

The proponent is required to provide the Coordinator-General with a response to the information requested below.

The requested additional information seeks to clarify inadequacies in the application material provided and the impacts of the proposed development.

Responding comprehensively to this request is required to assist in streamlining the assessment process.

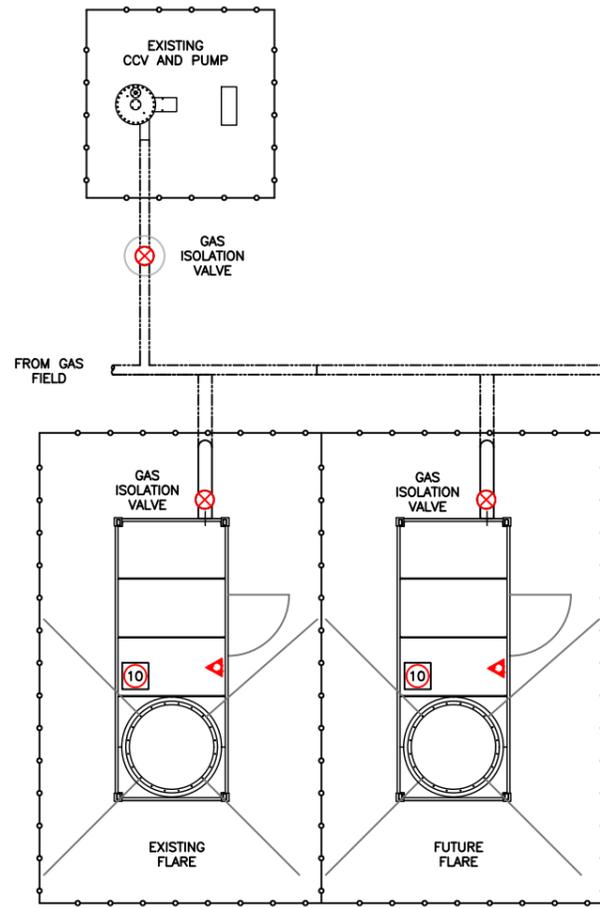
No.	Issue	Information Requested
Railway corridor		
1	Dangerous goods	<p>Issue: It is unclear from the application material whether the proposed biogas energy facility poses a risk of fire, explosion, gas emission or dangerous goods incident to the railway corridor adjacent to the site.</p> <p>Action: The proponent is requested to provide further information to demonstrate how the proposed development will address potential impacts on the safety and operational integrity of the railway corridor and the management and monitoring mechanisms to mitigate these impacts.</p> <p>The applicant is required to provide information demonstrating how the proposed development will be designed and constructed to minimise the impacts of a fire, explosion, gas emission or dangerous goods incident on the railway corridor. The applicant should provide a Registered Professional Engineer of Queensland (RPEQ) certified risk assessment in accordance with Chapter 2.6 – Dangerous Goods and Fire Safety and Appendix 1 – Development Risk Assessment Guide of the <i>Guide to Development in a Transport Environment: Rail</i> and demonstrate how measures will be incorporated into the development design to minimise the identified risks. This should address the following risks, amongst other identified risks:</p> <ul style="list-style-type: none"> • minimising or controlling the outbreak of fire; • controlling smoke and/or gas release dispersion; • minimising heat build-up in structures; • limiting the possibility of structural components being blast damaged; • providing stability or contingency measures in the proposed development; • providing safe emergency access and egress to and from the railway; and • ensuring effective containment and clean-up of dangerous goods incidents.

		<p>LMS Energy (LMS) Response</p> <p>A Risk Assessment (40041-RG-032 Rev A) has been completed in accordance with the requirements above and copy provided.</p> <p>Draft site-specific emergency and safety documents have also been created with copies attached for reference.</p> <ul style="list-style-type: none">• Draft Emergency Response Plan (40041-RG-030 Rev A)• Draft Safety Management Plan (40041-RG-031 Rev A)• Proposed BioEnergy Facility Fire Fighting and Safety Equipment Layout (40041-DA-003 Rev A) <p>LMS owns and operates more than 60 biogas projects with 36 projects having 90MW of generation installed. Most are located on landfills in Australia, as well as projects in New Zealand and the United States.</p> <p>LMS has a complete in-house service encompassing Engineering, Construction and Operations teams to ensure these fully integrated facilities undergo comprehensive design, construction and commissioning. Maintenance services are provided by LMS's experienced and qualified personnel 24 hours a day, seven days a week. Computerised and on-line monitoring capabilities further ensure maximum operational hours and safety / environmental compliance.</p> <p>The proposed facility is based on LMS's standard design and has taken into consideration any impacts to the railway corridor. The facility will be designed and constructed to minimise the impacts of a fire, explosion, gas emission or dangerous goods incident on the railway corridor.</p> <p>LMS's proposed facility represents controlled extraction and combustion of gas at the site. Our extensive safety management system considers bushfire mitigation through electrical asset maintenance and vegetation control, fire and gas protection and control systems, compliance and registration in accordance with AGA protocols, and certification under the Petroleum & Gas Act.</p> <p>Whilst the generators and flares include an emission exhaust stack, there is no smoke generated by the combustion of gas. LMS's facility represents best practice combustion and utilisation of gas in accordance with the Victorian EPA Best Practice Environmental Management for the Siting, Design, Operation and Rehabilitation of Landfills, which is widely regarded within the industry as the benchmark guideline. Without the construction of the facility, potential impacts exist in relation to air quality and uncontrolled gas.</p> <p>Access and egress to and from the railway is not impacted by the proposed facility, which exists within the fully enclosed</p>
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		<p>landfill and access to the railway is not done so via the landfill.</p> <p>Important to the management of landfill gas is combustion at the same rate which gas is produced within the site. Combustion contingency is provided via location of flaring facilities adjacent to the generator. In the event that the generator is off line, the on site flares are utilised to ensure continued combustion.</p>
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No.	Issue	Information Requested
Railway corridor		
2	Separation of flammable and combustible materials	<p>Issue: The proposed development includes an above ground storage tank and contains materials that are identified as flammable or combustible. It is unclear what impact that this will have on the railway corridor.</p> <p>Action: Demonstrate that the development complies with the separation distance requirements from the fence and railway corridor set out in AS1940-2017 – <i>The Storage and Handling of Flammable and Combustible Liquids</i>.</p> <p>LMS Response Relocatable Oil Tank</p> <ul style="list-style-type: none"> ○ There is an above ground oil storage tank that has the capacity to hold 4000 litres of C2 Combustible Liquid which is well below the threshold of a placard quantity location set at 10,000 litres and the 60,000 litres stated in AS1940-2017. ○ Tank in tank design is approved to UL142 / ULCS601 / AS1940, AS1692, AS1170, AS4100, AS1554.1 / BS799 / PPG2 ○ The tank is to be located on a concrete slab and off bare earth. Whilst relocatable in nature the tank will remain in the one position. ○ The tank is self-bunded to a capacity of 110% which meets legislative and AS1940-2017 requirements. ○ The tank has both an inner and outer cell of which both are constructed of mild steel greatly reducing the likelihood of damage resulting in loss of contents.

		<ul style="list-style-type: none"> • Covered Chemical Storage <ul style="list-style-type: none"> ○ A purpose build covered storage will be installed to store smaller quantities of compatible chemicals including lubricating oils. ○ It is fabricated out of mild steel and is not dissimilar in construction to that of a shipping container. ○ Features include self bunding and ventilation both top and bottom to prevent the accumulation of fumes as required in AS1940-2017 • Tank Location in Relation to Boundaries & Rail Corridor <ul style="list-style-type: none"> ○ The 4000 litre tank is located within the BioEnergy Facility compound and is approximately 2 metres from the compound fence. ○ The distance from Bioenergy Facility compound fence to the Waste Facility boundary fence/Rail Corridor is approximately 11 metres.
Road corridor		
3	State Controlled Road Transport	<p>Issue: It is unclear from the referral material whether hazardous materials will be transported on State controlled Roads.</p> <p>Action: The proponent is requested to provide confirmation no transportation of hazardous materials will occur on the state controlled road network. If material hazardous materials are to be transported by the state controlled road network, demonstrate compliance with the <i>Australian Code for Transport of Dangerous Goods by Road & Rail (ADG)</i>.</p> <p>LMS Response We confirm that there will be no transportation of hazardous materials on the state-controlled road network.</p>



LEGEND

DANGEROUS GOODS AND CHEMICAL STORAGES

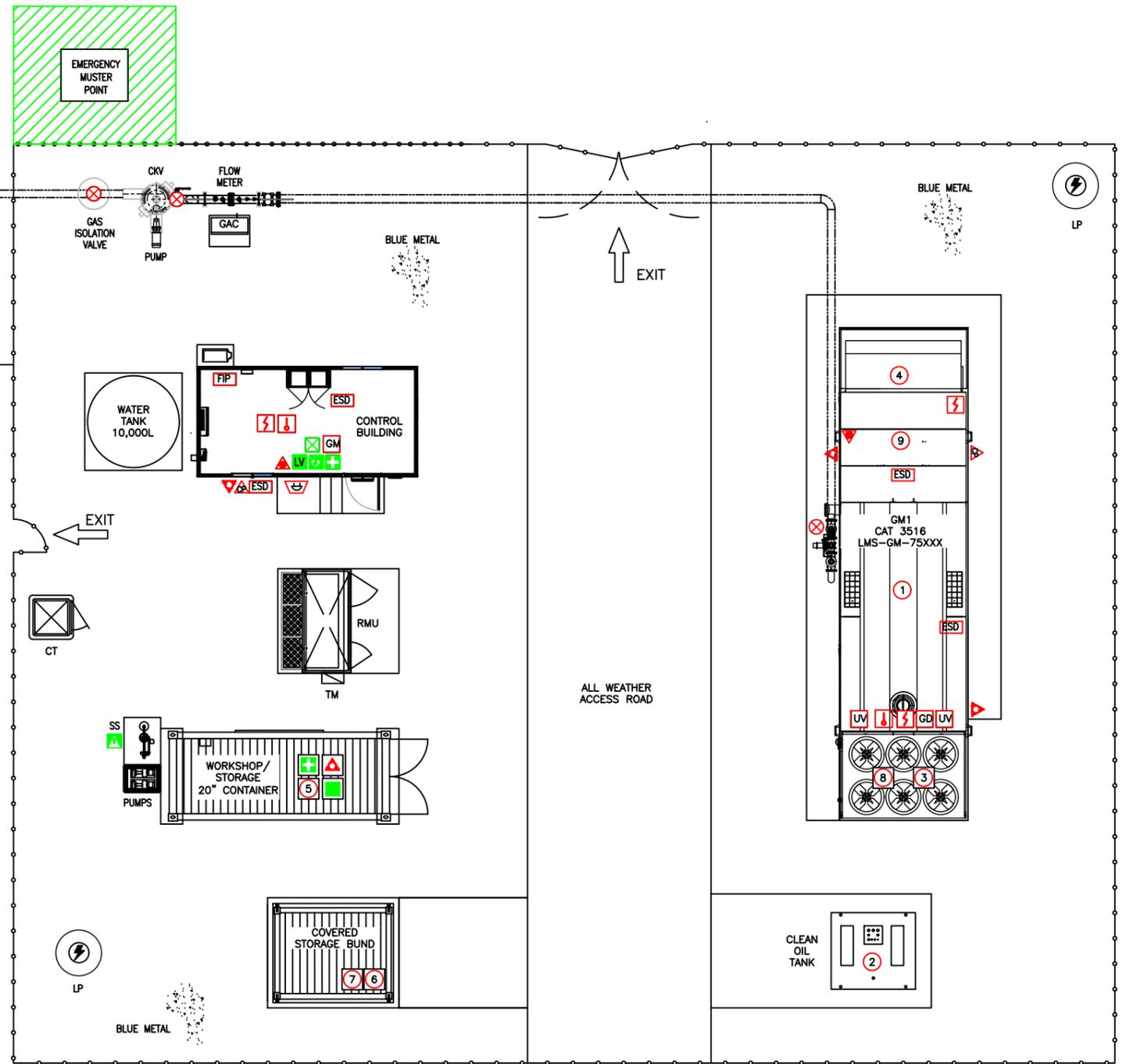
- ① CLEAN LUBE OIL (1375L) TANK
- ② CLEAN LUBE OIL (4000L) DOUBLE SKINNED TANK.
- ③ WASTE LUBE OIL (1500L) DOUBLED SKINNED TANK.
- ④ HIGH VOLTAGE TRANSFORMER OIL (~1200L).
- ⑤ MINOR STORAGES OF MIXED PACKAGE CHEMICALS EG. PAINT, DEGREASERS, ETC. (250L)
- ⑥ DESIGNATED BIN FOR USED FILTERS / OILY RAGS ETC.
- ⑦ 50% GLYCOL / 50% WATER 1000L IBC (COOLANT).
- ⑧ REFRIGERATION GAS R22 (9kg)
- ⑨ BUNDED GENERATOR MODULE
- ⑩ FLARE PILOT GAS BOTTLE PROPANE (9kg).

- PIPEWORK BELOW GROUND
- PIPEWORK ABOVE GROUND
- 2m CHAINWIRE FENCE
- CCV CONDENSATE COLLECTION VESSEL
- CKV CONDENSATE KNOCKOUT VESSEL
- CT CHEMICAL TOILET
- GAC GAS ANALYSER CUBICLE
- GM GENERATOR MODULE
- LP 22m LIGHTNING POLE
- RMU RING MAIN UNIT (HIGH VOLTAGE SWITCHBOARD)
- SS SAFETY SHOWER
- TM TARIFF METER
- VP VALVE PIT

- ESD EMERGENCY STOP PUSH BUTTON.
- FIP FIRE INFORMATION PANEL.
- MANUAL CALL POINT.
- DRY POWDER HAND HELD.
- CO₂ HAND HELD.
- SMOKE DETECTOR.
- ULTRA VOILET FLAME DETECTOR.
- HEAT SENSOR.
- FIXED GAS DETECTOR.
- PERSONAL GAS MONITOR.
- FIRE ALARM BELL.
- FIRST AID BOX.
- DEFIBRILATOR
- SAFETY SHOWER.
- EMERGENCY EYEWASH.
- SPILL CLEAN UP KIT.
- HAZARDOUS MATERIAL FOLDER.
- LOW VOLTAGE RESCUE KIT.
- GAS ISOLATION VALVE

NOTES:

1. IN THE EVENT OF FIRE, THE OPERATIONS EMERGENCY RESPONSE PLAN (ERP) TO BE INITIATED.
2. REFER TO OPERATIONS ERP FOR HAZARD RISK MANAGEMENT PLAN.
3. VEGETATION OUTSIDE OF FENCE TO BE NO CLOSER THAN 2 METRES TO FENCE.
4. ABOVE AND BELOW GROUND PIPEWORK IDENTIFIED "GAS" CONTAINS LEACHATE AND LANDFILL GAS (METHANE).
5. SITE EMERGENCY RESPONSE PLAN IN CONTROL ROOM.



FOR INFORMATION

STUART LANDFILL BIOENERGY FACILITY

FIRE FIGHTING AND SAFETY
EQUIPMENT LAYOUT

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A	25/08/23	AAH	WB			FOR INFORMATION							
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EMERGENCY RESPONSE PLAN (ERP) c DRAFT – FOR DEVELOPMENT APPROVAL

STUART LANDFILL

BIOENERGY FACILITY

OPERATION OF LANDFILL BIOGAS EXTRACTION AND FLARING FACILITY

Date:	18/09/2023
Site:	Stuart Landfill BioEnergy Facility
Reference:	40041-RG-030-Rev A
Revision:	A

LMS ENERGY Pty Ltd

ACN: 059 428 474

118 Greenhill Road, Unley SA 5061

T: 08 8291 9000

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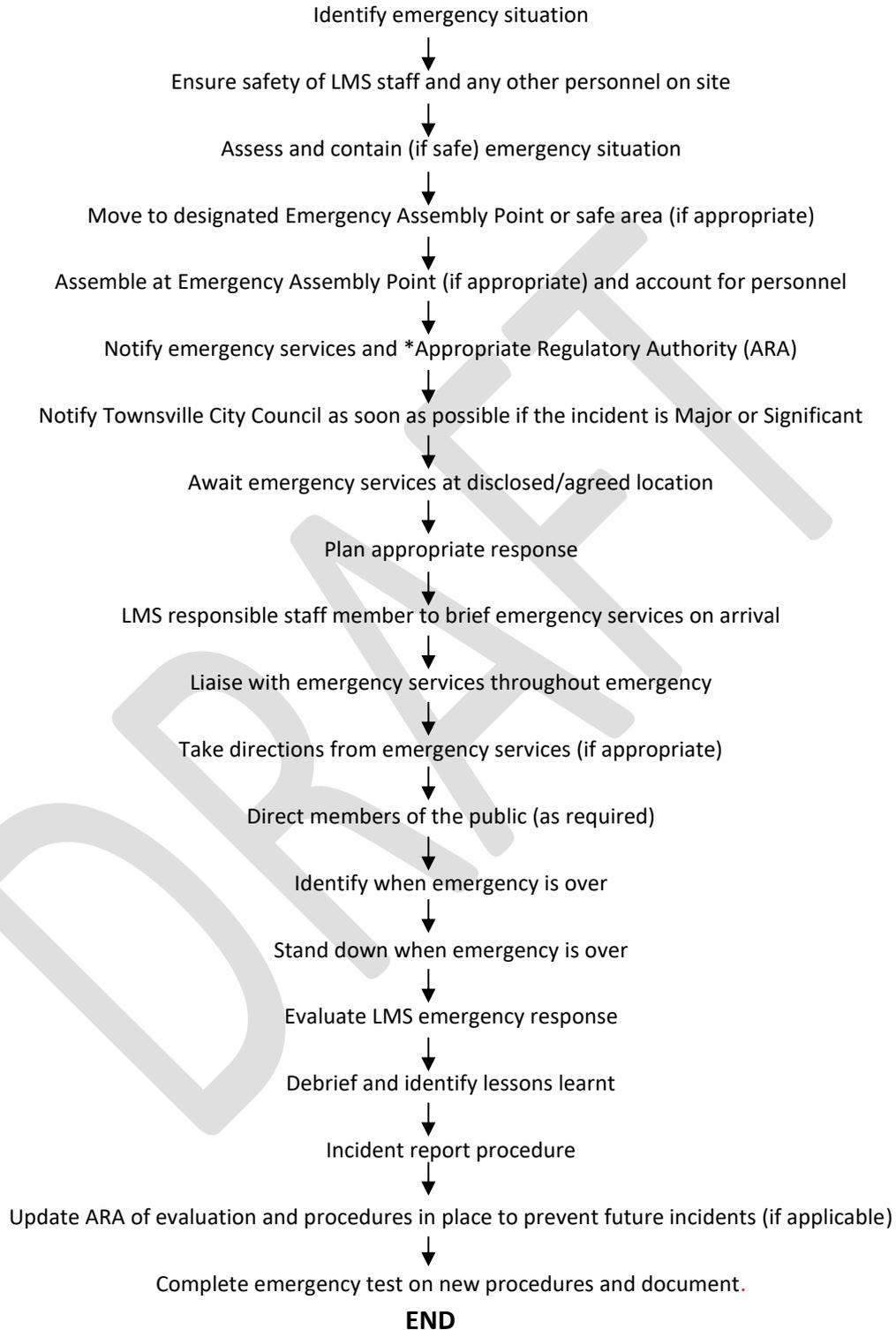
Contact: Damien Manning

Title: Group Manager - Health & Safety

M: 0437 290 499

EMERGENCY RESPONSE ACTION STEPS

MAJOR INCIDENT ACTION STEPS



**Appropriate Regulatory Authority could be Local Council, Environmental Protection Authority, Gas Authority Work Cover or Fire and Rescue. Refer to [Section 2 Emergency Contacts](#) for contact numbers*

EMERGENCY SHUTDOWN RESPONSE ACTIONS

1. Contact the LMS Energy Control Centre (08 8291 9090)
 - a. Secondary Contacts:
 - i. Michael Parker - 0488 763 030
 - ii. Wayne Curtis - 0448 674 868
2. Please advise of the following:
 - a. Landfill Fire – Severity, Location and if LMS infrastructure at risk of being impacted by the fire
 - b. Gas Leak
 - c. Equipment Failure
3. Follow LMS Energy’s instructions
4. If enabled, LMS will shut the flare down remotely
5. Do not attempt to access the flare or gas infrastructure if is not safe to do so
6. At all times, abide by your own Emergency Response Plan

DO NOT PUT YOURSELF IN HARMS WAY BY ATTEMPTING TO ADJUST THE GAS SYSTEM OR ACCESSING THE FLARE IF IT CONTRADICTS YOUR OWN EMERGENCY RESPONSE, OR IS UNSAFE TO DO SO.

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SITE DOCUMENT REVISION STATUS

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A	Draft – Issued for Development Application	18/09/23	A. Hudson	F. Lambert	

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2	Revised	23/09/11	S. Dalrymple	A. Hudson	B. Fox
3	Annual Review & Format Revised	06/05/13	T. Washington	D. Bonney	D. Bonney
4	Update & Re-issue	29/01/14	D. Manning	D. Bonney	D. Bonney
5	Content Update	07/08/14	Safety	J. Varcoe	D. Manning
6	Minor Content Revision	18/02/15	S. Cheesman	D. Manning	D. Manning
7	Minor Content Revision & Format Revised	19/10/17	S Cheesman	D. Manning	M. Maple
8	Add Electrical Network Controller to Contact Details	15/03/19	S Cheesman	D Manning	M Maple
9	Removed IMS Reference	11/11/20	S. Cheesman	D. Manning	L. Mander
10	Minor Content Revision Replaced Landfill Gas with Landfill Biogas	25/01/21	S. Cheesman	D. Manning	L. Mander
11	Add EPA Reportable Procedure (VIC Only)	05/05/22	S. Cheesman	D. Manning	L. Mander
12	Minor Content Revision for Hazardous Materials Section, Cyclone Action Plan & Fire Control Procedures	18/01/23	S. Cheesman	D. Manning	L. Mander

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1. INTRODUCTION

The **Emergency Response Plan (ERP)** provides a clear and concise action plan for a range of possible emergency situations that could occur within the Renewable Energy Facility (REF) and in the course of Operations.

All LMS staff will be familiar with the plan to ensure efficient and effective response to any emergency situation. In an emergency situation the LMS Operation personnel assume control of implementing the emergency procedure.

All emergency/incident occurrences will be reported to the Site Supervisor. The Site Supervisor reports incident to relevant Manager and completes LMS Energy Document: *Workplace Incident Reporting Form - FM3*, with person involved where possible, within 24 hours of the incident. The *FM3* is emailed to the Safety Group within 48 hours of incident. For Major or significant incidents, Townsville City Council are to be informed within 48 hours.

For Emergency situations within the general Stuart Landfill Site, Townsville City Council assumes responsibility upon notification by LMS Operations personnel.

1.1 AIMS AND OBJECTIVES

The aim of this ERP is to provide a clear and concise action plan covering a range of possible emergency situations including worker health & safety or environmental harm/pollution incidents that may occur within the REF and during the course of operations.

Its objective is to:

- Control or minimise harm to people, plant and the environment
- Identify and report as required
- Ensure efficient and effective response to an emergency situation
- Ensure LMS operation personnel are competent to assume control and facilitate the implementation of emergency procedures including when external (emergency) assistance is required
- Provide assistance when appropriate to external agencies

Note: All Emergency / Incident occurrences will be reported via LMS Energy Document: *Workplace Incident Reporting Form - FM3*, with person involved (where possible), within 24 hours of the incident. The *Workplace Incident Reporting Form - FM3* is emailed to the Safety Group within 48 hours of incident. All Major incidents/emergency should be reported immediately so the appropriate regulatory authority can be notified.

1.2 DEFINITIONS

ARA	Appropriate Regulatory Authority
Assembly Point	a safe area predesigned open space where persons must assemble after evacuation
Emergency Incident	an emergency can be described as an abnormal and dangerous or potentially dangerous situation that harms or threatens to harm persons, property or the environment which requires urgent action to control, correct and return to a safe condition
EPA	Environmental Protection Authority
ERP	Emergency Response Plan is a written plan which details the operation procedures required to be taken to deal with an emergency
PIRMP	Pollution Incident Response Management Plan
Pollution Incident	incident or set of circumstances during or as a consequence of which there is or likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It does not include an incident or set of circumstances involving only the emission of any noise
BEF	BioEnergy Facility

2. EMERGENCY CONTACTS

FIRE – POLICE – AMBULANCE

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Tell the operator:

- Your location
- Type of Emergency
- Any Casualties or Injuries
- What assistance is required
- Advise of any hazards present upon entering the site
- Your name and contact phone number

Major Safety Incidents:

WORKSAFE OR SAFEWORK REGULATOR

1300 362 128

Major Pollution Incidents:

ENVIRONMENTAL PROTECTION AUTHORITY (EPA)

1300 130 372

Electrical Safety Incident (HV Isolation Required):

ENERGEX LIMITED

(07) 3664 5015

OTHER REGULATORY CONTACTS:

Public Health Authority – QLD Office	07 4980 6989
(After Hours Contact, if known)	Not Available
Local Council – Townsville City Council	13 48 10
WorkCover Authority	1300 362 128

2.1 SITE CONTACT DETAILS

Site location: Stuart Landfill BioEnergy Facility

Site address: 24 Vantassel Street, STUART QLD 4811

Principle: LMS ENERGY Pty Ltd

Number of employees: 1-2 (may increase for short times of extended scheduled /unscheduled maintenance)

2.2 LMS EMERGENCY CONTACTS

LMS Energy Control Centre	08 8291 9090
Operations Supervisor QLD Michael Parker	0488 763 030
Operations Manager QLD & NZ Wayne Curtis	0448 674 868

2.3 TOWNSVILLE CITY COUNCIL EMERGENCY CONTACTS

Manager Waste Services Matthew McCarthy	0407 738 422
Site Safety Manager Don Allison	0409 722 598

3. RESPONSE PROCEDURES

Accidents or incidents with the potential to cause environmental harm shall be dealt with immediately to minimise the harm.

3.1 MAJOR INCIDENT

- ENVIRONMENTAL: Is any circumstance which eventuates in, or has the potential to cause serious environmental harm and requires the involvement of external agencies, or significant resources, assistance or control
- SAFETY: Is any circumstance which eventuates in, or has the potential to lead to fatality, lost time injury, medical treatment, occupational disease, near miss or harm to workers. It also includes damage to any structure, plant, equipment or any other object, and requires the involvement of external agencies or significant resources, assistance or control

3.2 SIGNIFICANT INCIDENT

- Is any circumstance which has the potential to harm or place at risk workers or the environment but can be managed at the site level. Minimal involvement from external agencies is required to provide assistance and resources to the site management team

3.3 MINOR INCIDENT

- Is any circumstance which has the potential to harm or place at risk workers or the environment, but can be managed onsite by the site management team

The incident process encompasses:

- Contacting Emergency Services (Major Incident)
- Contacting EPA (Major Environmental Incident)
- Notifying the Operations State Manager and Group Manager - Operations
- Contact Worksafe/SafeWork Regulator and Client (Major or Significant Incident)
- Take appropriate action(s) to minimise impacts
- Completion of LMS Energy Document: *Workplace Incident Reporting Form - FM3* with detailed summary of the incident and forward to the Safety Group within 48 hours of incident – Email: safety@lms.com.au.
- Ensure required corrective action procedures implemented
- Sign off by the LMS Site Operator/Management corrective action has been initiated and completed
- Sign off by Townsville City Council that corrective action has been completed for Major or Significant Incidents

4. TYPES OF EMERGENCIES

Emergency Class	Emergency Situation	Hazard Likelihood	Emergency Response	Roles And Responsibilities	Staff Training
Evacuation	Any emergency situation where it is judged that an evacuation is required	<ul style="list-style-type: none"> Possible 	<ul style="list-style-type: none"> Gather LMS staff together Agree that evacuation is required or act on directions of LMS Operator personnel Notify emergency services LMS appointed representative will account for all staff Await emergency services Follow directions of emergency services until emergency is over Notify Townsville City Council 	LMS appointed representative will assume responsibility	<ul style="list-style-type: none"> Staff training on evacuation procedures Staff all aware of Emergency Assembly Point for emergency situations LMS staff familiar with Emergency Procedure
Injury	Injury to personnel	<ul style="list-style-type: none"> Unlikely 	Determine severity minor/significant/major incident	LMS staff member first on the scene will assume responsibility	<ul style="list-style-type: none"> LMS appointed representative will have current First Aid Certificate LMS staff familiar with Emergency Procedure
Fire/Explosion	Vehicle fire Building/structure fire Fuel fire Bushfire	<ul style="list-style-type: none"> Possible 	<ul style="list-style-type: none"> Evacuate all persons to safe location where appropriate (refer to Evacuation Procedure above) Attempt to control fire using onsite extinguisher Call Fire Brigade 000 Notify Townsville City Council 	LMS staff to take action	<ul style="list-style-type: none"> LMS staff to undertake fire drill/training LMS staff familiar with Emergency Procedure LMS staff to facilitate support services as required

Emergency Class	Emergency Situation	Hazard Likelihood	Emergency Response	Roles And Responsibilities	Staff Training
Landfill Fire (Aboveground)	Fire detected on landfill with potential to damage plant and property	<ul style="list-style-type: none"> Possible 	<ul style="list-style-type: none"> Monitor potential threat to LMS plant and property. Where the fire is impacting LMS infrastructure, isolate all gas wells in the immediate vicinity. If the fire is a threat to the power station, shut down the generators and evacuate site. 	<ul style="list-style-type: none"> LMS Operator to complete Emergency Response and inform LMS Management Inform Townsville City Council immediately 	LMS staff familiar with Emergency Procedure.
Landfill Fire (Below Ground)	Detection via monitoring of a potential fire underground in the landfill by LMS Operator.	<ul style="list-style-type: none"> Rare 	<ul style="list-style-type: none"> Identify the area where combustion is taking place and isolate all gas wells in the immediate vicinity. 	<ul style="list-style-type: none"> LMS Operator to complete Emergency Response and inform LMS Management Inform Townsville City Council immediately 	LMS staff familiar with Emergency Procedure.
Vehicle accident on Landfill Site	Involving LMS staff	<ul style="list-style-type: none"> Rare (site closed to public) 	<ul style="list-style-type: none"> Notify emergency services if required Administer first aid as appropriate Assist person if required 	LMS staff to take action	LMS staff familiar with Emergency Procedure
Flooding	Gas Utilisation Facility	<ul style="list-style-type: none"> Rare (site built above 1/100 year flood zone) 	<ul style="list-style-type: none"> Turn off electricity and shutdown plant Ensure safety of staff Secure all materials if possible and prevent damage to LMS equipment and plant Restrict access if appropriate 	LMS staff to take action	LMS staff familiar with Emergency Procedure

Emergency Class	Emergency Situation	Hazard Likelihood	Emergency Response	Roles And Responsibilities	Staff Training
Chemicals / Chemical Containers	Chemical harm to LMS employee -Skin or eye irritation -Ingestion of chemicals -Overcome by fumes	<ul style="list-style-type: none"> Possible 	<ul style="list-style-type: none"> Remove person and yourself if hazard present (ie. fumes) Identify chemical involved in incident Administer First Aid if appropriate. Notify Emergency Services if required 	LMS staff to take action	<ul style="list-style-type: none"> LMS staff familiar with Emergency Procedure LMS staff will be aware on how to use appropriate SDS for chemicals stored on site
Environmental	Major oil spill	<ul style="list-style-type: none"> Rare (separate oil storages for each generator, fresh and waste oil). 	<ul style="list-style-type: none"> Notify *ARA immediately 	LMS to immediately take action and bring specialist contract services company to clean/remove the spill	LMS staff to assist and coordinate the clean up
Gas	Failure of process	<ul style="list-style-type: none"> Rare 	<ul style="list-style-type: none"> Notify *ARA immediately 	LMS to immediately take action and where required bring specialist contract services company to rectify the fault.	LMS staff to assist and coordinate the repair

**Appropriate Regulatory Authority could be Local Council, Environmental Protection Authority, Gas Authority, Ministry of Health, Work Cover or Fire and Rescue.
Refer to [Section 2 Emergency Contacts](#) for numbers*

5. CYCLONE PREPAREDNESS AND ACTION PLAN

The top end of Australia is naturally prone to tropical cyclone events with some six to ten cyclones affecting the entire region between November and April each year. Cyclones usually affect coastal areas up to 50km inland from the sea.

A tropical cyclone is a low pressure system that forms over warm tropical waters and has wind gusts of more than 90 km/h around its centre. When the wind gusts reach 165 km/h, it is called a severe cyclone. Wind can exceed 280km/h causing damage and turning loose items into potentially deadly missiles.

LMS Energy has a duty to ensure the safety of its workers and integrity of its plant and machinery in the event of a tropical cyclone.

The severity of a tropical cyclone is described in terms of Categories ranging from 1 (weakest) to 5 (strongest) related to the maximum wind gusts as shown in this table.

CATEGORY	STRONGEST WIND GUST (KM/H)	TYPICAL WIND EFFECTS (indicative only)
	Less than 125 (Damaging winds)	Negligible damage to homes. Limited damage to some caravans, crops and trees. Boats may drag moorings.
	125 - 164 (Destructive winds)	Minor damage to homes. Significant damage to caravans, signs and trees. Heavy damage to some crops. Risk of power failure. Small boats may break moorings.
	165 - 224 (Very destructive winds)	Some roof and structural damage. Some caravans destroyed. Power failure likely.
	225 - 279 (Very destructive winds)	Significant roof and structural damage to homes. Many caravans destroyed and blown away. Dangerous airborne loose items. Widespread power failures.
	More than 280 (Very destructive winds)	Extremely dangerous with widespread destruction. A lot of damage to homes and structures.

Data provided by the Bureau of Meteorology (BoM).

1. When either a cyclone watch or cyclone warning has been issued by the Bureau of Meteorology (BoM), you need to start preparing:
 - keep up to date with the development of the cyclone through radio, television or internet;
 - ensure there are adequate tie down materials or anchor points for loose items;
 - secure or remove loose material and rubbish from around the REF;
 - ensure any temporary bunds are tied down and made safe, as practicably as possible
 - keep Generator(s) running; and
 - follow the advice from the relevant authorities.
2. All workers who have entered the landfill via the weighbridge are required to stay onsite until the 'take shelter' warning has been given.
3. When the 'take shelter' warning is given, all workers are required to seek safe shelter.
4. When an official ALL CLEAR notice has been issued, care must be taken to avoid dangers caused by damage. For example:
 - power lines could be down;
 - material, machinery or plant may be strewn across the site;
 - fallen trees may be across roadways;
 - broken water and sewerage lines;
 - loose roof sheeting; and
 - other materials.

Do not return to the site until Townsville City Council and the appropriate authorities have given advice that it is safe to do so.

6. HAZARDOUS MATERIALS

All LMS sites containing Dangerous and Hazardous Materials have a register and applicable Safety Data Sheets. This is easily accessible onsite and electronically stored.

This manifest identifies:

- Product Name
- Manufacturer
- Classification
- Emergency Contact Number
- Maximum Quantity Stored
- Date SDS Issued
- Health Surveillance
- Risk Assessment Date
- Risk Ranking and Reviewed Date

Each manifest will be reviewed, updated re-distributed accordingly.

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7. POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN (PIRMP)

7.1 DESCRIPTION AND LIKELIHOOD OF HAZARDS

This REF utilises the waste gas derived from natural landfill decay processes which forms a methane rich gas (Landfill Biogas). Landfill biogas is extracted directly from the landfilled waste under vacuum which delivers this gas directly to the point of combustion for energy generation. As such no fuel is stored within the licenced facility, nor is it transported through the facility at pressure exceeding atmospheric pressure. Therefore, there is little or no likelihood of pollution to the environment from the uncontrolled release of landfill biogas or its constituent chemicals at levels exceeding that of the immediate surrounding environment in which the plant is situated (ie. the landfill).

Based on the volumes of potentially polluting substances stored or used on a REF and LMS experience the most significant risk of a pollution incident has been identified as:

- Release of engine lubricant (oil) from on-site storage equipment or by mechanical failure from within the generator or transfer equipment

The likelihood of significant release of other chemicals stored and used on site to cause a pollution incident are considered to be low due to:

- Relatively low quantities held (no chemicals exceed the requirements of to be considered reportable Hazardous Substance Regulation) (refer Inventory of Pollutants)
- Relatively benign nature of chemicals stored (exception of lubricant oil being the most significant by volume) (refer Inventory of Pollutants)
- REF site engineering features, including hard stand, storm water drainage, bunded areas and chemical storage facilities
- In the event of spills appropriate spill kits are located on REF site
- The surrounding site is a landfill

7.2 PRE-EMPTIVE ACTIONS TO BE TAKEN

- LMS has developed and maintains a system of training and standard operating procedures (SOP) for tasks relevant to this pollution control and management
- Spill containment kits are held on site at the location and used when required
- All potential hazardous chemical is stored appropriately in bunded areas
- Empty drums stored on hard stand
- Lubricant (oil) transfer undertaken under strict supervision
- REF operations continuously monitored including critical elements such as oil pressure with automated alarms, notifications and shut down procedures.
- Regular inspections and maintenance of oil storage equipment
- Site Flares are designed to be enabled to be powered by an alternate power source such as hire generator to ensure the ability to maintain landfill biogas extraction in the case of a major high voltage power outage.

- Refer [Appendix C](#) – 40041-GA-003

7.3 SAFETY EQUIPMENT

- SDS are available on-site in the control building and on LMS Energy’s database for chemicals stored on site
- Personal gas monitors for LEL, CH₄, H₂S, CO₂ and O₂ are located in the control building
- Safety showers are located on site
- Fire Extinguishers are located on site
- Refer [Appendix C](#) – 40041-GA-003

7.4 NOTIFICATIONS

Notification is required if a pollution incident causes or threatens to cause ‘material harm to the environment’.

Material harm is defined in section 147 of the POEO Act as:

(a) harm to the environment is material if:

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment

Notification is required even where ‘harm to the environment is caused only in the premises where the pollution incident occurs’.

- Contacting EPA ([Major Environmental Incident](#))
- Notifying the Operations State Manager and Operations Group Manager

As such any significant release of polluting substances, such as an oil spill that cannot be immediately contained to a sealed hard stand area and that has the potential to result in a clean-up cost exceeding the prescribed amount should be reported immediately (without delay) to:

- the EPA

and where relevant to:

- The Ministry of Health (via the appropriate Local Health District Public Health Unit)
- Fire and Rescue
- WorkCover Authority
- The relevant local council

7.5 COMMUNICATING WITH NEIGHBOURS AND THE LOCAL COMMUNITY

- Pollution events are to be reported to the Landfill Manager

7.6 MINIMISING HARM TO PERSONS ON THE PREMISES

- Refer [EMERGENCY RESPONSE ACTION STEPS](#) following cover page
- Refer [Section 3 – RESPONSE PROCEDURES](#)

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8. ADMINISTRATION AND TRAINING

8.1 STAFF INDUCTION

All personnel will be inducted to site emergency response procedures prior to commencing work on site.

The induction process will include a familiarisation with all relevant documentation and responsibilities as part of the combined LMS Energy ERP/ PIRMP and the relevant roles of personnel.

8.2 TRAINING

Key staff training requirements include:

- First Aid Certificate
- Emergency Response Procedures (including this document)
- Handling and Storage of Chemicals and Fuels Procedures
- Fire Fighting

LMS Energy records all training through a central Register, Training Matrix and a Training Needs Analysis Register which is available on LMS Energy's database and monitored by the Human Resources and Safety Groups to ensure ongoing compliance.

8.3 EMERGENCY TRAINING EXERCISES

New employee and Annual Emergency Exercise will be undertaken by all employees outlining:

- Where the emergency route is and the importance of its need to be accessible and clear
- Where firefighting and safety equipment is stored and the importance of its operation
- Ensure staff awareness of emergency response procedures, where located and the location of Emergency Assembly Points
- Conduct a debrief session after induction of a new employee and each exercise to discuss its success and deficiencies or improvements required
- Document results under Employee training and refer any recommendations to Human Resources & Policy Manager and/or Safety Group

8.4 PREVENTATIVE HAZARD IDENTIFICATION

Other procedures in place to assist in the prevention of Emergency situations are:

- Job Safety & Environment Analysis (JSEAs) and Safe Work Method Statements
- Incident/Hazard Alert Register
- Fire Control Procedure
- Monthly Site Inspection
- Monthly Operators Meeting - Operations Group only
- Pre-Starts Meetings – as required

- Toolbox Meetings – as required
- Safety Meetings
- Risk Assessment Calculator

8.5 INCIDENT REVIEW /STATUTORY INVESTIGATION

In the event of an incident:

- All written documentation will be kept and electronically saved
- A review of the event and break down on the cause and effect will be completed
- Action plan to correct cause and restore damaged property
- Review of the procedure and its effectiveness
- Tested and revised procedure signed off
- Training and updated documentation will be distributed to employees and appropriate agencies
- Final written report of the incident and outcomes will be available upon request to assist with any external agencies investigation
- Annual review of procedures and update training

8.6 DOCUMENTED FIRE CONTROL PROCEDURES

These procedures include:

- **Contractor / Visitors Site Induction Checklist - FM50** will be completed, which refers to No Smoking, matches or lighters within the facility. No batteries or electronic devices unless authorised
- Completion of **Personnel Attendance Register** on arrival and record keeping of departure
- Permits obtained from relevant agency before any burning is to take place
- Where necessary, fire breaks or cleared areas are maintained around all gas extraction well head stations, power generation, flare equipment, storage areas and operations to reduce the risk of fires
- In the event of an imminent bushfire threat, LMS to remotely disable and isolate the REF facility. Any LMS employees on site are required to evacuate immediately if site is in direct firing line of a bushfire
- LMS employees to monitor local radio stations (ABC) and local fire authority website for bushfire location updates
- LMS employees will not attend site until the bushfire threat has been removed

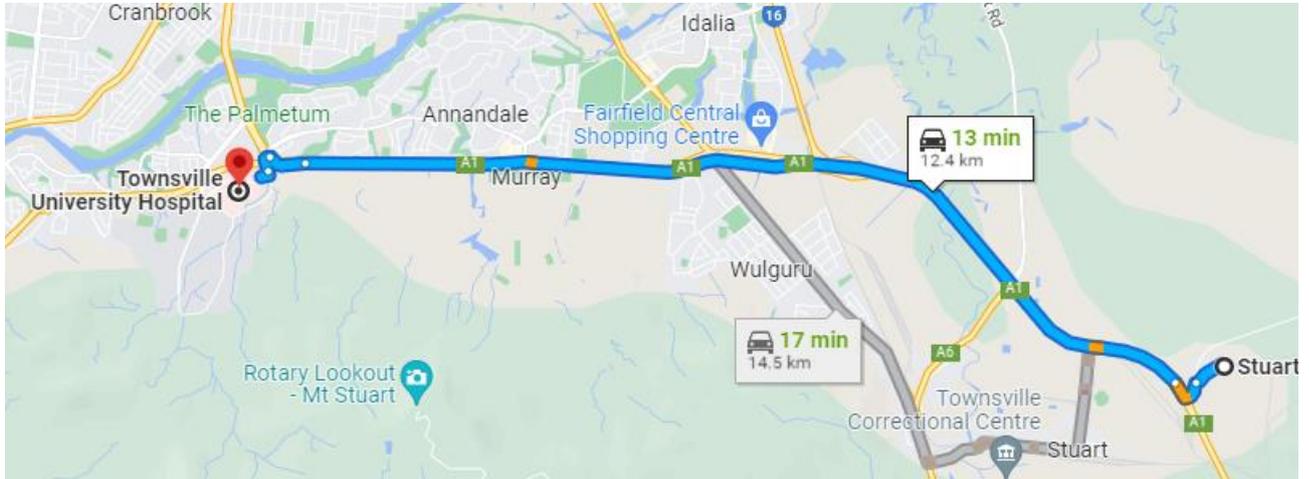
8.7 COMMUNICATING WITH THE COMMUNITY AND MEDIA

All media and public relations enquiries relating to LMS Energy, its projects and employees should be referred directly to: Manager – Communications and Media - Phone: **(08) 8291 9000**.

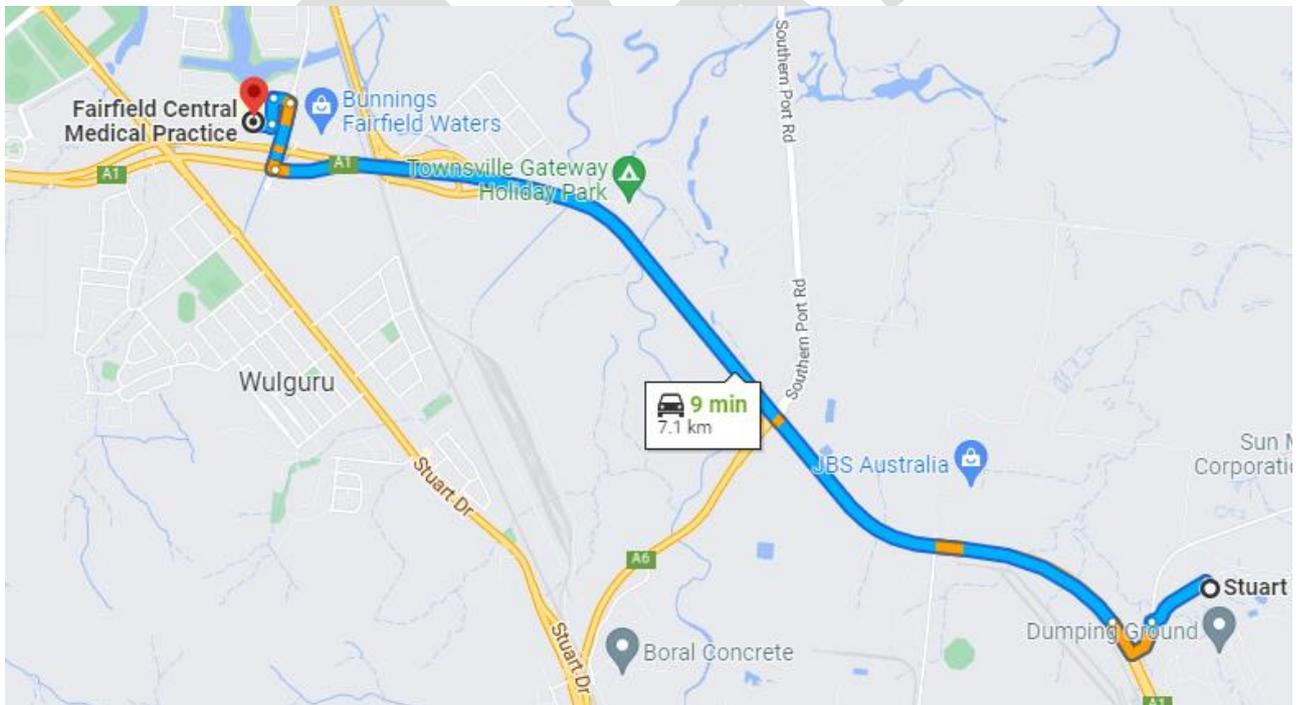
- Employees of LMS Energy are not authorised to discuss details relating to day-to-day operations or any incidents/accidents with any media or related agency, and should refer enquiries to the contact provided above

9. HOSPITAL AND MEDICAL CENTRE LOCATIONS

Townsville University Hospital
100 Angus Smith Drive
DOUGLAS QLD 4814
07 4433 1111



Fairfield Central Medical Practice
2/30 Lakeside Drive
IDALIA QLD 4811
(07 4447 1710)



10. SITE LOCATION MAPS, AERIAL PHOTOS AND SAFETY EQUIPMENT

10.1 EMERGENCY ACCESS ROUTE LOCALITY PLAN

- Refer [Appendix C](#) – 40041-GA-002

10.2 FIRE FIGHTING AND SAFETY EQUIPMENT LAYOUT PLAN

- Refer [Appendix C](#) – 40041-GA-003

10.3 EMERGENCY EQUIPMENT ON SITE

- Portable Fire Extinguishers (Dry powder handheld, CO₂ handheld)
- Flame and Smoke Detectors
- First Aid Kit
- Safety Shower with Eye Wash
- SDS Sheets
- Methane Gas Concentration Monitoring
- Spill Kit
- Refer [Appendix C](#) – 40041-GA-003

10.4 AERIAL PHOTOS

Stuart Landfill BioEnergy Facility



11. REFERENCES*Internal*

Doc No.	Document Name:
C000	Master Document List
FM3	Workplace Incident Reporting Form (WIRF)
FM73	Workplace Incident Investigation Form (WIIF)
FM50	Contractor / Visitor Site Induction Checklist
SkyTrust	SkyTrust Incident Reporting Platform

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APPENDIX B - WORKPLACE INCIDENT INVESTIGATION FORM - FM73



The LMS ENERGY Intranet version of this document is the controlled master document. Unless specifically noted thereon, printed or hard / soft copies of this document are uncontrolled.

Date:	18/02/21
Rev:	4
Approved By:	DPM
Group:	SAFETY

Workplace Incident Investigation Form (WIIF) – FM73

PART A – COMPLETE FOR ALL INJURY / ILLNESS INCIDENTS, or select NO if not applicable

PART B – COMPLETE FOR ALL ENVIRONMENTAL INCIDENTS, or select NO if not applicable

PART C & D – COMPLETE FOR ALL PROPERTY DAMAGE / LOSS OR SECURITY BREACH INCIDENTS, or select NO if not applicable

ALL INCIDENTS MUST BE SIGNED OFF AND CLOSED OUT IN PART E

INVESTIGATION DETAILS	INCIDENT DETAILS			
	Date:		Time:	AM/ PM Site:
	Investigation Details			
	Date(s):			
	Name of person(s) involved in investigation:			

PART A - INVOLVED PERSON(S) INJURY / ILLNESS DETAILS	PART A - INJURY/OCCUPATIONAL ILLNESS DETAILS			
	Was a person(s) injured or ill due to incident? <input type="checkbox"/> YES if YES, complete Part A <input type="checkbox"/> NO if NO, go to Part B			
	Did the incident result in an occupational illness to the person(s) involved?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
	Did the incident result in a personal injury to the person(s) involved?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
	Person(s) Involved			
	Given / First Name:		Surname / Last Name:	
	Company:		Contact number:	
	Occupation / Job Title:		Occupation Type:	
	Date of Birth:		Gender:	<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE
	Time commenced work:	(e.g. 0800)	Time last shift ceased:	(e.g. 1730)
	Supervisor Name:		Contact Number:	
	Witness:			
	Name:		Contact Number:	
	Company:		Position Title:	
	Activity being performed:			
Employee Work History:				
Experience in present occupation	<input type="checkbox"/> <1 mth	<input type="checkbox"/> 1-6 mths	<input type="checkbox"/> 6-12 mths <input type="checkbox"/> 1-2 yrs <input type="checkbox"/> 2-5 yrs <input type="checkbox"/> >5 yrs	
Time worked in present position	<input type="checkbox"/> <1 mth	<input type="checkbox"/> 1-6 mths	<input type="checkbox"/> 6-12 mths <input type="checkbox"/> 1-2 yrs <input type="checkbox"/> 2-5 yrs <input type="checkbox"/> >5 yrs	
Brief description of Injury/Occupational Illness:				
What first aid/medical treatment/medication and dosage was given – DETAIL DATE, TIME AND WHO TREATED THIS PERSON				
Name of First Aider		Signature:		
Name of Medical Doctor (if applicable)		Signature:		

PART B - ENVIRONMENTAL IMPACT DETAILS	PART B - ENVIRONMENTAL INCIDENT DETAILS	
	Did an Environmental Impact occur? <input type="checkbox"/> YES if YES, complete Part B <input type="checkbox"/> NO if NO, go to Part C	
	Type :	<input type="checkbox"/> Spill (contained/inside containment) <input type="checkbox"/> Spill to Water <input type="checkbox"/> Spill to Land
		<input type="checkbox"/> Discharge Outside Limits <input type="checkbox"/> Emission to Air <input type="checkbox"/> Waste Event
		<input type="checkbox"/> Complaint <input type="checkbox"/> Other: _____ (please detail)
	Brief description of actual environmental damage:	
	Details of damage caused:	
Substance was spilt/released:		
Name of substance spilt/released on MSDS:		
Type of substance spilt/released:	<input type="checkbox"/> Liquid <input type="checkbox"/> Solid <input type="checkbox"/> Gas	
Total Estimated Quantity/Units Spilt/Released:		
Quantity/Units Contained:		
Quantity/Units Recovered:		
Compliance Category:		
<input type="checkbox"/> Non - Compliance <input type="checkbox"/> Potential Non-Compliance <input type="checkbox"/> Breach of internal Standard <input type="checkbox"/> N/A		

PART C - EQUIPMENT/ASSET DAMAGE OR LOSS	PART C - EQUIPMENT/ASSET ASSESSMENT	
	Was Equipment / Assets Damaged? <input type="checkbox"/> YES if YES, complete Part C <input type="checkbox"/> NO if NO, go to Part D	
	Actual Value (\$) of Asset damage/loss (tick one only)	
	NO INVESTIGATION REQUIRED	
	INVESTIGATION REQUIRED AND SAFETY ALERT TO BE ISSUED	
	MINIMAL	MINOR
	SIGNIFICANT	MAJOR
	CATASTROPHIC	
	< A\$10k <input type="checkbox"/>	A\$10K – A\$50K <input type="checkbox"/>
	A\$50K – A\$150K <input type="checkbox"/>	A\$150K – A\$1M <input type="checkbox"/>
>A\$1M <input type="checkbox"/>		
Detail what was damaged or lost:		
Brief Description of Asset / Equipment Damage:		

PART D - SECURITY	PART D - SECURITY	
	Was there a Security Breach <input type="checkbox"/> YES if YES, complete Part D & then complete Part E <input type="checkbox"/> NO if NO, go to Part E	
	<input type="checkbox"/> Lost / Stolen	<input type="checkbox"/> Unauthorised Access
	<input type="checkbox"/> Acts of Terror	<input type="checkbox"/> Unidentified
	Brief Description of Situation/Threat:	

PART E - CAUSATIONS, LESSONS LEARNT AND CLOSE OUT	PART E - LESSONS LEARNT & CLOSE OUT				
	ROOT CAUSES				
	Identify All The Basic Root Causes Relating To All Incidents, Provide A Brief Explanatory Comment.				
	CONTRIBUTING FACTORS				
	CORRECTIVE ACTIONS				
	To be completed by the Supervisor / Manager and the Investigation Team in consultation with the Responsible person(s) to obtain agreement that the action/s being assigned are appropriate, and realistic completion dates are agreed upon and set.				
	All actions must be S-M-A-R-T – Specific, Measurable, Agreed, Root Cause and Time-based.				
	Action(s)	Responsible Person	Priority (L/M/H)	Targeted Completion Date	Agreement (Init.)
KEY LEARNING POINTS					
Identify one or more Key Learning's that have been identified as part of the Event Investigation / Review.					
SIGN OFF & CLOSE OUT					
Site Supervisor:		Date:			
Manager:		Date:			
Health & Safety Group Manager:		Date:			

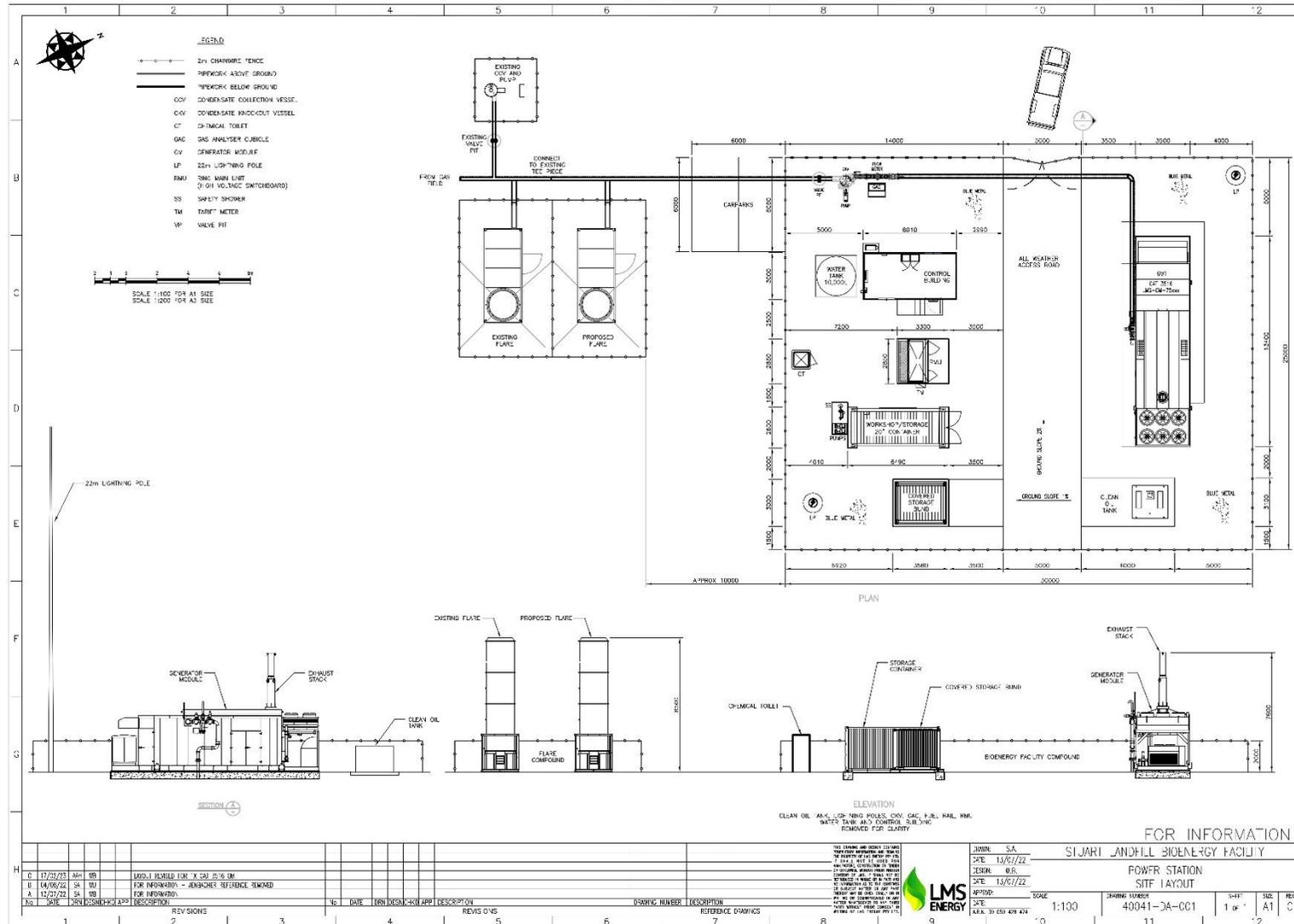
ONCE COMPLETED, FORWARD TO THE HEALTH & SAFETY GROUP MANAGER (safety@lms.com.au) **WITHIN 5 DAYS OF THE EVENT OCCURRING**

Reference Document(s):

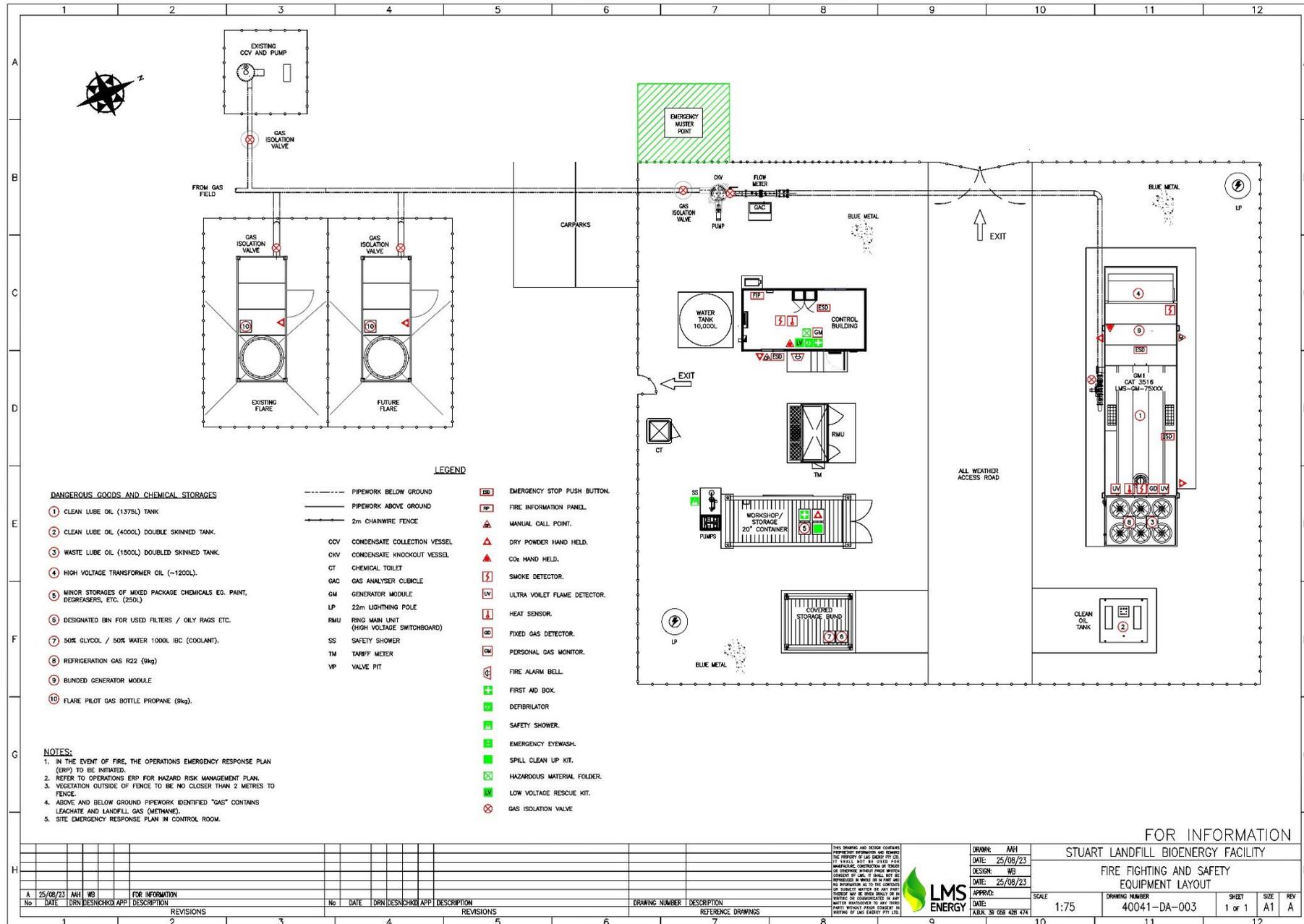
Internal:

Doc No.	Reference Title
C000	Master Document List
PL8	OHS Policy
PR35	Workplace Incident Reporting Investigation
FM3	Workplace Incident Reporting Form (WIRF)
SO1802	Gas System - Design and Installation QA Plan

APPENDIX C - SITE LOCATION PLANS AND EMERGENCY ASSEMBLY POINTS







Townsville City Council Emergency Assembly Point Details



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SAFETY MANAGEMENT PLAN (SMP) DRAFT – FOR DEVELOPMENT APPROVAL

STUART LANDFILL

BIOENERGY FACILITY

Date:	18/09/2023
Site:	Stuart Landfill
Reference:	40041-RG-031-Rev A
Revision:	A

LMS ENERGY Pty Ltd

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3	Policy Name Change	17/07/19	S. Cheesman	D. Manning	M. Maple
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5	Added BF Mitigation & Solar Detail Removed IMS Reference	11/11/20	D. Manning	D. Manning	D. Williams
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7	Content Revision	29/03/22	S. Cheesman	D. Manning	L. Mander
8	Darren Matthews appointed as the Executive Safety Manager & BF Mitigation Section Update	16/02/23	S. Cheesman	D. Manning	L. Mander

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Abbreviations, Acronyms & Definitions	
AEMO	Australian Energy Market Operator
AGA	The Australian Gas Association
ALARP	As Low As Reasonably Practicable
AS	Australian Standard
BCA	Building Code of Australia
DP	Deposited Plan
EPA	Environment Protection Authority
HAZOP	Hazard and Operability Study
HV	High Voltage
JSEA	Job Safety & Environmental Analysis
Km	Kilometres
kV	Kilovolts (1 x 10 ³ V)
LMS	LMS Energy Pty Ltd (ABN 39 059 428 474)
M	Metres
SDS	Safety Datasheet
MW	Megawatts (1 x 10 ⁶ W)
PPE	Personnel Protective Equipment
QLD	Queensland
RA	Risk Assessment
SMP	Safety Management Plan
TCC	Townsville City Council
WMC	Waste Management Centre
WHS	Workplace Health & Safety

Abbreviations, Acronyms & Definitions	
<p>Serious bodily injury</p>	<p>means an injury to a person that causes:</p> <ul style="list-style-type: none"> • the injured person's death; or • the loss of a distinct part or an organ of the injured person's body; or • the injured person to be absent from the person's voluntary or paid employment for more than four working days.
<p>Work caused illness</p>	<p>means:</p> <ul style="list-style-type: none"> • an illness contracted by a person to which a workplace, a relevant workplace area, a work activity, or plant or substance for use at a relevant place was a significant contributing factor; or • the recurrence, aggravation, acceleration, exacerbation or deterioration in a person of an existing illness if a workplace, a relevant workplace area, a work activity, or plant or substance for use at a relevant place was a significant contributing factor to the recurrence, aggravation, acceleration, exacerbation or deterioration.
<p>Dangerous event</p>	<p>means an event caused by specified high risk plant or an event at a workplace or relevant workplace area, if the event involves or could have involved exposure of persons to risk to their health and safety because of:</p> <ul style="list-style-type: none"> • collapse, overturning, failure or malfunction of, or damage to, an item of specified high risk plant; or • collapse, or failure of an excavation or of any shoring supporting an excavation; or • collapse, or partial collapse of any structure; or • damage to any load bearing member of, or the failure of any brake, steering device or other control device of, a crane, hoist, conveyor, lift or escalator; or • implosion, explosion or fire; or • escape, spillage or leakage of any hazardous material or dangerous goods; or • fall or release from a height of any plant, substance or object; or • damage to a boiler, pressure vessel or refrigeration plant; or • uncontrolled explosion, fire or escape of gas or steam.

1. INTRODUCTION

1.1 PURPOSE

This Safety Management Plan (SMP) provides the framework to be implemented and procedures to be followed to ensure the safe operation of the Stuart Landfill BioEnergy Facility. This document has been prepared to ensure compliance with relevant state Electrical, Gas and Workplace Health and Safety (WHS) legislation, project contracts and project approvals (but not necessarily limited to):

- Workplace Health & Safety Act 2011
- Development Approvals – To be advised
- Electrical Safety Act 2002 and Electrical Safety Regulation 2002
- Dangerous Goods Safety Management Act 2001 and Dangerous Goods Safety Management Regulations 2001
- Petroleum and Gas (Production and Safety) Act 2004 and Petroleum and Gas (Production and Safety) Regulation 2004

1.2 SCOPE

This SMP covers operation and maintenance of the Stuart Landfill BioEnergy Facility as shown in the Site Layouts provided in Appendix A. The Facility consists of:

Renewable Energy Facility

- Condensate Knockout Vessel (CKV)
- Fuel Rail
- Generator Modules (1)
- Low Voltage Mains Cable
- Storage Shed and Storage Area
- High Voltage Ring Main Unit
- Biogas Extraction System

1.3 STRUCTURE

The Safety Management Plan (SMP) is structured as follows:

- Section 1: Introduction
- Section 2: Facility Description
- Section 3: Operations and Maintenance Philosophy
- Section 4: Safety Management Plan
- Section 5: Safe Operating Plan
- Section 6 – Compliance with QLD Petroleum and Gas

1.4 CONTACTS / RESPONSIBLE PERSONS

Contact	Responsibility	Company	Contact Details
Executive Safety Manager	<p>Must ensure that the operator of the landfill biogas plant has, for each stage of the plant (such as commissioning and operation), an SMP made under section 674(1)(a) after consultation with the workers at the plant.</p> <p>Approve the SMP before it is put into effect.</p> <p>Ensure that the SMP is implemented in a way that effectively manages the risks associated with the plant.</p>	LMS Energy Pty Ltd	<p>Postal Address: 79 King William Road, UNLEY SA 5061</p> <p>Contact Name: Darren Matthews Contact Number: (08) 8291 9000 Email Address: Darren.matthews@lms.com.au</p>
Duty Operator	<p>Day to day operation and maintenance of the Stuart Landfill BioEnergy Facility.</p> <p>All incidents / hazards to be recorded and reported to the Operations Supervisor / Coordinator.</p>	LMS Energy Pty Ltd	<p>Site Address: 24 Vantassel Street, STUART QLD 4811</p> <p>Postal Address: 25 Blue Rock Drive, YATALA QLD 4207</p> <p>LMS Energy Control Centre: 08 8291 9090</p>
Supervisor / Coordinator – Operations / Site Safety Manager	<p>Ensure day to day operations comply with the requirements of this SMP.</p> <p>Authorised LMS Permit Issuing Officer Responsible for coordinating and implementing emergency response in the event of an emergency at the REF which does not have the potential to affect the Stuart Landfill.</p>	LMS Energy Pty Ltd	<p>Postal Address: 25 Blue Rock Drive, YATALA QLD 4207</p> <p>First Contact Name: Michael Parker Mobile Number: 0488 763 030 Email Address: Michael.parker@lms.com.au</p> <p>Secondary Contact Name: Joe Falzon Mobile Number: 0419855362 Email Address: joe.falzon@lms.com.au</p>

Contact	Responsibility	Company	Contact Details
	<p>Report all hazards and incidents to the Operations Manager and Safety Group ensure investigation and corrective actions undertaken.</p> <p>Ensure each person who enters the site is given an appropriate induction.</p> <p>Ensure each person at the site complies with standard operating procedures, the emergency response procedure and other measures necessary for the safety of the site and the person.</p> <p>Ensure each person at the site performs their functions safely and follows standard operating procedures for the plant.</p> <p>Ensure necessary first aid, safety and other equipment is available and maintained.</p> <p>Ensure relevant staff are trained in first aid and general safety procedures.</p>		
Manager - Operations	<p>Must not begin a stage of the plant unless the operator has made the SMP for that stage.</p> <p>Report any hazards or incidents to the Safety Group who will then report to the Regulatory Authority as appropriate.</p> <p>Notify the Network Controller of any reportable incidents.</p>	LMS Energy Pty Ltd	<p>Postal Address: 25 Blue Rock Drive, YATALA QLD 4207</p> <p>Contact Name: Wayne Curtis</p> <p>Mobile Number: 0448 674 868 Email Address: wayne.curtis@lms.com.au</p>

Contact	Responsibility	Company	Contact Details
Stuart Landfill Waste Management Centre - Administration	Responsible for coordinating and implementing emergency response in the event of an emergency at the Stuart Landfill BioEnergy Facility affecting the Waste Management Centre's operations.	Townsville City Council	<p>Site and Postal Address: 24 Vantassel Street, STUART QLD 4811</p> <p>Weighbridge: 07 4727 9807</p> <p>Council Contact: Don Allison (Site Safety Manager) Phone Number: 0409 722 598</p> <p>Council Contact: Matthew McCarthy (Manager Waste Services) Phone Number: 0407 738 422</p>
Network Controller	First contact point for approving the commencement of electricity export / isolation to and from the Distribution Network (planned and unplanned outages), prior to commencement of operations and during an emergency.	Energex	Phone Number: 13 12 53
Network Manager Access	<p>Second contact point for approving the commencement of electricity export / isolation to and from the Distribution Network (planned and unplanned outages), prior to commencement of operations and during an emergency.</p> <p>Arranges for coordination and switching instructions to be prepared and switching scheduled during planned and, routine maintenance of high voltage equipment.</p>	Energex	Phone Number: 13 12 53
HV Distribution Line Operator	Maintenance and operation of the HV Distribution Line and HV Switching required for the Stuart BioEnergy Facility in accordance with this document, the HV Operational and Maintenance Plan and Protocol.	Nielsen (Qld) Pty Ltd	<p>Office Phone Number: 07 3909 7900</p> <p>Email Address: nilsenQLD@nilsen.com.au</p>

Contact	Responsibility	Company	Contact Details
	LMS Authorised Access Permit Issuing Officer (including HV works). Refer to Appendix H.		
Qualified HV Contractor	Maintenance and operation of the HV Equipment and HV Switching required for the Stuart BioEnergy Facility in accordance with this document. LMS Authorised Access Permit Issuing Officer (including HV works). Refer to Appendix H.	Nielsen (Qld) Pty Ltd	Office Phone Number: 07 3909 7900 Email Address: nilsenQLD@nilsen.com.au

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2. FACILITY DESCRIPTION

2.1 STUART BIOENERGY FACILITY

The Stuart Landfill BioEnergy Facility is owned and operated by LMS Energy Pty Ltd (LMS). The Facility has an installed generation capacity of 1.1MW and comprises of the following plant and equipment:

Renewable Energy Facility

- Condensate Knockout Vessel (CKV)
- Fuel Rail
- Generator Modules (1)
- Low Voltage Mains Cable
- Storage Shed and Storage Area
- High Voltage Ring Main Unit
- Biogas Extraction System

The generator module consists of a spark ignition gas engine, which drives an AC generator (3 phase 415 volt). The engine and generator are housed in a vented, soundproof enclosure, which gives protection and portability. The voltage is stepped up to the local grid voltage via an oil filled transformer located within the Renewable Energy Facility boundary. Electricity is exported to the Ergon Network System with the protection equipment located within the station control panel.

The Stuart Landfill BioEnergy Facility control system monitors all critical parameters constantly via the Facility PLC. This is tied into an alarm and pager system, and allows remote monitoring of the Stuart Landfill BioEnergy Facility.

Prior to exporting power from the Stuart Landfill BioEnergy Facility, into the Ergon Network, the Stuart Landfill BioEnergy Facility Duty Operator may be required to contact the Network Controller in accordance with the Operational and Maintenance Protocol (O&M Protocol).

Refer to Appendix A for a copy of the site locality and layout plans.

2.2 TRANSFORMER AND HIGH VOLTAGE DISTRIBUTION (ONLY ON HV SITES)

The LMS Renewable Energy Facility connects into the 11000V High Voltage distribution network at the point of connection. On site the facility generates low voltage which is stepped up through a 415 / 11000 volt kiosk transformer into an RMU/HV switchgear, then exported from site at high voltage to the point of connection at the termination pole located outside of the LMS facility. The kiosk transformer, HV switchgear and HV cable up to point of connection are owned and operated by LMS Energy. For any HV electrical work LMS engage an authorised HV contractor to undertake the works. It is a condition of the contractor to provide their own SMP before commencing work at LMS.

2.3 INTEGRATED SMP (STUART LANDFILL WASTE MANAGEMENT CENTRE)

Any work to be undertaken within the boundary of the Stuart Landfill Waste Management Centre (excluding the Stuart Landfill BioEnergy Facility) by LMS employees/contractors will be undertaken in accordance with Townsville City Council Integrated Management Systems, incorporating Environmental & WHS Management Systems, Policies and Procedures.

- A. All LMS workers who work within the Enter Site Name Waste Management Facility (EWMC) are to be inducted to the Enter Site Name Waste Management Centre Safety Management Plan (SMP).
- B. All LMS staff entering the Enter Site Name Waste Management Centre will do so via the weighbridge (in accordance with Enter Site Name Waste Management Centre procedures).
- C. Emergency evacuation procedures should be coordinated (in the event of a full evacuation).

2.4 TECHNICAL STANDARDS

The design, manufacture, installation, commissioning, operation and maintenance of the Stuart Landfill BioEnergy Facility has been (and will continue to be) undertaken in accordance with Industry Best Practice and applicable Australian Standards. Refer to Table 1 below for a summary of the applicable Technical Standards.

Table 1: Applicable Technical Standards and Codes

Reference	Title
AS 1076	Code of practice for selection, installation, maintenance of electrical apparatus and associated equipment for use in explosive atmospheres
AS 1170	Minimum design loads on structures
AS 1210	Unfired pressure vessels
AS 1243	Voltage transformers for measurement and protection
AS 1289	Methods of testing soils for engineering purposes
AS 1359	Rotating electric machines
AS 1375	Industrial fuel-fired appliances
AS 1429	Polymeric insulated cables for electricity supply at working voltages 1.9/3.3 kV up to 19/33 kV
AS 1482	Electrical equipment for explosive atmospheres — Protection by ventilation.
AS 1670	Fire alarm installations
AS 1767	Insulating oil for transformers and switchgear
AS 1824	Insulation co-ordination
AS 1931	High voltage testing techniques
AS 1939	Classification of degrees of protection provided by enclosures for electrical equipment
AS 1940	Storage and handling of flammable and combustible liquids
AS 2006	High voltage AC circuit breaker
AS 2067	Switchgear assemblies and auxiliary equipment for alternating voltages above 1 kV
AS 2374	Power transformers
AS 2380	Electrical equipment for explosive atmospheres — Explosion protection techniques
AS 2381	Electrical equipment for explosive atmospheres — Selection, installation, maintenance
AS 2419	Fire hydrant installations
AS 2467	Maintenance of electrical switchgear
AS 2629	Separable insulated connectors for power distribution systems above 1 kV

Reference	Title
AS 2700	Protective coatings
AS 2885	Pipelines — Gas and liquid petroleum
AS 3000	SAA Wiring rules
AS 3439	Low voltage switchgear and control gear assemblies
AS 3600	Concrete structures
AS 3814	Industrial and commercial gas-fired appliances
AS 4041	Pressure piping
AS 4100	Steel structures
AS 4645	Gas distribution networks - Steel pipe
AS 4804	Occupational Health and safety management systems
AS 60044	Instrument transformers – current transformers
AS 60079	Classification of Hazardous Areas - Explosive gas atmospheres
AS 60137	Bushings for alternating voltage above 1000 V
AS 61779	Electrical apparatus for the detection and measurement of flammable gases - General requirements and test methods
AS 62271	High-voltage switchgear and controlgear - Common specifications
AS IEC 61 882-2003	Hazard and operability studies - HAZOP studies - Application guide
AS 3814 / AGA 501	Code for Industrial and Commercial Gas Fired Appliances
AS 5601 / AG 601	Gas Installation Code
ISO 3046	Reciprocating Internal Combustion Engines
ISO 14520	Gaseous fire-extinguishing systems - Physical properties and system design - General requirements
ISSC3	Guide for the Management of Vegetation in the Vicinity of Electricity Assets
SAA/SNZ MP69	Explosion protected electrical equipment — Certification scheme policy
SAA HB13	Electrical equipment for hazardous areas
BCA	Building Code of Australia

LMS is a member of a number of relevant industry bodies and via annual subscription receive regular updates regarding technical reviews/upgrades relevant to the industry including ESAA and Standards Australia. General industry updates/revisions as received by the Company and Licensed workers will be implemented in any future revisions of the SMP.

3. OPERATIONS & MAINTENANCE PHILOSOPHY

LMS operates a corporate Workplace Health & Safety Management System (LMS WHS SMS), which is based on minimising the risk of causing harm to all people at its sites. The LMS WHS SMS focuses on:

- risk management;
- personal responsibility; and
- compliance to legislative requirements

The LMS WHS SMS is based on Australia Standard AS4804 Occupational Health and Safety Management Systems. The Policy is reviewed every year.

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3.1 WORKPLACE HEALTH & SAFETY POLICY

LMS Senior Management has committed the company to a Health and Safety Policy, which clearly reflects the Company’s vision and objectives for safety management. This Policy is provided on the LMS Intranet and is reiterated below.



WORK HEALTH & SAFETY POLICY SUMMARY

LMS ENERGY is committed to the promotion and maintenance of the highest degree of safety, and physical and psychological health, of all workers.

To deliver this commitment, the management and employees of LMS will work together to always ensure:

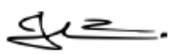
SAFETY, COMES BEFORE ALL OTHER CONSIDERATIONS, AND SHOULD NEVER BE COMPROMISED.

We will aim to ensure our business activities are conducted in such a way that the safety, and physical and psychological health of our works, the bystanders at our operations and the purchasers of our products/services are protected.

LMS is active in its approach to ensuring safe and healthy working conditions, the adaptation of activities to their workers and the placement of each worker according to their capabilities.

The Safety Management System (SMS) shapes part of the LMS core management system. Our company Policy is to promote the highest standards of safety and the elimination of injury, loss or damage by:

- Implementing processes and procedures;
- Providing training and supervision as necessary to all workers and making them aware of their responsibilities;
- Using teamwork and consultation processes for problem identification and performance improvement;
- Consulting with and encouraging the participation of workers and elected health and safety representatives regarding existing or proposed procedures, processes, plant or equipment that may affect their safety or physical and psychological health;
- Taking reasonable and practicable measures to comply with the relevant legal requirements, standards and codes of practice;
- Monitoring compliance with statutory, industry and corporate health and safety requirements;
- Establishing objectives and targets annually to review and evaluate actual performance;
- Determining root causes of non-conformance and continually improving safe work systems;
- Providing and managing the rehabilitation of injured/ill workers; and
- Providing the required resources to identify and eliminate, isolate or minimise workplace hazards.



John Falzon
Chairman
September 2023



Damien Manning
Group Manager - Health & Safety
September 2023

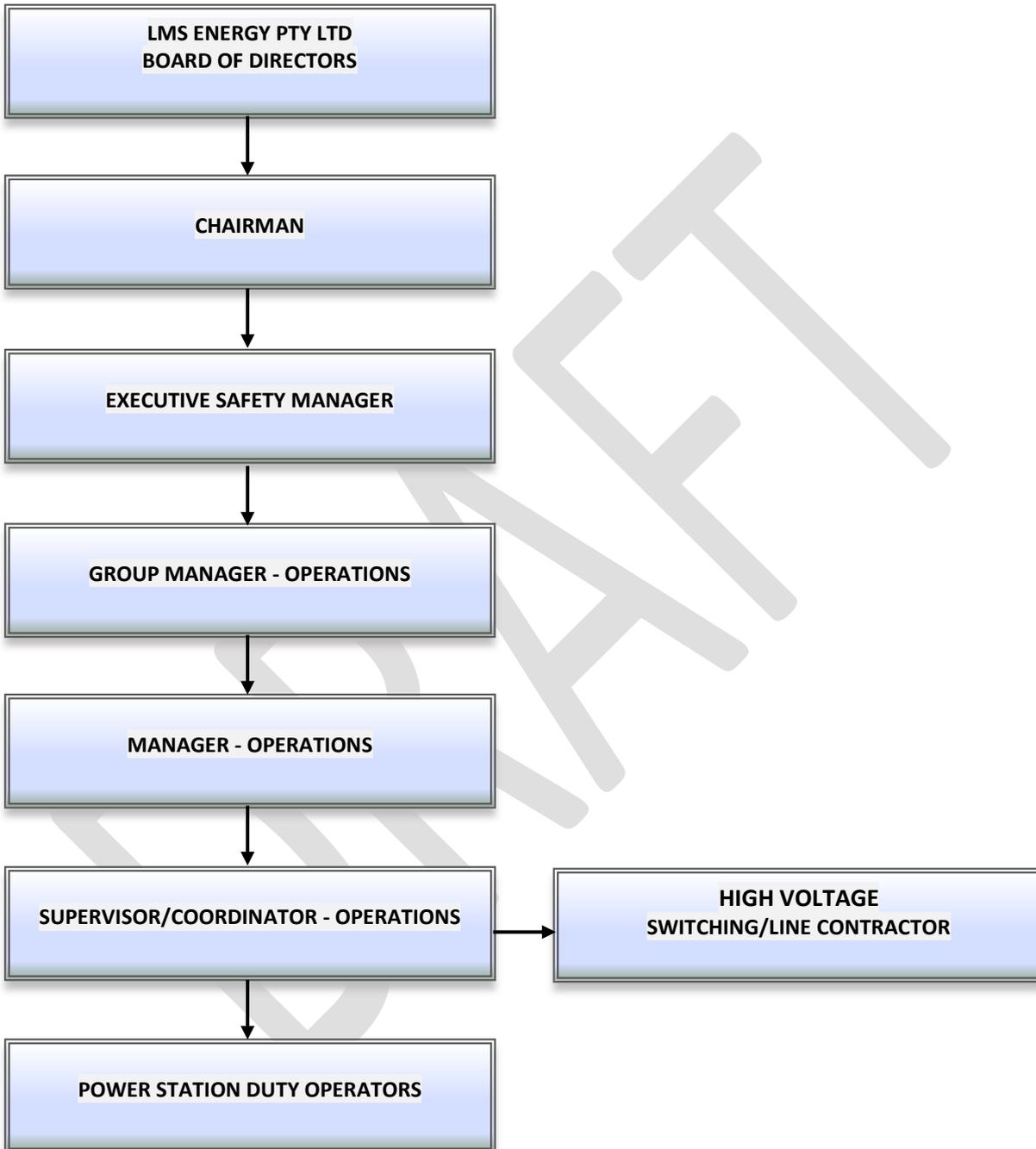
**SAFETY.
NEVER
COMPROMISE.**
A better workplace for everyone

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Work Health & Safety Policy Summary

Rev H

3.2 OPERATIONS ORGANISATION STRUCTURE



3.3 WORKPLACE HEALTH AND SAFETY ROLES AND RESPONSIBILITIES

3.3.1 General Requirements

Position	Description of Roles and Responsibilities
The Company	➤ LMS is responsible and accountable for the safe design, construction, commissioning and operation of the Stuart Landfill BioEnergy Facility described within this Safety Management Plan. The company is responsible for setting the vision and objectives for Workplace Health and safety.
Managers, Supervisors and Coordinators	➤ All Managers, Supervisors and Coordinators will ensure that the objectives of the Workplace Health & Safety Policy are implemented and integrated into day to day work practices.
All other employees (including all workers, operators, contractors, sub-contractors etc)	➤ All employees have a responsibility to take care of the health and safety for themselves and others and to comply with Workplace Health and safety legislation and LMS policies and procedures.

3.3.2 Specific Responsibilities

Chairman

The Chairman is responsible for the business aspects of LMS and reports directly to the Board. The Chairman has authority for and is accountable to ensure systems, processes associated with the operating plant are sufficient to ensure the health and safety of all workers at the workplace.

Executive Safety Manager

The Executive Safety Manager is responsible for ensuring an SMP is created and implemented in a way that effectively manages the risks associated with the plant.

Group Manager – Operations

The Group Manager - Operations is responsible for:

- setting and reviewing safety procedures for operational personnel;
- setting and reviewing key performance measures covering the implementation and compliance of this plan; and
- reviewing all accident investigations to ensure that root causes have been identified and are being addressed.

Manager - Operations

The Manager Operations is responsible for:

- coordinating and leading the LMS requirements of this SMP;
- ensuring all workers, contract and sub contract personnel at the Stuart Landfill Energy Facility are working in accordance with the LMS WHS policy and legislative requirements;
- reviewing all accidents and incidents; and
- reviewing in conjunction with Group Manager - Operations any changes or modifications to the SMP that may occur from time to time and providing the ongoing endorsement of this SMP.

Supervisor / Coordinator - Operations

The Supervisor / Coordinator - Operations is responsible for:

- ensuring all workers, contractors and visitors to the site are inducted;
- coordinating and leading site safety audits;
- ensuring compliance with permit conditions;
- providing site leadership to Contractor personnel on safety and environmental issues;

- reviewing Contractor risk assessments, methodologies and JSEA's;
- participating in, and sometimes leading Contractor site safety and toolbox meetings;
- ensuring Contractor personnel comply with LMS and Contractor's safe work procedures and wearing of PPE; and
- immediately suspending work which has the potential to be unsafe or cause harm to the environment.

Workers (LMS and Contractors)

Workers and contractors are responsible for:

- signing in/out at the Facility and reporting to their Supervisor / Coordinator on arriving or leaving the worksite;
- participating in site inductions;
- participating in tool box/safety meetings;
- ensuring they observe safe work practices by acting in a safe manner and avoiding unnecessary risks to themselves and others;
- observing all Company and Contractor health and safety instructions;
- using personal protective equipment whenever necessary and when instructed to do so;
- informing their Supervisor / Coordinator of ways to improve the health and safety aspects of the workplace;
- maintaining the workplace in a clean and tidy condition;
- asking the Supervisor / Coordinator about health and safety whenever starting any new job, and following safety instructions at all times, and
- watching out for possible safety and health risks (practices or circumstances that are likely to cause an accident), rectify the problem or report it to their Supervisor / Coordinator.

Contracting Companies

All contracting companies are responsible for achieving high standards of health and safety when working on behalf of LMS, including:

- complying with all regulatory, LMS and Townsville City Council site safety procedures;
- participating in site inductions;
- executing the tasks in a safe, competent manner in accordance with the Contractor's procedures and this SMP;
- complying with all relevant legislation, Australian standards and codes of practice;
- complying with Workplace Health, safety and welfare requirements as referred to in contracts, and otherwise required by legislation;
- providing and maintaining a healthy and safe work place, including safe systems of work and undertake job safety and environmental analyses for tasks that introduce risk;
- exercising due diligence in the review of this SMP and the operation procedures and ensure their ability to comply with the requirements of these documents;
- ensuring workers are adequately trained and supervised in operations and maintenance procedures as required;
- ensuring that all sub-contractors are thoroughly briefed in this SMP and comply with it;
- holding toolbox meetings and safety meetings as necessary; and
- providing and maintaining safe plant and equipment.

Health & Safety Representatives (HSR's)

The HSR is an elected position and has extra responsibility for the health and safety of the workers whom they represent. The HSR represents their fellow workers in the consultative process within the workplace.

3.4 HEALTH & SAFETY COMMUNICATION

Health and Safety coordination involves ensuring that there is an effective means of communicating policies and procedures, identifying hazards and resolving problems.

Health and Safety Meetings are held in conjunction with the site Monthly Operator Meeting. This meeting is minuted and copies kept on file for reference. Topics covered include, Operations, Health & Safety and Environment.

As the Stuart Landfill BioEnergy Facility is designed to operate with very minimal manning, it is not anticipated that regular toolbox meetings will be required. However, toolbox meetings may be held during periods of non-routine operations or major maintenance campaigns where multiple workers / contractors are required to be onsite for extended periods. Implementation of regular toolbox meetings in this instance are at the discretion of the Operations Manager/Operations Supervisor / Coordinator.

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4. SAFETY MANAGEMENT SYSTEM

LMS will operate and maintain the Stuart Landfill BioEnergy Facility in accordance with the Workplace Health and Safety Management System (WH&SMS) located on the Company's Intranet Site. The WH&SMS has been prepared to support and detail how the LMS Safety Management System (SMS) will be implemented during its day to day operation and maintenance of the Facility.

4.1 RISK MANAGEMENT

4.1.1 Process Overview

Risk management involves a systematic process of identifying, analysing, evaluating, implementing control measures, and reviewing the effectiveness of control measures intended to eliminate or reduce the risk associated with any system of work or use of an item of plant. This process can be distilled into five fundamental steps:

- Identify the Hazard
- Assess the Risk
- Identify Control Measures
- Implement Control Measures
- Monitor and Review

Please refer to LMS Safety & Environment Management System (SEMS) and LMS Energy Procedure Workplace Incident Reporting Investigation – PR35 for further details and explanation of each of the fundamental steps.

4.1.2 Risk Assessment

A Risk Assessment (RA) has been prepared for all operation and maintenance activities. Input into this risk assessment has been provided by Operations Management and Health & Safety Group Manager.

This risk assessment has been undertaken in accordance with LMS Safety Management System (SMS) and is attached in Appendix B. A copy of the Risk Assessment Matrix is provided in Appendix C.

The Risk Assessment will be reviewed upon record of a serious incident; or identification or introduction of new hazards/risks but at least annually thereafter.

Specific tasks may require a more detailed assessment of associated risks, and controls. In this regard, the LMS Risk Assessment Matrix (Appendix C) and Risk Assessment Form (JSEA) (Appendix D) will be utilised for formally identifying, measuring and recording risks for task specific activities.

Contractors are required to show they have an appropriate means of risk / hazard assessment in place prior to commencing any work on an LMS site.

4.1.3 Hierarchy of Control

Having identified the potential hazards during the various risk assessments, LMS Energy is further responsible for identifying solutions to those hazards. The preferred hierarchy for developing solutions and controls is shown below:

- **Elimination** - eliminate the hazard.
- **Substitution** - replace the hazard with a less hazardous one.
- **Isolation** - temporarily isolate the hazard.

- **Engineering** - reduce the hazard through re-engineering.
- **Administrative Controls** - apply administrative controls to the hazard which may include such actions as limiting the time of exposure, rotating personnel, training of personnel, signage.
- **Personal Protective Equipment** - provide protection against the hazard; the provision of personal protective equipment does not eliminate the hazard, but only shields the individual from it.

4.1.4 Monitor and Review

As safety is based on continual improvement, this step is essential to the continued effectiveness of controlling the hazard. Revisiting the risk assessment process ensures that the control measures implemented were effective and did not introduce any new hazards. The review process includes activities such as reviewing work practices and processes, reviewing RAs, incident investigation, health surveillance and follow up audits.

4.1.5 Risk Management Tools

LMS has a number of tools/ processes to assist with risk management process detailed above, including:

- LMS Procedure PR24 Hazard Identification
- Risk Assessment (Refer Appendix B)
- Risk Assessment Matrix (Appendix C)
- Risk Assessment Form – JSEA (Appendix D)

4.2 SAFE OPERATING PROCEDURES

4.2.1 Permit to Work - Operating REF and Landfill Gas Extraction Area

Note - an Operating REF is defined as any REF that is or has been energised.

The requirement for a Work Permit exists for all tasks undertaken by non LMS personnel either within the REF compound or outside the REF compound (that may impact on the safety of persons and/or operations within the compound). The onsite Supervisor / Coordinator may at their own discretion request a permit to be issued to any worker.

Examples of circumstances where the Supervisor / Coordinator may request work permits could include (but not limited to):

- where the work to be conducted has the potential to impact on other workers onsite; or
- where no registered safe work procedure exists; or
- if adverse conditions pose additional risks to an already registered safe work procedure.

Work Permits are required for activities conducted at the Stuart BioEnergy Facility that are above and beyond normal operating and maintenance activity will only be issued by the Operations Supervisor / Coordinator or an appointed authorised LMS Permit Issuing Officer. A register of authorised permit issuing officers is maintained on site.

The Operations Supervisor / Coordinator or the appointed Permit Issuing Officer has the authority to withdraw the Work Permit and would be expected to exercise that authority where all or part of key safety systems are not available or implemented, i.e. unavailable / uncalibrated gas monitoring equipment.

The objectives of the Work Permit System include, but are not limited to:

- ensuring a safe system of work and necessary precautions are implemented for the protection of personnel and the public;

- protection of plant and equipment and overall safety and integrity of the Facility;
- proper authorisation of all work to be performed;
- assessment of the hazards, risks and control measures associated with safety critical, simultaneous and non-routine activities;
- identification of potential risks and precautions necessary to minimise these risks, and
- to ensure that the Operations Supervisor / Coordinator is aware of the number and location of personnel working, within each permit area and the type of work in progress.

A work permit must be issued prior to undertaking any task involving:

- hot work;
- cold work;
- energy isolation;
- excavation and penetration;
- working in the vicinity of overhead powerlines;
- work at height (potential to fall 2 metres or more, and no compliant fixed edge protection);
- all works on systems that have been handed over for formal Commissioning; and
- any other activity identified through risk assessment as requiring a Permit.

The permit system does not cover Confined Space Entry or High Voltage work. In the event such work is required, LMS will ensure engagement of suitably qualified and experienced contractors.

Hot Work

Hot Work is any work with the potential to create a source of ignition resulting in a fire, naked flame, heat or spark which may ignite flammable gas or material.

Typical examples of hot work include, but are not limited to the following:

- vehicle entry to non-designated roads or areas (as determined by hazardous area zoning);
- welding;
- oxy-acetylene burning;
- grinding;
- work on live electrical equipment;
- use of electrical tools;
- concrete chipping;
- generation of static electricity; and
- use of combustible or flammable liquids.

Where hot work requires the use of a firewatcher, the person shall be required to hold valid certificate for a basic fire extinguisher course. This course need not have been taken at the site. A course taken at an approved site and given by an approved training institution is acceptable.

Excavation

Excavations include soil penetration which breaks the normal ground level. The permit system shall require the identification and marking of underground assets as part of the hazard identification process. These can include gas mains and electrical cable.

Cold Work

Work that will not produce a source of ignition (i.e. flame, hot surface, spark) of sufficient temperature, to ignite any flammable material.

Confined Space Entry

A confined space is defined in AS 2865 Safe Working in a Confined Space as an enclosed or partially enclosed space which is at atmospheric pressure during occupancy, is not intended or designed primarily as a place of work, which may have restricted means for entry and exit, and which may:

- have an atmosphere which contains potentially harmful levels of contaminant;
- not have a safe oxygen level; or
- cause engulfment.

Work in any confined space will not commence until:

- All conditions have been met in accordance with procedure PR17 – Hazardous / Confined Space Entry.
- All personnel that have been trained must be trained by an accredited and authorised institution and must have been completed within the past twelve months.
- In some situations entry into pipe trenches, cellars, etc. may be classified as confined space entry. This shall be checked with the Permit Authority before entering these areas. Generally, if the pit or trench is open topped, less than 1.5 metres deep and well ventilated (e.g. – open pipe trenches), it is not considered a confined space. If confined space entry is required then standard LMS confined space entry permit procedures apply

High Voltage Work

LMS engages appropriately qualified sub-contractors with HV operator authorisation to perform scheduled and unscheduled activities as required at the Stuart Landfill Energy Facility. It is a condition of entry that these sub-contractors provide SMP and JSEA's prior to commencing work.

LMS personnel do not undertake HV switching. All switching to be managed through authorised HV contractors who are also Accredited Service providers to **Ergon**. Authorised LMS permit holders can facilitate permits between **Ergon** and authorised contractors. For HV operating procedures please refer to *PR108*.

As per **Ergon** requirements no alterations to the HV installation are permitted without **Ergon** approval. Any changes that affect the HV installation must be processed through the Management of Change procedure *PR96*.

4.2.2 Safety Tag, Isolation and Lock Out

During periods of maintenance, service or repair, it may be necessary to isolate part (or parts) of the Facility to ensure workers safety and protection of plant and equipment. All Safety lock and tag work is to be carried out in accordance with LMS Energy Document: *Safety Lock & Tag System - PR89*.

Plant and equipment that is found to be faulty or unsafe will be isolated and identified as hazardous by the placement of an "Out of Service" tag.

Prior to working on defective plant, the person/s carrying out the work will affix a completed Personal "Danger" Tag to the appropriate isolation device. For operational plant under construction or plant that has to be isolated or secured for operation appropriate locks, chains and tags will be applied.

This tag must be removed at the end of the day, and where the work is to be continued or as appropriate, an "Out of Service" is to be affixed.

4.2.3 Emergency Response

Stuart Landfill BioEnergy Facility has a specific Emergency Response Plan which establishes the action to be taken in the event of an emergency. The Emergency Response Plan (ERP) addresses the following emergency situations (and any others identified as appropriate):

- injury (minor, significant and major);
- fire (vehicle, building, landfill biogas);
- vehicular accidents;
- flooding; and
- hazardous -oil/electrical/gas/chemical spill.

Upon confirmation of an emergency situation at the Stuart Landfill BioEnergy Facility, LMS will notify all relevant authorities (e.g. Police, Ambulance, EPA etc) including the Stuart Landfill/Weighbridge Office as appropriate, advising of the nature and extent of the emergency. If the incident is HV related the procedure provides emergency contact details through to the network provider **Ergon** in case of site HV isolation.

If the emergency is able to be contained within the boundary of the Stuart Landfill BioEnergy Facility without any impact on the Stuart Landfill WMC operations, the LMS ERP will continue to control the situation. However, if the emergency extends beyond the Facility boundary, then the Stuart Landfill WMC ERP will be activated, with LMS operations providing technical assistance and forming part of the Emergency Response Team where appropriate.

LMS employees and contractors will be trained in the ERP to ensure all personnel are fully aware of their responsibilities.

A copy of the LMS ERP will be maintained at the Stuart Landfill BioEnergy Facility and at the Stuart Landfill WMC Landfill/Weighbridge Office.

Emergency evacuation drills are to be undertaken bi-annually and records of the drills maintained at the Facility.

4.2.4 Communications Systems

Communications systems on site are to be explained at all site inductions with signage installed to effectively identify emergency communication phone/call points on site.

An evacuation siren will sound in the event of an emergency. In this instance, all personnel (workers, contractors and visitors) are required to immediately cease work and make their way to the Emergency Assembly Point. Refer Appendix A for location of the emergency evacuation Emergency Assembly Point.

4.2.5 Complacency

Complacency is familiarity - a human instinct that is derived from knowing the job, where risks and risky behaviour become familiar, acceptable and standard practice. People come to accept things through familiarity and start to ignore what they know are not right – they don't see it any more. Thus challenging complacency and interrupting familiarity is essential. Planning the job is essential, allowing the time to risk assess tasks appropriately are the key elements towards minimising the risks associated with complacency.

4.2.6 Plant Safety

Personnel using registered Plant must be licensed and shall post appropriate warning notices during their use. Guidelines for the use of Plant include:

- Regular inspections to ensure emergency and safety switches and signals are operative.
- List of licensed operators to kept up to date
- Training to be kept up to date
- Guarding to be in place and in working order
- Appropriate PPE to be worn while operating any plant
- Ensure proper housekeeping is maintained
- Exclusions zones are set-up where required

4.2.7 Driving

LMS Energy recognises the variety of risks associated with driving, specifically related to on-call personnel, those risks include the after-hours mobilisation to site. All workers who are required to drive as part of the general duties will adhere to statutory law, and adjust driving in-accordance with environmental conditions. For further details, please refer to LMS Energy Document: *Vehicle Policy – PL4*.

4.2.8 Fatigue Management

Fatigue is defined as an impaired physical and mental condition, which arises from an individual's exposure to physical and mental exertion and inadequate or disturbed sleep. Priority must be given to reducing the exposure of employees to disturbed sleep or inappropriate sleep and recovery periods. Where practicable, this is to be controlled or minimised through planning controls. For further information, refer to LMS Energy Document: *Fitness for Work Policy – PL3*.

4.2.9 On-call / Lone Operator

Working alone can introduce or enhance hazards, lack of assistance if needed, first aid cover, emergency situations, violent attack etc. On most operating sites, staff spend the majority of their time working remotely either in small groups or individually.

Staff shall be provided with information, instruction and training as appropriate in order to minimise risks when working alone inside and outside normal hours. For further information, refer to LMS Energy Document *On-Call Procedure – PR157*.

4.2.10 Heat Stress and Dehydration

Heat stress is a serious medical condition. Dehydration is an issue all year round and of particular concern during the summer period. Individuals should observe their work colleagues to identify any signs of heat stress as when a problem arises it is often too late. Site Supervisor / Coordinators must ensure that there is adequate cool drinking water, and shaded rest areas for their employees. Toolbox handouts and basic heat stress awareness training will be provided to ensure that all personnel are aware of how to avoid heat stress and how to recognise the signs and symptoms of heat stress. For further information, please refer to LMS Energy Document: *Working in Hot/Outdoor Conditions – SW001*

4.2.11 Manual Handling

The majority of injuries result from apparently simple routine tasks involving manual handling of equipment, tools or materials. It may result from the weight or size of the item, or repetitious nature of a task. Manual handling tasks will be managed in accordance with the legislative requirements and the Approved Code of Practice for Manual Handling.

NOTE: Wherever possible, mechanical lifting aids will be the first option chosen to move any load.

4.2.12 Working at Heights

All persons in all working at height situations must have received appropriate safe working at heights training by a registered training organisation and must produce evidence of such training for verification prior to commencing work at height.

Fall protection and prevention is required at all times, when there is a risk that personnel may fall and injure themselves. When working at heights a rescue plan must be in place prior to commencement.

4.2.13 Hazardous Chemicals

All LMS Workplaces are inspected on a regular basis to determine the chemical inventory of each site. The inventory is recorded on the Fire Fighting and Safety Equipment Layout attached in Appendix A and in a live SDS register on the LMS database. Safety Data Sheets (SDSs) are available in hard copy at each site.

4.2.14 Gas Inhalation

Landfill biogas is deficient in oxygen and potentially contains harmful trace components, the most significant of which is Hydrogen Sulphide (H₂S). As such landfill biogas may cause nausea and dizziness, as well as other harmful health effects, which could lead to accidents. In undertaking the duties associated with the operation of a gas extraction and flaring system (particularly where there is a high level of natural ventilation) there is a low likelihood of exposure to potentially harmful levels of harmful compounds in landfill biogas, however at all times inhalation of landfill biogas should be avoided.

4.2.15 Health and Safety Inspections

LMS operators undertake regular (daily, weekly or monthly as appropriate) inspections of the Facility, using the LMS Energy Document: *Monthly Site Safety & Environment Audit - FM59*. This is to ensure safe and efficient operations are being maintained. An integral part of these inspections is to focus on the following key areas:

- housekeeping;
- storage of hazardous and dangerous goods (e.g. oil and coolant storage locations appropriate, spill and leak free); and
- equipment is operating within its normal safe operating limits.

4.2.16 Health Surveillance

The health of LMS employees is monitored where a particular risk is identified (for example hearing loss, eyesight damage, etc). As part of the LMS health surveillance program, testing is carried out as appropriate and as guided by legislative obligations.

4.2.17 Incident / Accident Reporting and Investigation

All Workplace incidents, accidents, hazards or near misses are required to be reported and recorded in accordance with LMS Energy Procedure: *Workplace Incident Reporting Investigation - PR35* and recorded on *Workplace Incident Reporting Form - FM3*. Investigations of incidents are to undertaken in accordance with *Workplace Incident Reporting Investigation - PR35* and recorded on *Workplace Incident Investigation Form (WIIF) – FM73*.

This includes any unplanned occurrence, which caused, or had the potential to cause injury or damage to equipment. In the case of a serious incident, a full incident investigation is done to find out how and why it occurred.

In the case of all incidents, various steps and control measures are implemented on a short or long-term basis, to ensure the risk of the incident reoccurring is minimised. All Contractors are required to maintain a register of incidents and injuries and notify LMS of any such incident as soon as practical. This reporting requirement is in addition to the Contractors' internal reporting requirements.

As per *Workplace Incident Reporting Investigation - PR35*, all actions raised on LMS Energy Document: *Workplace Incident Reporting Form – FM3* are tracked via the monthly management meeting. The monthly management meeting minutes any actions, assigned responsibilities, timeframes for completion and closeout status. Any actions not closed out are carried forward to the preceding month.

In certain instances, it may be necessary for LMS to report an incident to an external or regulatory authority, as per Table 2.

Table 2: Summary of External Reporting Requirements for Incidents

Nature of incident	External Notifications	Time-frame
Any incident (including fire) with actual or potential <u>significant off-site impacts</u> on people or the biophysical environment.	Director – General of the Department of Planning	Initial notification as soon as practicable after the occurrence; and Written report within 7 days of the incident.
	QLD Fire Brigade	Immediately (telephone no. 000) in the event of uncontrolled fire or explosion or as detailed in the Emergency Response Plan (Enter Job Number -RG-010).
Any incident causing or threatening to cause material harm to the environment.	Qld Environment Protection Authority (EPA)	Initial notification to the EPA Pollution Line (telephone no. XXXXXX) as soon as practicable after the incident; and Written report within 7 days of the incident.
	Qld Fire Brigade	Immediately (telephone no. 000) in the event of uncontrolled fire or explosion or as detailed in the Emergency Response Plan (Enter Job Number -RG-010).
Any fatal and non-fatal accidents which involve electric shock, flash or burns or which are falls from elevated positions associated with work on electrical apparatus	Worksafe (QLD)	Any incident causing or threatening to cause material harm to the environment.
	Ergon Network Controller	Initial notification as soon as practicable after the occurrence; and Written report confirming corrective actions to be implemented within 4 weeks of the incident.
Any incident involving personnel or machinery which causes contact with Ergon Network	Ergon Network Controller	Initial notification as soon as practicable after the occurrence; and Written report confirming corrective actions to be implemented within 4 weeks of the incident.
Gas related incident	Chief Gas inspector	Initial notification to the Chief Gas Inspector (telephone no. 07 3199 8027) immediately after the incident; and electronically within 2 business days after the incident.

For reporting of Environmental Incidents, which may have or have the potential to cause environmental harm, notification must be given to EPA. In such instances refer to the Stuart Landfill BioEnergy Facility Environmental Management Plan for reporting requirements.

4.2.18 HV Operating and Maintenance Procedures

All high voltage work will be undertaken by an appropriate authorised and qualified HV Contractor. LMS Energy has High Voltage documents including: *HV Safety Management Procedure – PR108* and associated forms, and the HV Contractor has a High Voltage Operating and Maintenance Procedure which has been developed in accordance with relevant legislative and regulatory authority rules.

4.2.19 Electrical Maintenance

Maintenance of electrical assets and electrical protection devices are to be undertaken as per the maintenance schedule which has been developed in accordance with the NER and supplier recommendations, see *section 5.3*.

4.2.20 Electrical Safety Rules

LMS will adopt the Electricity Association of Australia Safety Rules Guidelines (with the associated Electricity Council or Industry Safety Steering Committee Guides as appropriate).

4.2.21 Bushfire Mitigation – Electrical Asset Maintenance and Vegetation Control

A Bushfire Prone Area (BPA) is an area of land that can support a bushfire or is likely to be subject to bushfire attack, as designated on a bushfire prone land map. A bushfire prone area may also be defined by the network operator utilising data, advice and mapping information provided by the Rural Fire Service or other available relevant sources.

In accordance with “*ISSC3 – Guide for the Management of Vegetation in the Vicinity of Electricity Assets, Nov 2016*” the trimming, cutting or removal of vegetation near Electricity Assets as required under this Guide must be done in a manner that protects the health and safety of persons performing inspection, trimming and removal activities. All works undertaken for the trimming and removal of vegetation within the approach distances shall be conducted by accredited persons in accordance with the relevant “Electrical Safety Rules” of the Network Operator, relevant company safe work method policies and this Safety Management Plan.

As bushfire management cost is not considered a inhibiting factor in the design, construction and ongoing management of LMS infrastructure, LMS shall ensure the following steps are undertaken to control vegetation around LMS’s infrastructure and mitigate the risk of a bushfire being caused by LMS infrastructure, or from damage through inadequate vegetation control in the event of a bushfire impacting LMS’s site to a level that is as low as is reasonably practicable:

- Yearly pre summer inspections of LMS HV Poles and Wires and Infrastructure in PRA area’s to ensure it is maintained in a safe and ready for use condition.
- Conduct monthly inspections using FM59 of LMS infrastructure ie: flares, pad mount transformers, electrical poles and wires (HV/LV Overhead) to ensure vegetation, both on the ground and above the ground, is kept under control and where required organising the slashing or pruning of vegetation where it is deemed to be a hazard.
- Coordinate vegetation control with neighbouring properties (council’s, landfill’s or forestry departments).
- Liaise with landfill operator and/or emergency services during a bushfire event to coordinate the safe operation, shut down and evacuation of LMS staff if and when required.
- Respond to a Bushfire Evacuation event in accordance with LMS Energy’s Emergency Response Plan where one is available, or the landfill Emergency Response Plan.
- If a fire is started by LMS’s electrical network the appropriate regulatory bodies are notified, the incident is investigated and all actions and learnings are implemented across all LMS sites, with FM59 providing a monthly measure or the effectiveness of the identified controls.

- No attendance when AFDRS rating reaches catastrophic, when directed to evacuate the area or where a bushfire is within 30km's of the site.

The risk of overhead power lines owned by LMS causing a bushfire has been assessed and appropriate controls identified in the Risk Assessment Appendix B. The implementation of the identified controls achieves ALARP and no further controls have been identified that are cost justified.

4.2.22 Heavy Goods Vehicles and Heavy Plant Machinery

- Large numbers of vehicles pass through an open landfill each day, whilst heavy plant vehicles are in operation in some areas. Site specific traffic control rules should be adhered to at all times.
- The following three defined risks are associated with an active landfill and therefore should be considered;
 - impact between vehicles
 - impact between vehicles and people
 - impact of people with stationary objects on the site

4.2.23 Leachate

All exposure to leachate must be minimised by the wearing of appropriate PPE. Any worker exposed to skin contact with leachate should wash the affected area immediately. Where there is a risk of splashing, goggles should be worn. If leachate does contact eyes an eye wash should be used immediately and, if required, health advice sought.

4.2.24 Steep Slopes

At some sites, steep slopes are present which need to be considered for all work activities. Injury or death could be caused through a fall down one of these steep slopes and there is also a risk of injury through materials or objects falling down the slopes. Therefore, access to areas of a site where steep sidewalls or slopes are present and where active operations are being undertaken on the slope or at its crest should be avoided wherever possible.

4.2.25 Poor Weather Conditions

Poor weather conditions are often experienced at sites and appropriate risk assessments should be undertaken prior to the commencement of work in such adverse conditions.

4.2.26 Excavations/ Potentially Confining Spaces

Persons not formally qualified to enter confined spaces are not permitted to enter confined spaces. Where there is the potential for a confining space, due to potentially toxic atmospheres, workers should refer to the controls listed in LMS Energy Document: *Safe Working Atmospheres - Landfill Excavation Works - PR104* and, if still in doubt, contact the LMS Safety Manager.

Consideration must also be given to explosive risks, engulfment and asphyxiation. Due to the difficulties in the management of these risks, confined space entry, even by qualified workers, should be avoided whenever possible.

4.2.27 Gas Control and Landfill HSE

For landfill operations the primary purposes of safe collection and combustion of the landfill biogas for odour and emission control. Interference, damage or disturbance of these systems increases the risk of gas pressurizing in the landfill. This type of interference can occur as a result of (for example) operational damage, vandalism, leachate accumulation and/or differential settlement. If the containment systems (capping and lining) in the landfill are poor or non-existent, gas pressurization can lead to uncontrolled movement from the waste mass into adjoining areas and buildings (explosive hazards) or direct to the atmosphere and contributing to loss of amenity to the surrounding environments (odour) and greenhouse gas emission.

Subsurface landfill fire is another hazard that needs to be considered when operating a gas field. Landfill fires can be triggered by a number of causes and are difficult to control once initiated. Such fires present safety and environmental risks associated with the gaseous products of combustion of waste and also can result in the creation of subterranean voids that can collapse without warning.

When operating a gas system it is critical to ensure the gas extraction system does not further contribute to this risk, by minimizing the draw of oxygen into the waste mass. Once a subsurface fire is identified, the extraction to the affected area should be isolated to ensure a reduced risk of the fire spreading further into the waste, or into the extraction system itself.

The LMS Standard Operating Instruction for *Gas System Operation (SOI601)* outlines gas field balancing procedures that manage this risk.

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5. SAFE OPERATING PLAN

5.1 REGULATORY APPROVALS

Summary of Environmental & Regulatory Approvals for the Stuart Landfill BioEnergy is provided below.

Table 3: Summary of Regulatory Approvals

Approval	Legislation	Approval Authority	Comments
Development Approval	QLD Environmental Planning & Assessment Act	Add details supplied by Compliance Group	Add details supplied by Compliance Group
Building Approval	Building Act 1975; Building Regulation 2006; Building Code of Australia 2009	Add details supplied by Compliance Group	Add details supplied by Compliance Group
Occupancy Permit	Building Act 1975; Building Code of Australia 2009	Add details supplied by Compliance Group	Add details supplied by Compliance Group
Gas Work Authorisation (Industrial Type B Appliance)	Petroleum and Gas (Production and Safety) Act 2004 and Regulation	Petroleum and Gas Inspectorate	Add details supplied by Compliance Group – Type B Queensland Sites Only
Wastewater Disposal Approval	Water Supply and Sewerage Plumbing (Extension) Regulations 1997	Not Applicable	Chemical Toilet only
Dangerous Goods Licence	Dangerous Goods Safety Management Act 2001 and Dangerous Goods Safety Management Regulations 2001	Not Applicable	
Environmental Licence	Protection of the Environment Operations Act 1997	Add details supplied by Compliance Group	Add details supplied by Compliance Group
AEMO Registration	National Electricity Code	Australian Energy Market Operator (AEMO)	N/A: Exempt from registration – less than 5MW.

5.2 TRAINING & COMPETENCY

5.2.1 LMS Operators

Operators at LMS have a diverse range of skills and training due to the varied nature of the work involved. LMS has developed its own technical training competency system, which includes training modules required to meet its specific needs. LMS operators also use external Training departments such as TAFE and Fire Brigade to meet specific requirements.

All operations staff are trained in site health and safety, emergency and environmental response procedures. All training records are maintained at LMS Head Office located in Unley, South Australia.

An Operator Training Record (FM570) is utilised to record the ongoing training process. A copy is provided in Appendix F.

5.2.2 Site Inductions

All LMS workers and contractors attend a site specific induction. This induction will include, but will not be limited to, the following:

- WHS Responsibilities
- Safety Management Plan Commitments
- Site Access
- Hazard and Risk Assessment (including development and use of JSEAs)
- Emergency Response Plan
- Work Permit System
- Accidents and Incident Reporting
- Attending Toolbox Meetings (where appropriate)
- Safety Tag, Isolation and Lockout Procedures.

A register of inductions will be maintained on LMS Energy's internal Induction Matrix.

5.3 MAINTENANCE MANAGEMENT

The scheduled maintenance for all plant items is controlled by LMS service schedule. This schedule is reviewed regularly by the Operations Manager to ensure maximum reliability is achieved through regular maintenance.

As appropriate maintenance procedures will be developed over the operational life of the Stuart Landfill BioEnergy Facility. Procedures which may be appropriate are summarized in Table 4 below.

Table 4: Maintenance Schedule

Maintenance Task	Responsible Person	Frequency	Records Kept	Contact Person
Protection Relay Checks & Tests Required	Operations Manager	Every 4 years after initial commissioning	Maintenance Schedule Log	Enter Site Name Renewable Energy Facility Duty Operator
Circuit Breaker Tripping Checks & Tests Required	Operations Manager	Min 2 years after initial commissioning	Maintenance Schedule Log	Enter Site Name Renewable Energy Facility Duty Operator
HV Kiosk Transformer	Operations Manager	Yearly Inspection 1-2 years for testing	Maintenance Schedule Log	Engineering Dept LMS Energy
Earthing System	Operations Manager	Earth grid inspection every 2 years. Resistance testing every 4 years	Maintenance Schedule Log	Engineering Dept LMS Energy
HV Switchgear Details	Operations Manager	Every 2 years after initial commissioning	Maintenance Schedule Log	Engineering Dept LMS Energy
Flare Maintenance – FM63	Operations Manager	Monthly	LMS Server	Enter Site Name Biogas Extraction and Flaring Facility Duty Operator

5.4 FIRE AND GAS PROTECTION AND CONTROL SYSTEMS

The site is designed to operate unmanned. Therefore, a paging system will be utilised to notify operating and maintenance personnel of any fire or gas alarms and situation requiring immediate attention.

Should a fault condition arise within the Facility, automatic protection and control systems will activate. These may, if required, cause a shutdown of the Facility and disconnection from the local electrical system. If shutdown occurs, the Facility will remain off line until the Facility passes back into a safe state and the operator is able to rectify the situation.

The Stuart Landfill BioEnergy Facility Cause and Effect Matrix (XXXXX-LI-005) provide further details for alarms, process and emergency shutdown events.

Fire protection and control systems for the facility include:

- fire detection (including flame and smoke);
- methane gas concentration monitoring; and
- firefighting equipment.

5.4.1 Fire Detection

The generator module is fitted with:

- two smoke detectors located in the engine compartment;
- UV flame detector; and
- one smoke detector located in the control room.

The smoke detectors installed in the engine compartment are located at the module air outlet point.

Upon detection of a fire within the generator module, emergency shutdown will result with the following actions being initiated:

- Immediate shutdown of the engine;
- Isolation of the fuel supply;
- Isolation of the Facility from the local electrical grid;
- Alarm signal will be paged to the On-call operator.

Once the Facility is shut down due to detection of fire, it cannot be restarted until an Operator has visited the site, confirmed it is safe to operate and manually resets the control system.

The modules are constructed from steel and are insulated. This provides dual fire protection in that equipment located outside of the module is protected from an engine or control panel fire and similarly the engine and control panel are afforded protection in the event of fire outside of the module.

5.4.2 Un-odourised Gas

LMS recognise that whilst landfill biogas is commonly associated with odour, that odour is not prescribed and therefore should not be relied upon as a control measure to recognise unsafe levels of gas accumulation within the REF. This is further complicated by the potential for background odour to exist at all landfill REFs that means dangerous occurrences cannot be distinguished from normal conditions.

LMS manage this risk with a range of control measures to monitor methane as detailed in Section 5.4.3.

5.4.3 Methane Gas Detection

Methane gas (which forms 40-60% by volume of landfill biogas) forms a potentially explosive mix between 5 and 15 percent concentration in air. It may also cause asphyxiation. Methane detectors are installed in the generator module. Upon a detection of gas at a level of 20%LEL, a high gas alarm will be paged sent to the On-call operator, shutdown of the generator module and isolation of the fuel gas supply. If the gas concentration increases to 40%LEL, then an emergency shutdown will result with the following actions being initiated:

- Immediate shutdown of the engine;
- Isolation of the fuel supply;
- Isolation of the Facility from the local electrical grid; and
- High-high gas alarm signal will be paged to the On-call operator.

The generator module is designed to be well vented to eliminate the possibility of gas build up should a leak occur.

5.4.4 Fire Fighting Equipment

As the Facility is designed to operator unmanned the site has been designed for early detection and warning of presence of fire or gas at its facilities as discussed above. In addition, the following firefighting equipment is provided:

Generator Module

Engine Compartment

- 2 x dry chemical powder extinguishers (located on each external wall)
- Heat and smoke detection inside the engine compartment
- Manual call point on external wall (adjacent to external A/C unit)

Module Control Room

- 1 x carbon dioxide extinguisher (located inside the control room, beside the control room door); and
- 1 x smoke detector (located inside the module control room)

Site Control Room

- 1 x carbon dioxide extinguisher (located inside the control room);
- 1 x dry chemical powder extinguisher (located immediately outside the access door);
- 1 x smoke detector (inside the control room)
- 1 x manual call point (located immediately outside the access door);
- 1 x fire indication panel (located inside the control room); and
- 1 x fire alarm bell (located on the outside of the building)

Plant Wide

- Site wide evacuation in the event of an emergency
- Refer to Appendix A (Drawing no. 40041-GA-003) for Typical Fire Fighting and Safety Equipment Location Plan for further information.

5.4.5 Machinery and Equipment Relating to Plant Safety

Each site has in place machinery or equipment that affects the safety of the gas plant. These items of equipment and supporting systems include:

- gas and fire detection;
- earthing systems;
- emergency evacuation sirens;
- forced ventilation of generator module;
- purging capability on pipes and plant;
- auxiliary power systems and uninterrupted power supply (UPS);
- allocated spares and scheduled overhauls;
- fuel gas sampling and monitoring controls;
- bunding and containment controls;
- all valves and control systems are designed to fail safe with a system of steam safety valves;
- combined emergency stop and control valves; and
- maintenance and inspection schedules are developed to ensure these items (any those controls listed in the Risk Register) are effectively maintained.

5.5 CONTINUOUS IMPROVEMENT

5.5.1 Monitoring and Review

Monitoring and review is to occur as a function of:

- Site/workplace health & safety Inspections
- Actions from WHS Committee Meetings
- Monthly Operations Meetings and Toolbox Talks
- Incident Reports and Investigations
- Audit Recommendations
- Corporate Management Review of accidents and incidents at Committee of Management Meetings and Board Risk Committee Meetings
- Worker feedback regarding procedures and forms to be forwarded to the Compliance & Document Coordinator

5.5.2 Audit

In accordance with the LMS Safety Management System (SMS) periodic audits are undertaken to ensure compliance. In addition to this periodic audit, operations are required to undertake monthly safety inspections (FM59) for health, safety and other general risks.

Issues / recommendations from audits will be logged and addressed by LMS via an Audit Close-out Report. The Audit Close-out Report will detail:

- the issues/recommendations provided in the Audit Report;
- the actions taken by LMS in respect of each issue/recommendation; and
- the justification for each close-out action.

As a result of the Audit's recommendations, this SMP, risk register, procedures and policies (as appropriate and relevant) will also be reviewed and updated accordingly.

5.5.3 Key Performance Indicators

LMS KPIs include the following:

- Compliance with corporate and site safety procedures and processes as identified during audits;
- Compliance with statutory training requirements;
- Lost time injury frequency rates;
- Incident frequency rates and close out time frames;
- Close out of safety actions;;
- Reporting of hazards, near misses, incidents, plant damage and injuries;
- A review of the requirements outlined in this SMP and the Legislative requirements.

5.6 DOCUMENT CONTROL AND MANAGEMENT OF CHANGE

LMS corporate documents are controlled and available on the LMS Intranet via Document Centre and are managed by the Compliance Group. Site management are to maintain site-specific document management systems.

Site document management systems are to address:

- Design change/modifications procedures and approved for construction (AFC) drawings, product specifications.
- Contract documentation is to be in accordance with the procurement standard contracts.
- Certification, authorisations, approvals are filed in site document management systems.
- Plant strategies, operations and maintenance manuals, manufacturer's information, training manuals are managed in site systems.
- Training records are filed with HR personnel files and recorded in the Training Register / Matrix for each site.
- P&IDs, plant drawings, numbering systems are documented in the site systems.

Inspection records, audit reports, work orders, isolation sheets are logged into the maintenance management system.

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6. COMPLIANCE WITH QLD PETROLEUM AND GAS (PRODUCTION AND SAFETY) ACT 2004

Compliance with the Petroleum and Gas (Production and Safety) Act 2004 in respect to Safety Management Plans has been demonstrated below:

Element	Act/Reg Section	Description	SMP Reference
1	s. 675(1) (a)	A description of the plant, its location and operations.	Section 2 Appendix A
2	s. 675(1) (b)	Organisational safety policies.	Section 3.1
3	s. 675(1) (c)	Organisational structure and safety responsibilities.	Section 3.2 Section 3.3
3A	s.675(1)(ca)	For an operating plant, other than a coal mining-CSG operating plant – the operator of the plant	Section 1.4
4	s. 675(1) (d)	Each site at the plant for which a site safety manager is required.	Section 3.2 Section 3.3
5	s. 675(1) (e)	A formal safety assessment consisting of the systematic assessment of risk and a description of the technical and other measures undertaken, or to be undertaken, to control the identified risk.	Section 4.2 Appendix B
6	s. 675(1) (f)	If there is proposed, or there is likely to be, interaction with other operating plant or contractors in the same vicinity, or if there are multiple operating plant with different operators on the same petroleum tenure, geothermal tenure or GHG authority.	Section 2
7	s. 675(1) (g)	A skills assessment identifying the minimum skills, knowledge and experience requirements for each person to carry out specific work.	Section 5.2 Appendix F
8	s. 675(1) (h)	A training and supervision program containing the mechanism for imparting the skills, knowledge, competencies and experience identified in paragraph (g) and assessing new skills, monitoring performance and ensuring ongoing retention of skill levels.	Section 5.2 Appendix F
9	s. 675(1) (i)	Safety standards and standard operating procedures applied, or to be applied, in each stage of the plant.	Section 2.3 Section 4.2
10	s. 675 (1) (j)	Control systems including, for example, alarm systems, temperature and pressure control systems, and emergency shutdown systems.	Section 5.4

Element	Act/Reg Section	Description	SMP Reference
11	s. 675(1) (k)	Machinery and equipment relating to, or that may affect the safety of the plant.	Section 5.4.4
12	s. 675(1) (l)	Emergency equipment, preparedness and procedures.	Section 4.2.3
13	s. 675(1) (m)	Communication systems including, for example, emergency communication systems.	Section 4.2.3 Section 4.2.4
13A	s.675(1)(ma)	A process for managing change including a process for managing any change to plant, operating procedures, organisational structure, personnel and the safety management plan.	Section 5.6
14	s. 675(1) (n)	The mechanism for implementing, monitoring and reviewing and auditing safety policies and safety management plans.	Section 5.5.1 Section 5.5.2
15	s. 675(1) (p)	Key performance indicators to be used to monitor compliance with the plan and the P&G Act.	Section 5.5.3
16	s. 675(1) (q)	(i) Mechanisms for the investigation, recording and review of incidents at the plant (ii) Implementing recommendations from an investigation or review of an incident at the plant	Section 4.2.17
17	s. 675(1) (r)	Record management including, for example, all relevant approvals, certificates of compliance and other documents required under this Act	Section 5.1 Section 5.6

APPENDIX A - SITE PLANS

- 40041-GA-001-Rev X - Power Station Site Layout
- 40041-GA-002-Rev X - Power Station Location Plan
- 40041-GA-003-Rev X - Safety and Fire Fighting Equipment Layout Plan
- 40041-MA-001-Rev X - Hazardous Area Layout
- 40041-CA-003-Rev X – Gas Field Layout

DRAFT

DRAFT

DRAFT

APPENDIX B - RISK ASSESSMENT

Insert Site Specific Risk Assessment

DRAFT

APPENDIX C - RISK MATRIX

LIKELIHOOD	PERCEPTION
ALMOST CERTAIN	EXPECTED TO OCCUR; MORE THAN 75% CHANCE OF OCCURRING
LIKELY	WILL PROBABLY OCCUR; 50 - 75% CHANCE OF OCCURRING
POSSIBLE	MIGHT OCCUR; 25 - 50% CHANCE OF OCCURRING
UNLIKELY	COULD OCCUR; LESS THAN 25% CHANCE OF OCCURRING
RARE	MAY ONLY OCCUR IN EXCEPTIONAL CIRCUMSTANCES

RATING	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
OH&S	INCIDENT BUT NO INJURY	MEDICAL TREATMENT ONLY	LOST TIME INJURY	DEATH OR PERMANENT DISABILITY	MULTIPLE FATALITIES
ENVIRONMENT	IMPACT CAN EASILY BE RECTIFIED WITH ON-SITE RESOURCES	IMPACT CAN BE RECTIFIED BUT REQUIRES OFF-SITE RESOURCES	SERIOUS ENVIRONMENTAL IMPACT RESULTING IN A FINE	MAJOR IMPACT RESULTING IN PROSECUTION AND MEDIA ATTENTION	CATASTROPHIC IMPACT RESULTING IN PROSECUTION AND PUBLIC OUTCRY

	CONSEQUENCE				
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
ALMOST CERTAIN	MEDIUM	HIGH	HIGH	EXTREME	EXTREME
LIKELY	LOW	MEDIUM	HIGH	HIGH	EXTREME
POSSIBLE	LOW	LOW	MEDIUM	HIGH	HIGH
UNLIKELY	NEGLIGIBLE	LOW	LOW	MEDIUM	HIGH
RARE	NEGLIGIBLE	NEGLIGIBLE	LOW	LOW	MEDIUM

APPENDIX D - JOB SAFETY & ENVIRONMENT ANALYSIS FORM (JSEA) - FM13



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Group:	SAFETY

JOB SAFETY & ENVIRONMENT ANALYSIS (JSEA) WORKSHEET – FM13

Site:					Work Activity					JSEA number: (where applicable)	
JSEA Team: <small>(Attach separate sheet if required for participants)</small>					Reviewed by: <small>(Client, if applicable)</small>					Date:	
					Reviewed by: <small>(Team Leader/Supervisor)</small>					Date:	
Date Developed:											
Type of Permit Required <small>(please tick relevant)</small>	Type of Isolation Required <small>(please tick relevant)</small>				PPE Required <small>(please tick relevant)</small>				Equipment Required <small>(please tick relevant)</small>		
Hot Work	<input type="checkbox"/>	Electrical	<input type="checkbox"/>	Chemicals	<input type="checkbox"/>	Safety Glasses	<input type="checkbox"/>	Gloves	<input type="checkbox"/>	Barricading/Signs	<input type="checkbox"/>
Confined Space	<input type="checkbox"/>	Mechanical	<input type="checkbox"/>	High Voltage	<input type="checkbox"/>	Chemical Goggles	<input type="checkbox"/>	Safety Harness	<input type="checkbox"/>	Electrical Earth Leakage Unit	<input type="checkbox"/>
Excavation / Penetration	<input type="checkbox"/>	Manual Valves	<input type="checkbox"/>	Hydraulic	<input type="checkbox"/>	Face Shield	<input type="checkbox"/>	Respirator	<input type="checkbox"/>	Fire Extinguisher	<input type="checkbox"/>
Working from Heights	<input type="checkbox"/>	Pneumatics	<input type="checkbox"/>	Liquids	<input type="checkbox"/>	Dust Masks	<input type="checkbox"/>	Disposable Overalls	<input type="checkbox"/>	Lifting Equipment	<input type="checkbox"/>
Cold Work	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	Hearing Protection	<input type="checkbox"/>	Hard Hats	<input type="checkbox"/>	Gas Detector	<input type="checkbox"/>
High Voltage	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	HI-VIs	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
Other	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
Potential Environmental Hazards <small>This item requires continual review to include the specific area or activities requirements. (please indicate by ticking)</small>		Hazardous Materials / Substances <small>List any hazardous materials to be used or present in the work area. (attach an MSDS for each)</small>				Manual Handling <small>Will hazardous manual handling be possible during the job? e.g. Lifting, pushing, pulling, twisting or bending? if so, tick the box that most likely describes the manual handling risk & include the code on each JSEA job step.</small>					
Air pollution (dust, fumes)						NONE		There will be no Hazardous Manual handling in this job.			
Hazard to flora or fauna						MH1		The task may involve high forces.			
Noise (plant and equipment)						MH2		The task will require repetitive forceful movements?			
Spills to drains / waterways						MH3		The task is likely to cause fatigue or soreness due to its long duration.			
Spills to ground						MH4		Environmental factors are likely to increase the chance of injury.			
Soil erosion						MH5		Awkward posture or movements.			



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RISK LEVEL	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	Probability A – Almost certain – expected in most cases L – Likely - will probably occur in most circumstances P – Possible – might occur at sometime U – Unlikely – could occur at sometime R – Rare, may occur, only in exceptional circumstances	Consequences I – insignificant (no injuries) MI – Minor (first aid treatment only) Mo – Moderate (medical treatment) Ma – Major (extensive injuries) C – Catastrophic (death)
ALMOST CERTAIN	Medium	High	High	Extreme	Extreme		
LIKELY	Low	Medium	High	High	Extreme		
POSSIBLE	Low	Low	Medium	High	High		
UNLIKELY	Negligible	Low	Low	Medium	High		
RARE	Negligible	Negligible	Low	Low	Medium		

STEP NO.	(2) PROCESS STEPS <small>List the steps required to perform the task in the sequence they are carried out.</small>	(3) IDENTIFIED HAZARDS <small>Against each step list the identified hazards that could cause injury/ damage when the process step is performed. Note: If no identified hazards are recorded, no need to identify required hazard controls.</small>	Probability	Consequence	Unmitigated Risk Rank (E,H,M,L or N)	(4) REQUIRED HAZARD CONTROL <small>For each identified hazard where risk is deemed too high, list the control measures required to eliminate or minimize the risk of injury. (use hierarchy of controls)</small>	Probability	Consequence	Mitigated Risk Rank (E,H,M,L or N)	(5) RESPONSIBILITY <small>Nominate the person who will be required to action the hazard control measures.</small>



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STEP NO.	(2) PROCESS STEPS List the steps required to perform the task in the sequence they are carried out.	(3) IDENTIFIED HAZARDS Against each step list the identified hazards that could cause injury/ damage when the process step is performed. Note: if no identified hazards are recorded, no need to identify required hazard controls.	(4) REQUIRED HAZARD CONTROL			(5) RESPONSIBILITY		
			Probability	Consequence	Unmitigated Risk Rank (E, H, M, L or N)	Probability	Consequence	Mitigated Risk Rank (E, H, M, L or N)



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SAFE WORK METHOD STATEMENT (SWMS) WORKSHEET		
<p>IMPORTANT: The responsible person for the work to be carried out as per the JSEA must ensure that this SWMS:</p> <p>(A) describes how this work will be carried out via the process steps as per the JSEA, and ;</p> <p>(B) identifies the work activities assessed as having safety risks and ;</p> <p>(C) identifies the safety risks as identified hazards as per JSEA and</p> <p>(D) describes control measures that will be applied to the work activities as required hazard controls (as per the JSEA), and equipment used in the task are identified and particularly that which requires a prescribed occupation \ certificate to operate.</p>		
Personal Qualifications and Experience	Personnel, Duties and Responsibilities	Training Required to Complete Work
Plant and Equipment requiring prescribed or qualified operator	Standards, Codes of Practice, Legislation	
	Workplace Health & Safety Act 2011	
	Workplace Health & Safety Regulations 2011	
Engineering Details/Certificates/WorkCover Approvals	Maintenance Checks: Plant, Platforms/Scaffolds, Slings, Chains, Fall Arrest Systems etc	



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MONITORING, REVIEW & COMMUNICATION PROCESS

The procedure for monitoring and reviewing this JSEA is outlined below.

Monitoring

LMS Energy management must monitor this JSEA continuously. Management, Site Controllers, Safety Leaders and Supervisors must ensure that all control measures outlined in the Job Tasks section above are being followed and put in place. This is achieved by:

- Utilising safety inspections
- Ensuring that competent site controllers, safety leaders monitor all work being conducted to make sure that all control measures are being followed
- Training all personnel to continuously monitor for and report potential hazards
- Management continuously monitoring for potential hazards and implementing/communicating controls where possible when hazards are found or reported

Review

LMS personnel must review this JSEA periodically to ensure it remains relevant. This is achieved by:

- Reviewing this JSEA at least once every six (6) months to ensure that controls remain relevant and to ensure that any new hazards have been assessed
- Inspecting the work being conducted to ensure that controls remain relevant
- Conducting pre-start meetings or toolbox talks to discuss this JSEA, potential hazards and control measures with workers

In the Event of an Incident

In the event of an incident, work must stop immediately and LMS Energy's Workplace Incident Reporting and Investigation Procedure (PR35) must be followed. This JSEA must be reviewed and amended where appropriate before work recommences to ensure that the incident cannot reoccur.



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Communication

This JSEA must be communicated at a pre-start meeting before new work or a project commences. Workers must be given the opportunity to discuss controls which are listed in the JSEA, and be allowed time to discuss any further controls which they feel are necessary.

Finally, workers must sign below to state that they have been instructed in the JSEA, understand all hazards involved with the work and are comfortable with all of the control measures that must be implemented and followed.

If any changes are made to this JSEA, they must be communicated to workers and the communication sheet below must be re-signed by all persons involved with the task/job.

ADDITIONAL CONTROLS TO BE PUT IN PLACE AFTER CONSULTATION WITH ALL WORKERS

APPENDIX E - WORKPLACE INCIDENT REPORTING FORMS – FM3 & FM73



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Date:	18/02/2021
Rev:	14
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Group:	SAFETY

Workplace Incident Reporting Form (WIRF) – FM3

- | | | |
|--|---|--|
| <input type="checkbox"/> Injury/Illness | <input type="checkbox"/> Hazard | <input type="checkbox"/> Near Miss |
| <input type="checkbox"/> Vehicle Incident | <input type="checkbox"/> Environmental Incident | <input type="checkbox"/> Plant / Equipment / Property Damage |
| <input type="checkbox"/> Management System Non-Conformance | | |

INCIDENT DETAILS

Date:		Time:	AM/PM	Site:	
-------	--	-------	-------	-------	--

NAME OF PERSON(S) INVOLVED IN INCIDENT, including Company and contact details

Name:	Contact Number:
Company:	Position Title:
Supervisor Name:	Supervisor Contact No:

REPORTED TO:

Name:	Position Title:
Date:	Time:

INCIDENT DETAILS – (Location, What Occurred and Weather Conditions) – if required please attach further incident details on a separate form.

--

WITNESSES:

WITNESS #1	WITNESS #2
Name:	Name:
Company:	Company:
Position Title:	Position Title:
Contact #:	Contact #:

IMMEDIATE ACTION TAKEN:

--

FURTHER ACTION REQUIRED: (to prevent recurrence and/or to close out):

Responsible Person

HEALTH & SAFETY GROUP MANAGER TO COMPLETE:

TASK REQUIRED (✓ if required)	DATE:	COMMENTS:
<input type="checkbox"/> External Notification		
<input type="checkbox"/> Investigation (see FM73)		
<input type="checkbox"/> Safety Alert		

SIGN OFF:

	NAME:	SIGNATURE:	DATE:
Worker:			
Manager / Supervisor:			
Health & Safety Group Manager:			

EMAIL FORM TO: safety@lms.com.au

Reference Document(s):

Doc No.	Reference Title
C000	Master Document List
PR35	Workplace Incident Reporting / Investigation Procedure
FM73	Workplace Incident Investigation Form (WIIF)

Workplace Incident Investigation Form (WIIF) – FM73

PART A – COMPLETE FOR ALL INJURY / ILLNESS INCIDENTS, or select NO if not applicable
PART B – COMPLETE FOR ALL ENVIRONMENTAL INCIDENTS, or select NO if not applicable
PART C & D – COMPLETE FOR ALL PROPERTY DAMAGE / LOSS OR SECURITY BREACH INCIDENTS, or select NO if not applicable
ALL INCIDENTS MUST BE SIGNED OFF AND CLOSED OUT IN PART E

INVESTIGATION DETAILS	INCIDENT DETAILS			
	Date:	Time:	AM/ PM	Site:
	Investigation Details			
	Date(s):			
	Name of person(s) involved in investigation:			

PART A - INVOLVED PERSON(S) INJURY / ILLNESS DETAILS	PART A - INJURY/OCCUPATIONAL ILLNESS DETAILS			
	Was a person(s) injured or ill due to incident? <input type="checkbox"/> YES if YES, complete Part A <input type="checkbox"/> NO If NO, go to Part B			
	Did the incident result in an occupational illness to the person(s) involved?		<input type="checkbox"/> YES <input type="checkbox"/> NO	
	Did the incident result in a personal injury to the person(s) involved?		<input type="checkbox"/> YES <input type="checkbox"/> NO	
	Person(s) Involved			
	Given / First Name:		Surname / Last Name:	
	Company:		Contact number:	
	Occupation / Job Title:		Occupation Type:	
	Date of Birth:		Gender: <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE	
	Time commenced work: (e.g. 0800)		Time last shift ceased: (e.g. 1730)	
	Supervisor Name:		Contact Number:	
	Witness:			
	Name:		Contact Number:	
	Company:		Position Title:	
	Activity being performed:			
Employee Work History:				
Experience in present occupation		<input type="checkbox"/> <1 mth <input type="checkbox"/> 1-6 mths <input type="checkbox"/> 6-12 mths <input type="checkbox"/> 1-2 yrs <input type="checkbox"/> 2-5 yrs <input type="checkbox"/> >5 yrs		
Time worked in present position		<input type="checkbox"/> <1 mth <input type="checkbox"/> 1-6 mths <input type="checkbox"/> 6-12 mths <input type="checkbox"/> 1-2 yrs <input type="checkbox"/> 2-5 yrs <input type="checkbox"/> >5 yrs		
Brief description of Injury/Occupational Illness:				
What first aid/medical treatment/medication and dosage was given – DETAIL DATE, TIME AND WHO TREATED THIS PERSON				
Name of First Aider		Signature:		
Name of Medical Doctor (if applicable)		Signature:		

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PART B - ENVIRONMENTAL IMPACT DETAILS	PART B - ENVIRONMENTAL INCIDENT DETAILS	
	Did an Environmental Impact occur? <input type="checkbox"/> YES if YES, complete Part B <input type="checkbox"/> NO if NO, go to Part C	
	Type :	<input type="checkbox"/> Spill (contained/inside containment) <input type="checkbox"/> Spill to Water <input type="checkbox"/> Spill to Land
		<input type="checkbox"/> Discharge Outside Limits <input type="checkbox"/> Emission to Air <input type="checkbox"/> Waste Event
		<input type="checkbox"/> Complaint <input type="checkbox"/> Other: _____ (please detail)
	Brief description of actual environmental damage:	
	Details of damage caused:	
	Substance was spilt/released:	
	Name of substance spilt/released on MSDS:	
Type of substance spilt/released:	<input type="checkbox"/> Liquid <input type="checkbox"/> Solid <input type="checkbox"/> Gas	
Total Estimated Quantity/Units Spilt/Released:		
Quantity/Units Contained:		
Quantity/Units Recovered:		
Compliance Category:		
<input type="checkbox"/> Non – Compliance <input type="checkbox"/> Potential Non-Compliance <input type="checkbox"/> Breach of internal Standard <input type="checkbox"/> N/A		

PART C - EQUIPMENT/ASSET DAMAGE OR LOSS	PART C - EQUIPMENT/ASSET ASSESSMENT				
	Was Equipment / Assets Damaged? <input type="checkbox"/> YES if YES, complete Part C <input type="checkbox"/> NO if NO, go to Part D				
	Actual Value (\$) of Asset damage/loss (tick one only)				
	NO INVESTIGATION REQUIRED		INVESTIGATION REQUIRED AND SAFETY ALERT TO BE ISSUED		
	MINIMAL	MINOR	SIGNIFICANT	MAJOR	CATASTROPHIC
	< A\$10k <input type="checkbox"/>	A\$10K – A\$50K <input type="checkbox"/>	A\$50K – A\$150K <input type="checkbox"/>	A\$150K – A\$1M <input type="checkbox"/>	>A\$1M <input type="checkbox"/>
	Detail what was damaged or lost:				
	Brief Description of Asset / Equipment Damage:				

PART D - SECURITY	PART D - SECURITY			
	Was there a Security Breach <input type="checkbox"/> YES if YES, complete Part D & then complete Part E <input type="checkbox"/> NO if NO, go to Part E			
	<input type="checkbox"/> Lost / Stolen	<input type="checkbox"/> Unauthorised Access	<input type="checkbox"/> Acts of Terror	<input type="checkbox"/> Unidentified
	Brief Description of Situation/Threat:			

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Rev:	4
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Group:	SAFETY

PART E - CAUSATIONS, LESSONS LEARNT AND CLOSE OUT	PART E - LESSONS LEARNT & CLOSE OUT				
	ROOT CAUSES				
	Identify All The Basic Root Causes Relating To All Incidents, Provide A Brief Explanatory Comment.				
	CONTRIBUTING FACTORS				
	CORRECTIVE ACTIONS				
	To be completed by the Supervisor / Manager and the Investigation Team in consultation with the Responsible person(s) to obtain agreement that the action/s being assigned are appropriate, and realistic completion dates are agreed upon and set.				
	All actions must be S-M-A-R-T – Specific, Measurable, Agreed, Root Cause and Time-based.				
	Action(s)	Responsible Person	Priority (L/M/H)	Targeted Completion Date	Agreement (Init.)
KEY LEARNING POINTS					
Identify one or more Key Learning's that have been identified as part of the Event Investigation / Review.					
SIGN OFF & CLOSE OUT					
Site Supervisor:		Date:			
Manager:		Date:			
Health & Safety Group Manager:		Date:			

ONCE COMPLETED, FORWARD TO THE HEALTH & SAFETY GROUP MANAGER (safety@lms.com.au) WITHIN 5 DAYS OF THE EVENT OCCURRING

Reference Document(s):

Internal:

Doc No.	Reference Title
C000	Master Document List
PL8	OHS Policy
PR35	Workplace Incident Reporting Investigation
FM3	Workplace Incident Reporting Form (WIRF)
SO1602	Gas System - Design and Installation QA Plan

APPENDIX F - OPERATOR TRAINING RECORD - FM570



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Operator Training Record – FM570

THIS TRAINING MUST BE PERFORMED BY A SUPERVISOR OR NOMINATED SENIOR OPERATOR. THIS RECORD ENSURES ALL NEW EMPLOYEES ARE COMPETENT TO OPERATE AT A LMS RENEWABLE ENERGY FACILITY AND GAS FIELD IN A SAFE AND APPROPRIATE MANNER.

EMPLOYEE DETAILS

Name:		Employee No:		Start Date:	
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ESSENTIALS

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Employee (Initials)
Introductions to Intranet, Integrated Management System (IMS) and Safety & Environment Page	Has an understanding of the intranet and where to locate Safety forms and Information and any other procedures or forms within IMS.			
Gasfield Manual	Copy of SO1001 - Standard Operating Instruction - Gas System supplied and understands the properties and risks associated with un-odourised gas as per Emergency Response Plan (ERP)			

OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Trainee (Initials)
General Induction	Has complete Initial General Induction – FM1			
Site Induction	Complete all site-specific inductions via Employee Site Induction - FM2, as required			
Safety Induction	Understands safety obligations – duty of care, roles and responsibilities, JSA's, PPE and the OHS Intranet Site			
Emergency Response Plan (ERP)	Has read and understands site-based Emergency Response Plan instructions, including evacuation route and muster point			
Health & Safety Plan (HSE)	Read and understands the site-specific HSE plan(s)			
Workplace Incidents, Investigations and Hazard Management	Demonstrates understanding of how and when to complete Workplace Incident Report Form - FM3 for incidents and hazards Understands how to register a Hazard and can locate the Hazard Register on Intranet			
Type B Devices	Competent in maintenance, repair and service of LMS Type B devices			
Electrical Safety in the Workplace Course	Sign off when Electrical Co-ordinator completed this course with employee.			

RENEWABLE ENERGY FACILITY:

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Trainee (Initials)
INDUCTIONS				
Power Station Induction Contractors & Visitors	Understands how to induct contractors and/or visitors via Contractor / Visitor Site Induction Checklist - FM30			
Power Station Induction Employee	Understands how to induct employees via Employee Site Induction Checklist - FM2			
SITE SPECIFIC INDUCTIONS				
Complete all site-specific Inductions, as required				



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RENEWABLE ENERGY FACILITY continued:

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Trainee (Initials)
Generator Set Manufacturer's Workshop Manual	Can locate manual and demonstrates how to find information			
Power Station Component Orientation	Is able to identify by sight, major components of power station.			
Generator Module Component Orientation	Is able to identify by sight, major components of generator module.			
HMI & SCADA System	Is competent with all Citect menus/screens. Is competent to acknowledge/ reset alarms, arm/disarm security system and manually test pager. Can set up "Operator" trend selecting from variable tag list.			
Power Station Start Up & Shutdown (with grid connection available & no faults)	Is able to request approval from Utility Control Centre (if required), then competently and safely start power station with all control systems Safely shutdown power station with all controls			
Single Generator Module Start Up & Shutdown (with grid connection available and no faults)	Is able to request approval from Utility Control Centre (if required), then competently and safely start generator module with all control systems Safely shutdown selected generator module			
Power Station HV Circuit Breaker Close	Is able to request approval from Utility Control Centre, then competently and safely using the remote FCB switch, close the circuit breaker.			
Power Station Remote Access	Is able to dial in to Power Station SCADA system to monitor performance, acknowledge / reset alarms shutdown / restart generator module.			
Generator Module Isolation	Is able to safely isolate generator from restarting.			
Engine Oil Sample	Is able to recognise when samples are due, using the electronic systems available. Is able to safely obtain a "LIVE" oil sample for analysis. Can complete both written documentation and electronic record and send sample to laboratory. Upon receiving, is able to interpret of lab analysis results			
Daily Readings	Can complete power station daily readings sheet, enter results electronically.			
Daily Report	Correctly completes <i>Daily Site Report</i> (online form) - FM107			
Service Schedule	Is able to competently recognise when services are due and is able to complete the electronic file as items are serviced.			
Spark Plugs Maintenance	Safely remove & refit spark plugs. Clean, re-gap and fit new gasket to removed spark plugs.			
Engine Coolant Drain, Refill & Top Up	Is able to safely and with regard for the environment drain coolant from engine. Is able to re-fill engine with coolant to the correct level, and top up coolant when required.			
Engine Oil	Safely and with regard for the environment drain oil from engine. Remove & replace oil filters. Re-fill engine with fresh oil.			
Engine Valve Lash	Is able to safely and correctly adjust valve bridges and valve lash. (Understands the damage that can be caused to engine through incorrect adjustment.)			
Engine Valve Recession	Is able to safely and correctly measure valve recession. Can demonstrate how to store measurements into electronic file.			



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RENEWABLE ENERGY FACILITY: continued

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Trainee (Initials)
Exhaust Gas Analysis	Can carry out NOXing of engine and make adjustments to lean or enrich mixture as required.			
Air Filter	Is able to replace filter sock in a safe manner. Is able to remove air cleaner, use compressed air to clean and refit air cleaner.			
Gas Filter	Can identify the need for service using differential pressure gauge. Is able to safely remove, clean & refit gas filter.			
Chiller System	Understands the function of the chiller, and the problems that can arise if the heat exchanger freezes. Understands how to troubleshoot this issue, if necessary			
Gas Strainer (Witches Hat)	Can identify the need for service using differential pressure gauge. Safely isolate, remove, clean & refit gas strainer.			
CH ₄ Analyser	Competently calibrates station CH ₄ analyser using manufacturer's instructions			
Crankcase Ventilation System	Can measure crankcase blowby using CAT tool. Can measure crankcase pressure using manometer. Can adjust ventilation flow rate to achieve desired level.			
Methane (CH ₄) Detector	Can competently calibrate module CH ₄ detector using manufacturer's instructions.			
Blower Oil Change	Can safely complete blower oil change by draining oil and refilling to correct level.			
Cranking Batteries	Understands safe and correct procedure to connect and disconnect batteries			

FLARING FACILITY:

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Trainee (Initials)
Operation of LMS Flare including Start-up/shut down procedures	Has read and understands REF Shutdown Flaring Procedure - PR107			
	Has read and understands M4 / 1000 Flare Operation - PR6			
	Has read and understands PLC Flare Operation - PR88			
	Competent to safely start and stop flare			
Monitoring and Maintenance of Flaring Facility	Has read and understands Flare Maintenance - PR1			
	Has read and understands Flare Monitoring - PR14			
	Has read and understands REF/Flare Maintenance - PR87			
	Can complete the Flare Monitoring Record - FM4			
	Can complete the Monthly Gas Field Summary - FM42			
	Understands the properties and risks associated with un-odourised gas as per Emergency Response Plan (ERP)			
Methane (CH ₄) Analyser	Can competently calibrate flare CH ₄ detector following manufacturer's instructions			

GAS FIELD:

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Trainee (Initials)
Portable Gas Analyser	Operates as per manual, to calibrate and service filters Gas Analyser Calibration Procedure - PR39 Calibration Report - FM37			
Well and Header Readings	Can competently measure and record well and header readings - Landfill Gas Well Monitoring Results - FM3			
Condensate Blockage Management	Is able to identify and manage potential sources of condensate (or leachate) blockage			



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Date:	11/10/17
Rev:	10
Approved By:	MM
Group:	GENERATION

GAS FIELD continued:

Task Description	Tasks	Explained & Demonstrated (Date)	Trainer (Initials)	Trainee (Initials)
Flow Lines	Is able to drain condensate from above ground flow lines			
Gas Field Balancing	Has a basic understanding of gas "balance theory" – Is able to competently adjust wells accordingly – as per <i>Standard Operating Instruction - Gas System - SOI001</i>			
	<u>Manometer</u> : can record readings - pressure, differential pressure, flow calculations and record results - <i>Landfill Gas Well Monitoring Results - FM3</i>			
Gas Field Management	Is able to competently manage a gas field without direct supervision – as per <i>Standard Operating Instruction - Gas System - SOI001</i>			
Orifice Plates change out	Can competently and safely replace orifice plates at gas field well stations			
J-Trap	Is able to safely check water seal is sufficient and refill with water			

ADDITIONAL COMMENTS:

--

I CERTIFY THAT THIS EMPLOYEE HAS BEEN ADEQUATELY TRAINED AND DEEMED COMPETENT AS PER THIS DOCUMENT FOR THEIR ROLE WITHIN LMS ENERGY

Name:		Signature:		Date:	
-------	--	------------	--	-------	--

I ACKNOWLEDGE THAT I HAVE RECEIVED ADEQUATE TRAINING TO UNDERTAKE MY ROLE WITHIN LMS ENERGY.

Employee Signature:		Date:	
---------------------	--	-------	--

REFERENCE DOCUMENT(S):

Internal

IMS Doc No.	Document Name:
C000	Master Document List
FM1	General Induction Checklist
FM2	Employee Site Induction Checklist
FM3	Workplace Incident Recording Form (WIRF)
FM4	Flare Monitoring Record
FM5	Landfill Gas Well Monitoring Results
FM37	Calibration Report Sheet
FM42	Monthly Gas Field Summary
FM50	Contractor / Visitor Site Induction Checklist
FM73	Workplace Incident Investigation Form (WIIF)
FM107	Daily Site Report (online document)
PR1	Flare Maintenance
PR6	M4 / 1000 Flare Operation
PR14	Flare Monitoring
PR20	First Aid
PR39	Gas Analyser Calibration Procedure
PR35	Workplace Incident Reporting Investigation
PR88	PLC Flare Operation
PR107	REF Shutdown Flaring Procedure
SOI001	Standard Operating Instruction - Gas System
Site Specific	Emergency Response Plan (ERP)

APPENDIX G - APPROVAL CERTIFICATES

Compliance Certificates can be located in the Site Dossiers.

DRAFT

APPENDIX H - UNODOURISED GAS RISK ASSESSMENT

DRAFT

APPENDIX I - ELECTRICAL HIGH VOLTAGE AUTHORITY - FM94



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Date:	01/08/13
Rev:	1
Approved By:	DMQ
Group:	PROJ & ENG

Electrical High Voltage Authority – FM94

Application Number:	Location / Site:	Date:	
Applicant:			
Applicant has been granted authorities indicated below:			
<input type="checkbox"/>	A1	Authority for a High Voltage Electrical Operator	
<input type="checkbox"/>	A2	Authority to Receive Electrical Access Permits	
<input type="checkbox"/>	A3	Authority to Receive a Sanction for Testing (SFT)	
<input type="checkbox"/>	A4	Authority to make Applications	
<input type="checkbox"/>	A5	Authority to Enter High Voltage Enclosures	
Signature:		Date:	
Authoriser's Name:		LMS High Voltage Operating Authority	
I hereby accept this Electrical High Voltage Authority and I have read and understood LMS document: <i>High Voltage – Safety Procedure – PR108</i>			
*Applicant Signature:		Date:	

Code:	Valid to:	Locations:			

***THIS FORM IS TO BE SIGNED BY THE APPLICANT AND A COPY RETURNED TO THE LMS HV OPERATING AUTHORITY FOR THEIR RECORDS.**

Reference Document(s):

Internal

IMS Doc No.	Document Name:
C000	Master Document List
PR108	High Voltage – Safety Procedure



Stuart Landfill BioEnergy Facility

Risk Assessment For Development Approval Application

Report Date:	18/09/2023
Report Reference:	40041-RG-032
Version:	A

LMS ENERGY Pty Ltd

ACN: 059 428 474

Damien Manning

118 Greenhill Road

Unley SA 5061

T: 08 8291 9038

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Report Title:	Stuart Landfill BioEnergy Facility - Risk Assessment - For Development Approval
Report Reference:	40041-RG-032 - Rev A
Written/Submitted By:	Jason Achatz
Reviewed/Approved By:	Chris Kennedy - RPEQ PE0010358

IMS #: TP1 Rev 5

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REVISION STATUS

Revision No.	Status	Date	Writer	Reviewer	Approver
A	Issued for Development Approval Application	18/09/2023	Jason Achatz	Chris Kennedy RPEQ PE0010358	Chris Kennedy RPEQ PE0010358

RECORD OF DISTRIBUTION

No of Copies	Type	Recipient Name	Position & Company

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RISK ASSESSMENT MATRIX

Likelihood	Perception
Almost Certain	Expected to occur; more than 75% chance of occurring
Likely	Will probably occur; 50 - 75% chance of occurring
Possible	Might occur; 25 - 50% chance of occurring
Unlikely	Could occur; less than 25% chance of occurring
Rare	May only occur in exceptional circumstances

Rating	Insignificant	Minor	Moderate	Major	Catastrophic
OH&S	Incident but no injury	Medical treatment only	Lost Time Injury	Death or permanent disability	Multiple Fatalities
Environment	Impact can easily be rectified with on-site resources	Impact can be rectified but requires off-site resources	Serious environmental impact resulting in a fine	Major impact resulting in prosecution and media attention	Catastrophic impact resulting in prosecution and public outcry

Risk Matrix	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood					
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Low	Medium	High	High
Unlikely	Negligible	Low	Low	Medium	High
Rare	Negligible	Negligible	Low	Low	Medium

Refer LMS Safety Management System located on the LMS Intranet Site for all Policies, Procedures and Forms

- PR23 Hand Tools Procedure
- PR25 Housekeeping Procedure
- PR27 Manual Handling Procedure
- PR28 Personal Protective Equipment Procedure
- PR85 Leachate Handling Procedure
- PR89 LMS Safety Tag System Procedure

- FM13 Job Safety Analysis (JSA) /Safe Work Method Statement (SWMS) Worksheet
- FM64 Toolbox meetings

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BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	REASSESSED RISK RATING
BIOGAS FACILITY AND FLARE COMPOUNDS								
Power Generation	Stuart Landfill	Creation of Hazardous Areas within the Renewable Energy Facility and Flare compound	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Major	Possible	High	Creation of Hazardous Area Dossiers Creation of Hazardous Area Drawings Electrical equipment must be suitably rated and effectively earthed to mitigate ignition risks Scheduled maintenance and inspection program Suitably experienced and qualified electricians only to work on or modify electrical equipment	Low
BIOGAS HEADER DELIVERY LINE								
Power Generation	Stuart Landfill	Damaged pipe (due to puncture, excavation, failure of welds, or traffic movements) resulting in ingress of air.	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Major	Possible	High	Low pressure and low fuel methane concentration (due to ingress of air) triggers plant shutdown. Refer Cause and Effect Matrix. Blower design incorporates relief valve for high suction pressure. Facility built on virgin land therefore no subsidence anticipated. Permit to work system.	Low
CONDENSATE KNOCKOUT VESSEL								
Power Generation	Stuart Landfill	Release of gas / condensate due to damaged vessel wall from high pressure or weld failure.	Allergic reaction or illness due to skin contact with condensate. Land and water contamination.	Moderate	Unlikely	Low	Pressure relief valve provided on blower. High pressure alarms lead to plant shutdown. Refer Cause and Effect Matrix. Suitably qualified and experienced contractors and employees used to undertake PE welding.	Negligible
Power Generation	Stuart Landfill	Release of condensate due to overflow.	Allergic reaction or illness due to skin contact with condensate. Land / water contamination.	Minor	Possible	Medium	High level alarm. Refer Cause and Effect Matrix. Overfull would lead to low pressure at blower triggering plant shut down. Use of PPE. Refer Safety Management System.	Low
Power Generation	Stuart Landfill	Maintenance of CKV i.e. Change of pumps, pipework, cleanout of sludge.	Human exposure to condensate may lead to illness. Explosive atmosphere may exist if air ingress into vessel. Fire hazard if hot work / welding required.	Major	Possible	High	Specialist contractor engaged to pump out system. Use of PPE. Leachate Handling Permit to Work System. Task Specific Job Safety Analysis (JSEA) \ Safe Work Method Statement (SWMS) Worksheet. Refer Safety Management System.	Low
Power Generation	Stuart Landfill	Damaged to vessel due to high vacuum pressure resulting in ingress of air.	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Major	Possible	High	Pressure relief valve provided on blower. Low pressure alarms lead to plant shutdown. Refer Cause and Effect Matrix. Suitably qualified and experienced contractors and employees used to undertake PE welding.	Low

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
FUEL RAIL								
Power Generation	Stuart Landfill	Static electricity build up on pipework creates an ignition source.	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Electric shock.	Major	Unlikely	Medium	Above ground fuel rail constructed from stainless steel and earthed. HDPE pipe buried therefore no voltage potential. Inherent safety from static charge build up due to wet fuel source.	Low
Power Generation	Stuart Landfill	Dropped engine on fuel rail during removal from generator module during major maintenance or repair campaign.	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Gas leak. Damage to plant and equipment.	Major	Rare	Low	Suitably experienced and qualified crane contractors to be utilised. Lifting gear certified and inspections up to date. Use of PPE. Permit to Work System. Task Specific Job Safety & Environment Analysis (ISEA) \ Safe Work Method Statement (SWMS) Worksheet. Refer Safety Management System.	Low
Power Generation	Stuart Landfill	Vehicle / mobile plant collision with fuel rail / on site personnel.	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Gas leak. Damage to plant and equipment. Fatality	Moderate	Unlikely	Medium	Facility located within a fenced compound. Restricted vehicle access. Use spotters where risk of collision is present. Refer Safety Management System.	Low
Power Generation	Stuart Landfill	Severe weather affecting operation of plant including cyclone, flood and lightening strike.	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Inundation and damage to plant and equipment. Dangerous road conditions leading to accident.	Moderate	Likely	High	Lightning poles located within Facility. Plant and equipment suitably anchored to slab/foundation. Stormwater design undertake by suitable qualified and experienced engineer. Facility can be remotely monitored and controlled (for limited situations).	Low
Power Generation	Stuart Landfill	Release of gas resulting from line failure due to stress cracking or corrosion.	Fire and explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Moderate	Unlikely	Low	Above ground fuel rail constructed from stainless steel. Expansion bellows incorporated into line. Pressure gauges installed and in the event of high or low pressure shutdown and isolation sequence initiated. Double block and bleed valving. Suitably experienced and qualified welders / gasfitters employed during construction and during major maintenance / repair campaigns.	Low

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
GENERATOR MODULE								
Power Generation	Stuart Landfill	Electrical fault causes fire.	Fire impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Personal Injury.	Major	Possible	High	Facility fence, generator module, fuel rail earthed. Earth grid buried and extends at least 1m beyond metal boundary fence. Instrumentation monitors electrical integrity and alarms in accordance with Cause and Effect Matrix. Generator modules ventilated to prevent methane build up. Methane detectors installed. Immediate generator module shutdown if methane concentration reaches 20%LEL. Fire protection (smoke and UV detectors) installed. Fire extinguishers located outside of entry. Facility finished in non combustible material (i.e. blue chip metal). Fire fighting and equipment safety equipment plan. Earth leakage devices provided on portable tools and switchboards. Refer Document: Fire Safety Drawing - 40041-DA-003	Low
Power Generation	Stuart Landfill	Oil fire within generator module.	Fire impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Personal Injury.	Major	Unlikely	Medium	Generator module earthed. Copy of hazardous area dossiers and hazardous area drawing kept on site. Instrumentation monitors integrity and alarms in accordance with Cause and Effect Matrix. Fire protection (smoke and UV detectors) installed. Fire extinguishers located outside of generator module entry. Fire fighting and equipment safety equipment plan. Fuel source can be isolated during maintenance. Double block and bleed valve. Site monitored remotely. Oil storage designed and maintained to Australian Standards. All oil spills from general operation and maintenance activities promptly cleaned up and disposed of in accordance with Australian standards / legislation / licence requirements as appropriate. House Keeping. Refer Safety Management System. Refer Document: Fire Safety Drawing - 40041-DA-003	Low
Power Generation	Stuart Landfill	Operation and maintenance of rotating equipment.	Burns. Crush injury. Cuts and bruises.	Major	Possible	High	All rotating parts and guards painted yellow (as appropriate). Safety manual, which includes all operating and maintenance procedures, maintained and kept on site. Long sleeves and pants must be worn on site. PPE used. All personnel provided with adequate training prior to using / working on rotating equipment. Training matrix prepared and kept up to date. Toolbox / Pre-start talks undertaken. Task Specific Job Safety & Environment Analysis (JSEA) \ Safe Work Method Statement (SWMS) Worksheet. Appropriate safety signage erected. Refer Safety Management System.	Low

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
GENERATOR MODULE CONTINUED								
Power Generation	Stuart Landfill	Release of gas resulting from working on pressurised equipment including overpressure event.	Fire or explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Personal injury.	Major	Possible	High	Pressure relief provided in accordance with Australian standards (as appropriate). High pressure alarms lead to plant shutdown. Refer Cause and Effect Matrix. Double block and bleed valving. Suitably experienced and qualified welders / gasfitters employed during construction and during major maintenance / repair campaigns. PPE used. Permit to Work System. Isolations. Task Specific Job Safety & Environment Analysis (JSEA) \ Safe Work Method Statement (SWMS) Worksheet. Refer Safety Management System.	Low
Power Generation	Stuart Landfill	Gas leak from venting instruments / seals.	Fire or explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Asphyxiation. Greenhouse gas emissions.	Moderate	Possible	Medium	Low pressure downstream of blower initiates fuel supply isolation. Generator module ventilation hardwired to shut off if not operating. Refer Cause and Effect Matrix. Methane detectors installed. Immediate generator module shutdown if methane concentration reaches 20%LEL. Emergency shutdown if methane concentration reaches 40%LEL. Fire protection (smoke and UV detectors) installed. Fire extinguishers located outside of entry. Refer Document: Fire Safety Drawing - 40041-DA-003	Low
Power Generation	Stuart Landfill	Vibration of generator causes fuel, coolant or oil line rupture.	Fire or explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Personal injury.	Major	Possible	Medium	Braided flexible stainless steel gas lines. Coolant lines braided stainless steel. Engine installed on rubber mount. Generator module is self banded and capable of storing 110% of oil inventory. Low pressure alarms (on coolant or gas lines) initiate shutdown. Refer Cause and Effect Matrix. Methane detectors installed. Immediate generator module shutdown if methane concentration reaches 20%LEL. Emergency shutdown if methane concentration reaches 40%LEL. Fire protection (smoke and UV detectors) installed. Fire extinguishers located outside of entry. PPE Used. Refer Safety Management System. Refer Document: Fire Safety Drawing - 40041-DA-003	Low

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
GENERATOR MODULE CONTINUED								
Power Generation	Stuart Landfill	Noise from operations.	Hearing loss. Nuisance to sensitive receptors (including residents, fauna and public).	Moderate	Almost certain	High	Specific noise policy for occupational health and safety developed. Refer Safety Management System. Where possible noise limited by using engineering controls (e.g. generator located within an acoustic enclosure, muffler on exhaust stack). Engineering controls regularly inspected and maintained. Records of maintenance kept. Safety signs erected to highlight noisy areas and PPE requirements. PPE used, Inductions undertaken and Environmental Management Plan implemented which includes Noise Management. Refer Safety Management System.	Low
Power Generation	Stuart Landfill	Overflow of generator module oil tank.	Fire impacting the energy facility impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Injury as a result of slip/fall. Onsite or offsite land and/or water contamination.	Moderate	Possible	Medium	Bunded tank. Generator module self bunded and capable of storing 110% of oil and coolant inventory upon catastrophic failure. Oil tank has sight glass. Tank overflows into bunded area. Oil flow meter monitors top up volumes (greater than 15L in 24hour period leads to warning alarm, greater than 40L in 24hour period leads to generator shutdown). Spill kit located onsite. Spill procedure and environmental management plan implemented.	Low
FLARES								
Power Generation	Stuart Landfill	Operation of flare.	Facility fire which could escalate to bushfire or landfill or rail corridor fire threat.	Major	Possible	High	Flare located outside fenced compound with restricted access. Operation of the flare/s is typically limited to extended scheduled or unscheduled maintenance / repairs, however the flare/s may at times be utilised on conjunction with the generator/s to control biogas levels that exceed the combustion capabilities of the generators/s. The flare is an enclosed design with no flame visible. Facility finished in non combustible material (i.e. blue chip metal). Fire fighting and equipment safety equipment plan. Copy of hazardous area dossiers and hazardous area drawings kept on site. Emergency response plan in place to prevent escalation of Facility fire to bushfire / landfill fire threat. Vegetation to be cleared up to 15m from the flare. Refer Document: Emergency Response Plan - 40041-RG-030	Low
LOW VOLTAGE (415V) MAINS CABLE								
Power Generation	Stuart Landfill	Damage to LV cable due to hotspots.	Power station unable to operate.	Insignificant	Possible	Low	Routine thermal imaging undertaken. Preventative maintenance system in place. Maintenance and inspection records maintained.	Negligible

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
HIGH VOLTAGE (11KV) ASSETS - POLES AND WIRES								
Power Generation	Stuart Landfill	Damage to HV cable due to hotspots.	Power station unable to operate.	Minor	Possible	Low	Routine thermal imaging undertaken. Preventative maintenance system in place. Maintenance and inspection records maintained.	Negligible
Power Generation	Stuart Landfill	Conductor clearance to objects compromised	Where an asset failure has not occurred however the conductor has come into contact with another object that is at a different voltage and there is potential for a discharge of energy sufficient to cause a fire impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Some examples include: - Conductors clashing together due to insufficient clearance - Insufficient design clearances - Vehicle or plant coming into contact with conductors - Equipment or stores stored too close to conductors - Buildings or scaffolding too close to conductors	Moderate	Unlikely	Low	Conduct monthly inspections of LMS infrastructure using FM59. Ensure site design and construction takes into consideration the location of site buildings, neighbouring structures and plant. All future works must consider this risk.	Negligible
Power Generation	Stuart Landfill	Insufficient conductor clearance to vegetation	Clearances to vegetation not maintained and conductors and vegetation are likely to come into contact. Vegetative fuel under overhead lines provides a source of fire propagation after an asset failure.	Moderate	Possible	Medium	Vegetation Clearance Procedure that implements relevant requirements in ISSC3 Vegetation Clearance for Power Lines Conduct monthly inspections of LMS infrastructure using FM59, and organise the professional trimming or slashing of vegetation that encroaches into conductor exclusion zones.	Negligible

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
HIGH VOLTAGE (11KV) ASSETS - POLES AND WIRES CONTINUED								
Power Generation	Stuart Landfill	Mechanical or electrical failure	An asset fails mechanically resulting in a conductor coming into contact with the ground or other object and the energy discharged causes a fire. An electrical failure due to age, overloading, poor design, equipment damage that releases energy that causes a fire or causes mechanical damage which then leads to fire impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Moderate	Possible	Medium	Ensure electrical equipment is included in LMS's Maintenance Manage System (MMS). All faults or defects identified during monthly site safety inspections (FM59) are added to the MMS or appropriate HV contractors are engaged to repair any issues.	Negligible
Power Generation	Stuart Landfill	Arcing during equipment operation	Some equipment types have potential to arc in normal operation such as air break switches, links, fuses. This arcing has potential to release hot material onto the ground and start a fire impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Moderate	Unlikely	Low	Switching programs to be scheduled on days that do not present extra risks such as fire ban days or days of extreme wind. Vegetation to be monitored and controlled around transformers and poles where fuses, air breaks and switches are located, in accordance with FM59.	Negligible
Power Generation	Stuart Landfill	Hot work	Maintenance and construction activity associated with power supply assets, for example using a grinder, welding or driving a vehicle through long grass has potential to initiate a fire impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Moderate	Unlikely	Low	All LMS vehicles are diesel. LMS to communicate with landfill owners regarding slashing roadways or tracks to LMS assets. Hot Work Procedure in place and SWMS for the tasks completed and on site highlighting the hot work and appropriate controls to be implemented.	Negligible
Power Generation	Stuart Landfill	Operation of LMS sites on High Fire Risk days or Fire Ban days, or on days of high wind.	LMS Network / plant causing a fire on High Fire Risk days or Fire Ban days through failure or sparking, or through coming into contact with vegetation in high winds impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Moderate	Possible	Medium	Conduct monthly inspections of LMS infrastructure ie: flares, pad mount transformers, electrical poles and wires (HV/LV Overhead) to ensure vegetation, both on the ground and above the ground, is kept under control and where required organising the slashing or pruning of vegetation where it is deemed to be a hazard, Inspecting LMS Infrastructure in PRA area's to ensure it is maintained in a safe and ready for use condition, Coordinate vegetation control with neighbouring properties (council's, landfill's or forestry departments), Liaise with landfill operator and/or emergency services during a bushfire event to coordinate the safe operation, shut down and evacuation of LMS staff if and when required, Respond to a Bushfire Evacuation event in accordance with LMS Energy's Emergency Response Plan where one is available, or the landfill Emergency Response Plan. Refer Documents: Emergency Response Plan - 40041-RG-030	Negligible
Power Generation	Stuart Landfill	Damage to Overhead HV/LV wires and Infrastructure due to malicious or intentional damage	Unauthorised access in and around HV/LV network enabling a person of malicious intent the opportunity to cause damage to LMS plant and assets	Moderate	Unlikely	Low	Ensure design and construct includes security fencing around the perimeter of the site and HV/LV infrastructure, security cameras installed around LMS compounds as an extra level of deterrence.	Negligible

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
HIGH VOLTAGE (11KV) ASSETS - POLES AND WIRES CONTINUED								
Power Generation	Stuart Landfill	Overhead HV/LV equipment design and construction faults	Design or location of OH poles and wires contributing to the cause of fires or bushfires impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor.	Moderate	Possible	Medium	Design and construction of Overhead poles and wires network to consider the local environment and assess whether any impacts of plant or equipment failure has the risk of starting a fire.	Negligible
Power Generation	Stuart Landfill	Damage to Overhead HV/LV wires and Infrastructure due to Landfill Fire or Bushfire	Overhead HV/LV cables coming into contact with vegetation / Damage to HV/LV poles and wires causing a spark that ignites neighbouring vegetation / damage to LMS plant and equipment from a landfill fire or bushfire.	Moderate	Possible	Medium	Conduct monthly inspections of LMS infrastructure ie: flares, pad mount transformers, electrical poles and wires (HV/LV Overhead) to ensure vegetation, both on the ground and above the ground, is kept under control and where required organising the slashing or pruning of vegetation where it is deemed to be a hazard, Inspecting LMS Infrastructure in PRA area's to ensure it is maintained in a safe and ready for use condition, Coordinate vegetation control with neighbouring properties (council's, landfill's or forestry departments), Liaise with landfill operator and/or emergency services during a bushfire event to coordinate the safe operation, shut down and evacuation of LMS staff if and when required, Respond to a Bushfire Evacuation event in accordance with LMS Energy's Emergency Response Plan where one is available, or the landfill Emergency Response Plan. Refer Documents: Emergency Response Plan - 40041-RG-030	Negligible
STORAGE CONTAINER, STORAGE BUND AND WASTE MANAGEMENT								
Power Generation	Stuart Landfill	Leaking chemical / hazardous material storages (e.g. oil, battery acid and coolant) due to damaged packing, seals, fittings.	Fire, land and/or water contamination impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Slip hazard. Burns.	Moderate	Almost certain	High	All chemical / hazardous material stored in storage bund or cabinet provided in storage container as appropriate. Eye wash and safety shower located at Facility. Spill kits provided. Fire Extinguishers on site. Bunds regularly checked and cleaned out. Routine inspection of storage areas. PPE used. House Keeping. Refer Safety Management System. Refer Document: Fire Safety Drawing - 40041-DA-003	Low
Power Generation	Stuart Landfill	Potential reaction between incompatible substances in storage or handling.	Fire. Heat. Toxic gas emission. Explosion. Spill.	Major	Almost certain	Extreme	All chemical / hazardous material stored in storage bund or cabinet provided in storage container as appropriate. Separation distances maintained in accordance with relevant Australian standards/ legislative requirements. SDS available on site for all chemical / hazardous materials stored. Eye wash and safety shower located at Facility. Spill kits provided. Bunds regularly checked and cleaned out. Routine inspection of storage areas. PPE used. House Keeping. Refer Safety Management System. Refer Documents: Fire Safety Drawing - 40041-DA-003	Low

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
FACILITY (BEF)								
Power Generation	Stuart Landfill	Fire at transformer (due to electrical fault, oil leak) affects operation of Facility.	Fire impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Burns. Power station unable to operate.	Major	Unlikely	Medium	Transformers have over temperature protection that will shut down the generator module in the event of a fault. Transformer overpressure protection will shut down the station in the event of a fault. Electrical protection relays will shutdown station and open High Voltage breaker in the event of a transformer electrical fault. Refer Cause and Effect Matrix. Transformers enclosed in a steel Kiosk. Storage of flammable products (i.e. pallets, plastic must not be stored against fences, buildings or next to transformers). House Keeping. Refer Safety Management System.	Low
Power Generation	Stuart Landfill	Pests or scavenging native species attracted to refuse.	Fire. Health hazard. Trip, slip and fall hazards. Pollution of creek.	Minor	Likely	Medium	Fire or explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Air, land and water contamination.	Low
Power Generation	Stuart Landfill	Deliberate attack on site facilities.	Fire or explosion impacting the energy facility and potentially surrounding areas including landfill facility or rail corridor. Air, land and water contamination.	Moderate	Rare	Low	Fenced facility. Operations remotely operated. Security Cameras. Facility located within Landfill boundary which is fenced. Refer to Emergency Response Plan and Safety Management System. Refer Documents: Emergency Response Plan - 40041-RG-030	Low
Power Generation	Stuart Landfill	Vehicle / mobile plant collision while travelling to and from facility (onsite risk addressed in Fuel Rail risks).	Fatality. Damage to vehicle. Fauna fatality. Oil or chemical spill potentiall impacting the energy facility and surrounding areas including landfill facility or rail corridor.	Moderate	Likely	High	Regular servicing undertaken and logbooks maintained. Employees must obey rules in Vehicle Policy Employees must obey rules in Electronic Resources & Communications Policy (Use of Mobile Device). Valid drivers licence must be held. First aid kits and fire extinguisher located in company vehicles. Refer Safety Management System. Refer Documents: Safety Management Plan - 40041-RG-031	Low
Power Generation	Stuart Landfill	Personnel undertaking operation / maintenance activities at height (e.g. Accessing radiator fans on top of generator module or undertaking emissions testing at exhaust stack monitoring ports).	Fatality. Damage to plant and equipment.	Major	Possible	High	Safety harness required where fall possible greater than 1.8m. Permit to work system. Task Specific Job Safety & Environment Analysis (JSEA) \ Safe Work Method Statement (SWMS) Worksheet. Suitably experienced and qualified employees and contractors to be utilised. PPE used. Training register. Inductions undertaken. Refer Safety Management System. Refer Documents: Safety Management Plan - 40041-RG-031	Low

BUSINESS UNIT	LOCATION (Optional)	RISK EVENT	CONSEQUENCE	CONSEQUENCE	FREQUENCY	RISK RATING	CONTROLS	ASSESSED RISK RATING
FACILITY (BEF) CONTINUED								
Power Generation	Stuart Landfill	Unauthorised access from public, landfill operations staff and visitors.	Damage to plant and equipment. Injury. Electrocution.	Major	Possible	High	Facility fenced with security gate. Security gate padlocked when no operator in attendance. Entrance signed directing visitors to report to control room. Inductions undertaken. Warning and hazard signs erected on Facility fence. Operator contact details provided on front fence.	Low
Power Generation	Stuart Landfill	Fire affecting operation of the Facility (i.e. Bushfire or landfill fire).	Damage to plant and equipment potentiall impacting the energy facility and surrounding areas including landfill facility or rail corridor. Injury.	Minor	Possible	Low	Emergency Response Plan. Regular communications with landfill operator. LMS, ERP enacted during a facility incident which does not pose a threat beyond fence line. Landfill operator ERP enacted during an incident exists outside of facility boundary. First Aid Training. Training register. Inductions undertaken. Refer Documents: Emergency Response Plan - 40041-RG-030	Negligible