vehicle issues and drivers can use toilets and refreshment facilities.

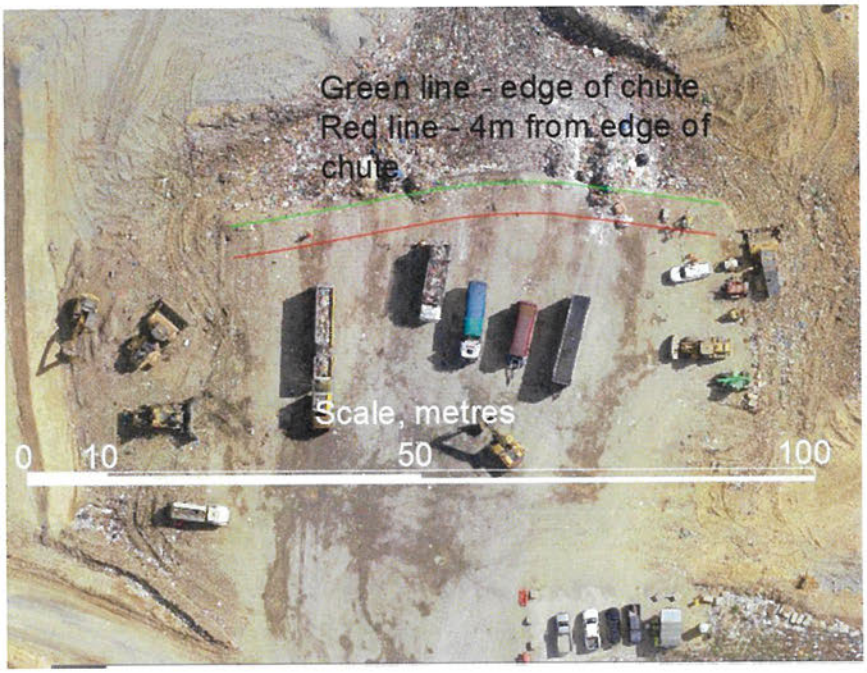


Figure 1: Exclusion Zone between green and red line

At the same time, another EnviroWaste employee has been operating a wheel loader ("Loader Operator") which was being used to push rubbish from previous loads over the tip wall. The loader is operated up to the edge of edge of the tip wall. The green line in the diagram above (**Figure 2**) represents an, intentional, fall of about 3m to create a vertical separation from the bulldozers and plant operating beneath the wall.

The wheel loader (see **Figure 3** below) was a hired machine that had been put into service that day. It was not a new "type" of vehicle for the site or the loader operator and was of a similar weight and bucket size to the normal two "makes" of wheel loaders (Caterpillar and Volvo) on the site. The wheel loader had several reversing aides, including;

1. Adequate side mirrors
2. A reversing camera and monitor located on the top right of the steering controls
3. Audible "Squawker" reversing alarm

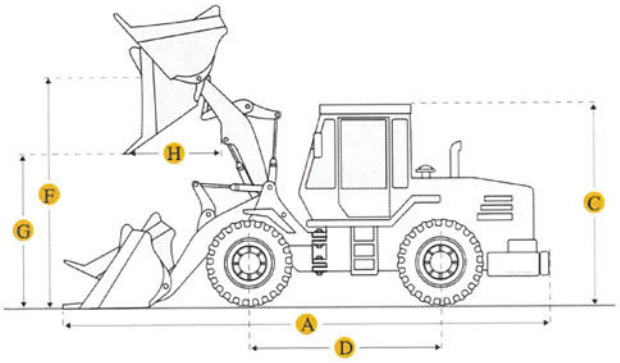


Figure 2: Doosan DL300 Wheel loader

A new truck arrived on site it and was directed by the points person to reverse to the tip wall. The Loader Operator lifted the bucket of the wheel loader and started to slowly reverse away from the tip wall passing the newly arrived reversing truck under the control of the points person. For an unknown reason, the Loader Operator has continued to reverse at slow speed (approximately walking speed at 4-5 km/h) in an arc, leaving the tip wall 4 metre exclusion zone, travelling a 29 metre distance over a period of 14 seconds and ultimately colliding with the rear of the stationary semi-trailer (which at 2.5m wide x 4.23m high would have been visible), resulting in fatal crushing injuries to the victim who was positioned at the rear of the truck.

The Loader Operator then moved the wheel loader forward approximately 5 metres, stopped, then reversed and stopped again. A Bulldozer Operator using RT communications then broadcasted the event and requested emergency response. EnviroWaste emergency responders and St Johns provided medical aid and support. Unfortunately. the victim died at the scene of the event.

Scene support and counselling was provided. Following scene clearance from WorkSafe NZ and the New Zealand Police, a site blessing was held.

[redacted]

The victim was survived by his wife and two adult aged children.

1.9 Detail any consultation with the victim(s) as to their views on whether an enforceable undertaking would be an acceptable alternative to prosecution

CONTINUED FROM THE EU APPLICATION FORM – Section 1.9

[redacted]

Outside of this enforceable undertaking, EnviroWaste, in consultation with the widow, acknowledged the anniversary of the death of the victim. Hampton Downs ceased operations on the anniversary of the accident, and we held a minute's silence to remember this event and the loss suffered.

[redacted]

1.11 Detail the support provided or proposed by the person to the victim(s), other(s)

CONTINUED FROM THE EU APPLICATION FORM – Section 1.11

The support for the victim's widow and family provided or proposed has been detailed in section 1.8.

Counselling and support were offered to all workers (including contractors on the site). The site was not able to be closed for an extended period of time, as it is deemed a critical infrastructure for Auckland and the Waikato region and remained open under Level 4 and 3 lockdowns. The site, truck and wheel loader were blessed.

A truck was also dressed and used for the funeral as a sign of both respect to the victim and his contribution to his work colleagues, his community and family.

2: GENERAL TERMS

2.3 Statement of the reasons why, on balance, the person considers this undertaking is the most appropriate response to the contravention

CONTINUED FROM THE EU APPLICATION FORM – Section 2.3

2.3.1 Introduction and objectives

New technology has dramatically changed the way New Zealanders work. Artificial intelligence and machine learning is enabling a new phase of innovation that can augment existing safety operations and help workplaces manage dynamic risk more effectively. Cutting edge visual artificial intelligence makes this evolution possible through real-world applications that can make a real difference.

By unleashing the power of data to support better decision-making, EnviroWaste's EU project has the potential to transform not just the way it manages dynamic risk at Hampton Downs Landfill, but for those outcomes to be shared more widely across industries facing shared challenges. As a catalyst for change, innovation and knowledge exchange activities are vital to meeting the challenges New Zealand faces.

The Hampton Downs Landfill tip head is by WorkSafe's definition[1] a dynamic risk site. For the purposes of this EU application a dynamic site is defined as: Where the hazards and work activities are known, but the hazardous situations that arise or when present in the workplace, from the plant and environment are constantly changing.

The Hampton Downs landfill is dynamic in nature as a result of several different factors (including but not limited to) environmental conditions/impacts, waste product/type received, third party vehicles, landscape of the tipface, filling area size and shape and new landfill cell construction.

[1] https://www.worksafe.govt.nz/topic-and-industry/vehicles-and-mobile-plant/site- traffic- management/managing-work-site-traffic-gpg/

As a result, the site and its workers need to constantly adapt with hazards and risks identified and appropriately mitigated or managed.

We understand that the concept of a dynamic site is relatively new in New Zealand. It is incorporated in the recent WorkSafe NZ Traffic Management Guidelines that acknowledge the difference in work sites across New Zealand. So, while it is recognised that work sites can be dynamic, how do we improve the way risk is assessed at these sites – can technology help with this? This creates a real opportunity for research and learnings to better understand dynamic work sites and potential systems to improve worker safety and worker success at these dynamic work sites. EnviroWaste is proposing in its EU to kick start this research and learnings into dynamic work sites using cutting edge technology to gather information.

It is the potential hazardous situations (known and unknown) that occur on a dynamic work site that we are trying to better understand and control in order to eliminate or minimise the risk of harm to workers.

The objectives behind this EU are:

1. To install Visual Artificial Intelligence (VAI) camera systems at the Hampton Downs landfill tip head to develop an 'all seeing', vigilant, intelligent and predictive capability to provide a real time review of the business' TMP (Traffic Management Plan) system performance which is not impacted by external human factors e.g., fatigue, stress, distraction.
2. To investigate the use of VAI's predictive capability to recognise potentially hazardous situations and initiate higher order controls (such as engineering or isolation) to eliminate or minimise the risk of harm to workers and others.
3. To investigate VAI's capability as an electronic assurance system working constantly, 24/7, in all environmental conditions to increase the speed of hazardous situation detection, predicting behaviour and supporting the worker around the presence and awareness of a hazardous situation to prevent a hazardous event.
4. To use VAI to capture the 'big data' associated within those 'Kodak moments' that are the hazardous situations. This is where the system gathers data and analyses the frequency and occurrence of hazardous situations and potential hazardous events over a continuous time period (rather than just a point in time). It will allow us to gain a better understanding of the effectiveness of current controls and establish opportunities for improvement for the TMP and safety system using trend analysis.
5. To share the big data analysis with workers in safe worker engagement learning team forums (using WorkSafe's BetterWork principles), where the workers can see the nature of the problem, provide context to the problem, develop solutions for improvement (co-constructing with EnviroWaste) and optimise the safety system for both continuous improvement of the safety system and self-improving teams. As an example, EnviroWaste has had prior success with this approach using both the Guardian biometric fatigue management system and ERoad system data to engage with the drivers to better understand the reasons behind fatigue and overspeed events and initiate improvement.

EnviroWaste's vision is that the deliverables under this EU identify complimentary controls to better manage traffic movements at dynamic work sites which will in turn support workers to be successful by improving awareness and decision-making through engagement.

We will do this through:

- VAI partnered with worker engagement will become a valued component of helping manage and control the dynamic risk at the Hampton Downs Tip Head and adopted into 'business as usual' operations.
- Taking a leadership position to share learnings. EnviroWaste will produce a published study of the trial and innovation, the learnings that can be taken and contextualised and adapted by other organisations to improve worker safety. EnviroWaste expects that the outcome of the EU activities will provide a range of system templates and tools able to be utilised by other industries and companies of all sizes to minimise and mitigate dynamic risk, e.g., in quarrying, freight forwarding etc.

2.3.2 Artificial Intelligence (AI) as a control

EnviroWaste remains of the view that as technology improves there are real potential benefits to be explored with Visual Artificial Intelligence (VAI) as a "control" and even unsuccessful data may have some benefit here.

EnviroWaste offers to further support this guidance by undertaking an innovation project using VAI technology to support workers in the "dynamic risk" of managing work site traffic and publishing a study (with comparative analysis) of the project and the findings. This will include:

- The purchase, development, commissioning, and operation of Artificial Intelligence technology hardware and software at the Hampton Downs Tip Head to support points people and loader operators in their risk-based decision-making of separating mobile plant and people at the tip head. The VAI technology will cover:
    - Worker on foot detection system for heavy mobile equipment (VAI cameras fitted to mobile plant);
    - Worker on foot and mobile machinery anti-collision cameras;
    - Site pole mounted VAI camera technology that detects workers on foot and moving objects and predicts travel paths and alerts operators of potential risk; and
    - Computer vision technology that detects hazardous situations such as: a worker close to a compactor, bulldozer, dump truck and wheel loader.

VAI uses a live video feed from single and multiple cameras and AI software to monitor the spatial relationships between people and objects to identify potentially hazardous situations. The machine learning component of the AI software will constantly improve the detection and recognition of people and objects as well as the predicated outcomes of their movement. The information gathered via VAI could:

- Initiate a higher order control (isolation or engineering) to prevent or respond to a potential hazardous event;
- Initiate a lower order control to inform/make aware a tip head points person, worker on foot and/or the operator of machinery of a potential hazardous event;
- Support the "efficacy of controls", i.e., that the existing controls are functioning as intended (in support of Section 7 HSW – General Risk and Workplace Management Regulations – Duty to maintain effective control measures); and
- Look for patterns and trends in the information to find opportunities for improvements, such as implementing higher order controls (in support of Section 8 HSW – General Risk and

Workplace Management Regulations – Duty to review control measures) and timely review of the TMP (Traffic Management Plan).

The gathering of this information is consistent with the Joint Australian and New Zealand Standards AS/NZS 4024.1303 for managing the risks of machinery as reference in the WorkSafe guidance material "Safe Use of Machinery" (see Figure 3 below). The standard states the importance of a risk assessment approach and continuous improvement, that considers:

- The relationships between people and plant;
- A deeper understanding of the hazardous situations that are present; and
- How those hazardous situations need to be mitigated to avoid or limit the potential of a hazardous event that leads to the occurrence of harm to a person[2].

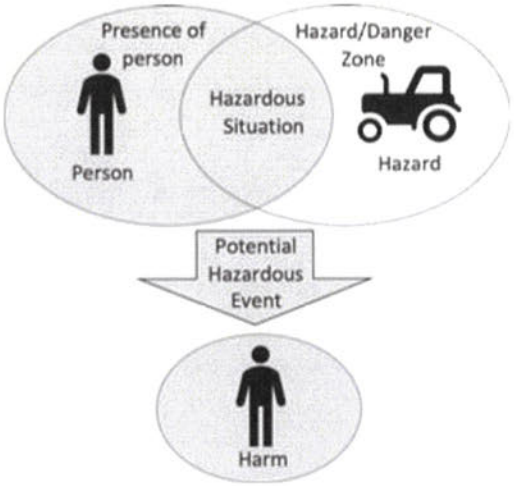


Figure 3: AS/NZS4024.1303

For the purposes of this EU, a "dynamic site" is defined as: Where the hazards and work activities are known, but the hazardous situations that arise or when present in the workplace, from the plant and environment are constantly changing.

It is these potential hazardous situations (known and unknown) that occur on a dynamic work site that we are trying to better understand and control.

As mentioned above, EnviroWaste implemented the Guardian biometric fatigue and distraction management system throughout its fleet of bulk haul trucks in 2018. The systems biometric scanning camera is focused on the driver's face. Audible alerts and a heavy seat shake are simultaneously initiated if a driver closes his eye for 1.5 seconds or longer (possible microsleep) or a driver's eyes are not looking forward at the road ahead for four seconds or longer (possible distraction). In both events the combination of audible alert and a heavy seat shake bring the driver consciousness back into the present and in control of the vehicle.

[2] Conditions of occurrence of harm 5.4.3.2 AS/NZS 4024.1303:2014, ISO 12100

The 'big data' from these events is readily available and has helped EnviroWaste understand the 'known unknowns' and the extent of these hazards. This information has allowed us to work with drivers to gain greater insight into the context of why these hazards occur (e.g., sleep apnoea, medical conditions etc.), and improve systems. The benefits derived from this system along with our ERoad system (in relation to a significant reduction in over speed events) have been substantial.

EnviroWaste envisage deliverables under this EU will:

1. Monitor and allow for improvement of controls to keep workers safe;
2. Provide necessary data, patterns and trends to better inform decision-making across all levels of the business;
3. Provide workers with a learning space in which they can provide feedback and solutions;
4. Inform better work design;
5. Support workers to be successful and facilitate EnviroWaste's just and fair work environment in which there is no blame, but learnings to be derived from incidents.

2.3.3 Delivery

Beginning the project, at Hampton Downs landfill, we will install VAI systems on mobile machinery that will detect a person or object within a defined area around the machine (from the rear, side, or front of the machine) when it is operating or in high-risk situations such as reversing. Data will be collected in real time, and a dashboard created to extract meaningful information on hazardous situations to be used in worker engagement sessions. We also envisage that being a machine learning based technology, it will continue to evolve and reduce false positives and increase accuracy in the detection of hazards in real time as opposed to 'a point in time'.

Six months later, based upon our initial learnings from the VAI systems on mobile machinery we will review the opportunity to combine both fixed and mobile VAI systems or add new technology to improve overall system performance.

As part of this exercise, we will:

1. Review the tip head worker risk-based competency framework and assessment tool;
2. Write a report on the findings of the VAI trial and the comparative analysis between Hampton Downs (with VAI) and another site (without VAI);
3. Present findings to the WasteMINZ Health and Safety Sector Group and wider member community; and
4. Present findings to the Safety Community of Innovation (NZISM, Business Leaders Forum, WorkSafe Innovation). This will see the sharing of outcomes with important stakeholders.

2.3.4 Outcomes

Some examples of the potential outcomes we are looking to explore within VAI, include:

1. Predicting the potential of a hazardous event when conditions change in a dynamic site, between the interaction of people on foot and machine and or the interaction between machines. The VAI system then:
    a. Initiates activation of "Primary Controls" such as isolation and engineering controls that:
        i. Reduce the speed of machinery to allow for human reaction time for a worker on foot;
        ii. Initiate an emergency stop of the machine without human intervention and without the risk of a potential impact event by initiating an emergency stop.
    b. Initiates lower order controls – "Complimentary Controls" – such as:
        i. Visual (strobes/beacons/lights), audible sound or sensory (e.g., pulse) to the worker on foot, warning of the potential hazardous event.
        ii. Visual (strobes/beacons/lights), audible sound or sensory (e.g., seat shaking) to the operator of the machine, warning of the potential hazardous event.
2. Gathering data on the frequency and occurrence of hazardous situations and potential hazardous events. This will allow us to gain a better understanding of the effectiveness of current controls and establish opportunities for improvement for the TMP and safety system.
3. Initiate reviews of the TMP with the TMP Committee (made up of the organisational stakeholder and worker representatives) outside the normal time based, or event based (including management of change) activities that is consistent with the WorkSafe Guidance[3] for Managing Work Site Traffic, Section 3.4 Review control measures for dynamic work sites.
4. Produce and present the reports listed above in the 2.3.3 Delivery Section.

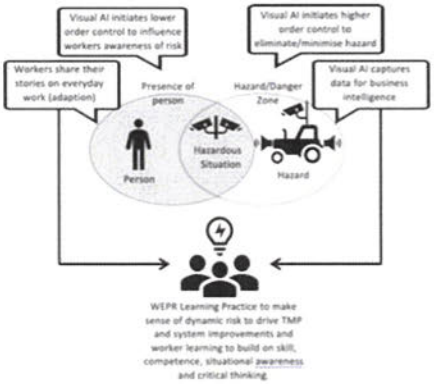


Figure 4: Relationship with VAI between Workers and Hazards/Risks

EnviroWaste intends to trial these options to determine effectiveness in its operations, to meaningfully engage with machine operators, ensure there are no unintended consequences and ensure that false positives are reduced as much as possible, and then look to extend the implementation to business as usual.

[3] https://www.worksafe.govt.nz/topic-and-industry/vehicles-and-mobile-plant/site- traffic- management/managing-work-site-traffic-gpg/

Similar to VAI safety systems in some motor vehicles we believe that the Visual AI systems can be trained to identify a variety of objects, for example people, different types of mobile machines and the landfill environment, including designated work zones, uncoupling areas, safe zones for breakdowns, signs such as pedestrian crossings etc. If possible, this would allow the technology to become a valued component of helping manage risk at dynamic risk sites and prevent hazardous events.

There is a known risk around the effect of false positives on operators and workers, where the frequency of a false positive reduces the ability of complimentary controls to influence or inform people of a change in situation, especially where situational awareness is a factor in an individual's decision making, such as a Tip Head points person. An example of this was the shift away from tonal alarms (an alarm that makes a loud beeping noise when the vehicle is reversing), where the single frequency noise would spread around the vehicle and become noise pollution rather than inform of a danger zone as intended.

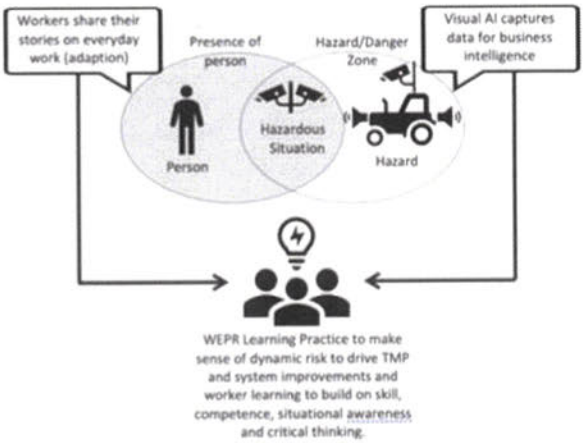
We will explore alternative complimentary controls such as a broadband alarm, sensory alarms, different types and colours of strobe lights, vibratory alarms etc. that are directed at the danger zone itself, plus both the workers on foot and machine operators simultaneously.

This is the reason we wish to link the VAI trial with the Worker Engagement and Participation element so we can optimise the effectiveness of the primary and complimentary controls from the ever-vigilant VAI.

2.3.5 Worker Engagement and Participation (WEPR)

2.3.5.1 Worker/Workplace Component of VAI

EnviroWaste will investigate the use of VAI information and worker engagement and participation to optimise the effectiveness of the safety system, worker competency, situational awareness and critical thinking at the Hampton Downs landfill tip head, a dynamic risk work site. This will be achieved by using learning teams to regularly engage with tip head workers in a comparative study between Hampton Downs (with VAI) and another site (without VAI). The focus will be on worker behaviour over system or higher- level controls and whether VAI information on workers' daily movements in hazardous situations can help deliver a better understanding of worker behaviour and therefore safer outcomes.



This is not a replacement for existing system approaches or controls of training, supervision, monitoring, and reporting. It is to compliment, and potentially enhance them, through a learning practice. This learning practice will not be about blaming workers, it will be to explore how we can better support workers in dealing with and working in a dynamic site environment and adjacent areas. It will allow us to link the data from the VAI with the daily work context provided by the tip head workers to find opportunities for improvements, to build on skill, competence, situational awareness, critical thinking and determine whether the TMP plan in force at the time and system controls are still effective.

2.3.5.2 Delivery

Key work elements within this scope include:

1. Development of a risk-based competency framework and assessment tool for the tip head points person and loader operator, so both the worker and EnviroWaste can evaluate and assess the current state of knowledge, application and progression of skills during the AI trial.
2. Development and implementation of a worker engagement tool to capture the daily variability and work adaptation that occurs with the points people and loader operators on the tip head. This engagement tool is not a reporting tool, it will capture via monthly learning teams meetings the stories and narratives of managing dynamic risk at the Hampton Downs site with AI technology installed and at another site with no AI technology installed. This information will be used to identify weak signals between how EnviroWaste believes the controls are managing the risk and how the workers are adapting to the changing and dynamic environment and the human potential of normalising this risk as being acceptable. The aim is to better understand if these weak signals can be used by EnviroWaste to:
    a. Evaluate the effectiveness of controls within dynamic work sites; and
    b. Initiate risk reviews that enable learnings and improvements at the safety system level and the worker competency and critical thinking levels.
3. These learnings and potential improvements will be reported quarterly to the site TMP committee.
4. Produce a report on the findings of the AI trial and the comparative analysis between Hampton Downs (with AI) and another site (without AI).
5. Present findings to the WasteMINZ Health and Safety Sector Group and wider member community; and
6. Present findings to the Safety Community of Innovation (NZISM, Business Leaders Forum, WorkSafe Innovation).

2.3.5.2 Outcomes

The outcomes we want to explore from this trial are:

1. Whether VAI as a primary or complimentary control can support better worker engagement and participation practices for workers at dynamic work sites, and;
2. Whether VAI combined with a worker engagement and participation practice around the understanding of everyday work can support better outcomes and build competent and consistent safe practices at dynamic risk sites like the landfill tip head.

2.3.6 Value and Business Case of the Project(s)

To be very clear: the project is not about placing the burden of work on workers, or asking workers to do more or think quicker; we will be asking leaders, operational managers, Health and Safety Advisors/Representatives and workers to think differently about how work is done using the WorkSafe BetterWork principles.

We want workplace improvement efforts to start with a focus on what's going right and how the safety system is supporting people to be successful, and how workers, as the knowledge holders of how work is really done, are actively engaged and participate in improving the safety system – with the desire that we collectively create a better way where more things go right more often.

The outcome of the worker/workplace and industry/sector components of the EU will provide learning and insights on dynamic sites and risks in areas such as (but not limited to):

1. Whether technology such as VAI as a control can support better WEPR;
2. What is the value of gathering and making use of information (in a positive learning way) about workers' everyday work;
3. What value can be gained by improving system/higher-level controls and supporting workers' knowledge, competency, situational awareness, critical appraisal and thinking skills in dynamic site and risk environments;

It will complement the WorkSafe Guidance for Managing Work Site Traffic Section 3.4 Review control measures for dynamic work sites, outside the normal periodic (time based), or event based (including management of change) review activities, i.e., using technology to monitor the dynamic site on an ongoing basis.

The intention is to develop the report findings for both of these components of the EU in such a way that any organisation of any size (small, medium or large), can relate to what was found, and that organisations can take learnings from that report including the methods, framework, documents and tools that were used, and apply them in their own environment and be able to measure or evaluate the value and the benefits of:

1. Worker engagement and participation;
2. The organisation's effectiveness of their risk management efforts and the use of higher order controls.
3. Applying and/or developing similar technology for use in their organisation. We note that the benefit of VAI technology is the potential for it to be scaled up or down depending on size and nature of the dynamic site.

We also recognise that rather than waiting for those learnings to be published at the end of the EU, EnviroWaste should be proactive with safety industry forums. The Community of Safety Innovation has over 300 organisations participating in a community wanting to do safety differently, which is supported by NZISM, Business Leaders Forum and the WorkSafe Innovation Team. We propose delivering four "Project Learning Sessions" with them during the life of the project, so that learnings could be taken, applied in other situations and feedback could be provided and opportunities for improvements can be identified.

2.3.7 Commitment/Resourcing/Project Auditability/Compliance and Resourcing

During the development of the EU, a project plan was created for the innovation elements of the Worker/Workplace and Industry/Sector components.

Project governance, assurance and management of change are critical elements to the successful delivery of this EU. EnviroWaste had budgeted $100,000 of internal cost for a Project Manager during the life of the project, to ensure those critical elements of governance, assurance, and management of change can be met.

That plan includes:

1. Creating terms of reference for project governance and makeup of project review team, including monitoring agreement from WorkSafe EU Team;
2. Appointing an internal project manager and finalising project milestones and monitoring requirements from WorkSafe EU Team;
3. Appointing members to the project governance team;
4. Appointing members to the project delivery team;
5. Monthly meeting with project delivery team on project status, completion rate, potential issues, and reporting to Project Governance Team;
6. Quarterly review with the Project Governance Team; and
7. Six Monthly reporting to WorkSafe EU Team, outside of any project milestones or monitoring requirements.

Internal and external representatives and stakeholders will make up this project delivery team, including but not limited to:

a. EnviroWaste Project Manager
b. EnviroWaste Quality Manager (VAI)
c. EnviroWaste representatives from the TMP Committee – Hampton Downs
d. EnviroWaste Hampton Downs General Manager Operations
e. External Organisational Psychologist – (WEPR Work Design)
f. External Adult Educator/Learning and Development – (Competency Framework)
g. External Subject Matter Expert on Systems Thinking/Learning Teams.

2.3.8 Implementation of Findings

EnviroWaste intends to trial these options to determine effectiveness in its operations, meaningfully engage with machine operators, ensure there are no unintended consequences and ensure that false positives are reduced as much as possible, and then look to extend the implementation to business as usual. EnviroWaste will share these learnings across the industry, sector, and broader stakeholders in support of knowledge exchange for the common good, which is subject to any intellectual property or proprietary information (or data, or software) provided or used by third parties assisting with any Artificial Intelligence (AI) trials resulting from this Enforceable Undertaking.

EnviroWaste is also undertaking a "Fair and Just Culture" review. We want to evaluate the learnings from the EU programme and how this could align to a fair and just culture, and then further explore how these could enhance and improve our WEPR practices across all the business operations.

The next horizon for supporting the transformation of New Zealand's health and safety performance is through technology-enabled innovation.

Recent advances in AI show its potential as a disrupter and enabler for nearly every company in every industry. Now more than ever, businesses must strive to ensure that work-augmenting technologies contribute to a fair and just future of work. EnviroWaste's Hampton Downs project is focused on implementing workplace technology for the wellbeing of all. We believe important lessons can be learned about the application of next- generation technology to help workers avoid unsafe situations and for organisations to respond to risks and hazards in real-time. From this, other companies may evaluate how they can use these insights to boost worker safety in a range of different settings.

3.0 ENFORCEABLE TERMS

3.3 Activities to be undertaken to promote the objects of the safety legislation that will deliver benefits for workers and/or work and/or the workplace

CONTINUED FROM THE EU APPLICATION FORM – Section 3.3

Background

Following the submission to WorkSafe NZ regarding the draft of the Managing Work Site Traffic (guidance for keeping healthy and safe around vehicles and mobile plant at work sites), and the subsequent risk review undertaken by EnviroWaste after the final guidance was published in February 2021, highlighted the issue between the types of risk controls that can be applied between static work sites (where the layout generally stays the same), and dynamic work sites (where the layout changes from time to time). Landfills were recognised in the guidance as a dynamic work site. Due to the constant changing environments, landfills like Hampton Downs are both dynamic in the changing layout but also dynamic in the nature of when and how the risk is present. Traditional isolation and engineering controls are problematic in these dynamic risk situations in both their ability to separate people from mobile plant and their effectiveness overtime.

The guidance states that: "If your work site or work activities change, you need to check that your existing control measures are still the most appropriate ones to use" but the guidance does not describe any ways or means of doing this in a dynamic work site environment.
EnviroWaste offers to further support this guidance by undertaking an innovation project on the use of Artificial Intelligence technology to support workers in the "dynamic risk" of managing work site traffic and publishing a study (with comparative analysis) of the project and the findings. This will include;

3.3.1 Purchase of AI (Artificial Intelligence) technology at the Hampton Downs Site

The purchase, commissioning, and operation of Artificial Intelligence technology hardware and software at the Hampton Downs Tip Head to support points person and loader operators in their risk-based decision making of separating mobile plant and people at the tip head. The types of AI technology that may be trialled, but not limited to, include:

1. Worker on foot detection system for heavy mobile equipment (scanners fitted to plant).
2. Worker on foot and mobile machinery anti-collision cameras.
3. Site pole camera technology that detects workers on foot and moving objects and projects travel paths and alerts operators of potential risk.
4. Computer vision technology that detects hazardous situations such as: a worker close to a compactor, bulldozer, dump truck and wheel loader.

3.3.2 Development of a risk-based competency framework and assessment tool for tip head points person

Development of a risk-based competency framework and assessment tool for tip head points person, so both the worker and the organisation can evaluate and assess current state of knowledge, application and progression of skills during the AI trial.

3.3.3 Development and implementation of worker engagement tool for work variability and adaption

Development and implementation of a worker engagement tool to capture the daily variability and work adaption that occurs with points persons and loader operators on the tip head. This engagement tool is not a reporting tool, it will capture the stories and narratives of managing dynamic risk at the Hampton Downs site with AI Technology installed and at another site with no AI technology installed. This information will be used to identify weak signals between how the organisation believes the controls are managing the risk and how workers are adapting to the changing and dynamic environment and the human factors potential of normalising this risk as being acceptable.

The project wants to better understand if these weak signals can be used by the organisation to evaluate the effectiveness of controls with dynamic work sites and initiate risk reviews to gain better understanding on learnings and improvements that can occur both at the safety system level and the worker competency and critical thinking skills.

3.3.4 Publish and present findings of the three activities to industry and safety groups by

1. Write and publish a report on the findings of the AI trial and the comparative analysis between the two sites.
2. Present those findings to the Waste Industry Body (WasteMinz) at the annual WasteMINZ Conference.
3. Present those findings to the wider Safety Sector through the Community of Innovation Group Principal stakeholders are NZISM, Business Leaders Forum and WorkSafe NZ Innovation Team).

The funding includes the creation of an ongoing legacy by making the competency framework, dynamic risk information, and report findings public domain and royalty-free for any organisation or industry with dynamic work sites to make use of without commercial gain.

3.4 Activities to be undertaken to promote the objects of the safety legislation that will deliver benefits for the wider industry or sector

CONTINUED FROM THE EU APPLICATION FORM – Section 3.4

Background

EnviroWaste is a member of the Business Leaders Forum and is actively striving to improve safety outcomes through better ways of working and sharing this with the waste industry and is an active participant in the Waste Industry Health and Safety forum for developing industry guidance and support.

EnviroWaste offers to support the WorkSafeNZ BetterWork strategy in the waste and quarrying industry by undertaking an innovation project with three industry stakeholders on the different ways and means of managing dynamic risks across the waste industry using the WorkSafe BetterWork principles and worker engagement practices to learn and improve on every day successful work. And to publish a study on the innovation practices and the findings.

BetterWork asks leaders and people to think differently about how work is done, and by doing so, unlock the true potential of their organisation to create the best workplace possible. Workplace improvement efforts often start with a focus on what's wrong, or what problems need fixing. The solutions tend to be imposed in a top-down manner, and more often than not, is the privilege of a few select individuals who get to say what goes.

The innovation project will support the key principles of the BetterWork Way of;

- Starting with 'What to grow' in safety.
- Inviting deeper learning about what is driving performance with worker engagement and participation.
- Building community and connections between people.
- Integrating risk management into how work is done.
- Enabling organisations to take steps toward the future they desire.
- Having the capacity to work successfully across varying conditions is the goal.
- The future is created based on strengths and possibilities.

The innovation project will include;

3.4.1 Engagement, selection and scoping of 3 Waste Industry stakeholders for the innovation project, including;

1. An engagement programme with Waste Industry stakeholders on the innovation project and select 3 to participate.
2. Undertake a review with each stakeholder of their current risk mitigation strategy for dynamic risk, to establish a baseline to measure any potential improvements.

3. Identify a site for each stakeholder to undertake the innovation project, followed by an engagement with the stakeholder sites, leadership and their worker representatives (Health and Safety Reps, Committee and Union Delegates) in the development and implementation of a worker engagement tool to capture the worker stories and narratives of managing dynamic risks for a 24 month period.

3.4.2 Develop and implement a methodology for worker critical analysis and thinking skills

Develop and implement a methodology that allows workers to see the changing nature of dynamic risks and to help build critical analysis and thinking skills.

3.4.3 Develop and implement a methodology for PCBUs to better understand dynamic risks

Develop and implement a methodology that allows the stakeholders to see the changing nature of dynamic risks and implement improvements to the system to support better outcomes for workers.

3.4.4 Publish and present findings of the three activities to the waste industry body

Write and publish a report on the findings of the innovation for wider industry support/adoption and present those findings at the annual WasteMINZ conference.

3.4.5 Waste Industry Community learning programme

EnviroWaste recognises that a 30 month programme will provide highly informative research data in both qualitative and quantitative measures. But the period may also delay industry and the greater safety community learning from this innovation. EnviroWaste will support WasteMINZ members and their Health and Safety Practitioners with an education and webinar series (6 modules) on applying "New View" Safety principles including Worker Engagement on why things go right and "non blame" investigation approaches with learning from adverse events.

3.4.6 Community of Safety Innovation (COSI) group learning programme

Support the Community of Innovation Group and the Principal Stakeholders (NZISM, Business Leaders Forum and WorkSafe NZ Innovation Team) by delivering quarterly updates (4 in total) on learnings and practical applications from the project on dynamic risk.

The funding includes the creation of an ongoing legacy by making the materials, data capture format and report findings in the public domain and royalty-free for any organisation or industry with dynamic risk to make use of without commercial gain.

3.5 Activities to be undertaken to promote the objects of the safety legislation that will deliver benefits for community

CONTINUED FROM THE EU APPLICATION FORM – Section 3.5

Background

[redacted]

During the consultation process, we became acutely aware that each year in New Zealand, a large proportion of adolescents are likely to experiment with alcohol, cannabis or other drugs. For some this will be an isolated incident, but for many, this experimentation may be the beginning of a much more serious problem. Alcohol consumption among New Zealand adolescents is high by international standards. It is estimated that 90% of New Zealand adolescents will have tried alcohol before age 14 years. Drinking is also particularly problematic among Māori adolescents. Infants, children and adolescents (0-19 years) make up 26% of New Zealand's total population. Māori make up 26% of the same total with a young age structure and a growing population (11% growth projected by 2028). Pacific make up 10% of the total 0-19 year, a growing population (9% growth projected by 2028). Māori and Pacific children and youth continue to experience lower socioeconomic status and experience mental health disorders at higher levels than the general population.

We propose a community project to;

3.5.1 Fund Waikato Youth INtact for youth alcohol and drug programme in the Waikato region

Fund Waikato Youth INtact to expand their services to the greater Waikato area so that they expand their reach into schools and community hubs within the region. Youth INtact is a specialist youth alcohol and other drugs (AOD) service established by the Waikato District Health Board in 2016.

Youth INtact provide community-based support and education for rangatahi/young people with problematic to severe alcohol and/or other drug use. The Youth INtact model of care was co-designed with rangatahi. With a focus on collaboration between everyone involved (rangatahi, whānau, health and education professionals), the service offers easily accessible community-based assessment and treatment services that are wraparound, holistic and culturally responsive. Youth INtact assist young people (aged 12-19) to make positive changes regarding their drug and alcohol use. They provide training and coaching programmes in schools within the Waikato region. They are currently working in 13 schools in the Waikato region including: Huntly, Ngaruawahia, Morrinsville, Matamata, Te Aroha, Te Awamutu, Cambridge and Raglan. Youth INtact work in partnership with the school guidance and pastoral care teams and offer individual and group support for young people both in schools and the local community. Youth INtact are funded by the Waikato District Health Board and partner with Odyssey, Te Korowai Hauoroa o Hauraki, Care NZ, Taumarunui Community Kokiri Trust to provide wrap around for youth in need.

3.5.2 Fund at least four scholarships for Adolescent Drug and Alcohol practitioners in the Waikato

In addition, fund at least four scholarships for the ongoing professional development for existing Adolescent Drug and Alcohol practitioners in the Waikato region. Many of the practitioners in the field of adolescent drug and alcohol have lived experience, who come from a range of cultural, life and educational backgrounds. The scholarships will allow practitioners to further develop their knowledge and expertise in the field of adolescent mental health. Workforce development is an essential component of expanding youth primary mental health services, supported by the Prime Minister's Youth Mental Health Project (YMHP).

The 2018 Auckland University, 'Stocktake of Infant, Child and Adolescent Mental Health and Alcohol and other drug services (ICAMH) in New Zealand' identified that in order to meet and improve the mental health and wellbeing needs of infants, children, adolescents and their families, highly skilled mental health and addiction workforce are required. The report recommends in order to meet the growing demands of ICAMH increasing workforce capacity and capability is required, as is the ongoing need to increase the number of Maori and Pacific practitioners. The scholarship will allow existing Adolescent Drug and Alcohol practitioners to gain further academic studies at a post-graduate level.

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