

POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

Verdant Energy Hub – Hunter Valley



JULY 15, 2022

VERDANT EARTH TECHNOLOGIES
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Document Revision Record

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0	01/11/2019	Updated to Hunter Energy	C Tsiolkas	GD	CT
1	18/06/2020	Updated document to include PIRMP requirements	C Tsiolkas	GD	CT
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3	2/07/2021	Updated to Verdant Earth Technologies	A vd Kroft	GD	CT
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1 Purpose

The *Protection of the Environment Legislation Amendment Act 2011* (PELA) received assent on 16 November 2011, resulting in changes to the *Protection of the Environment Operations Act 1997* (POEO Act). The intent of the PELA is to improve the way pollution incidents are reported and managed. Provisions include a requirement for holders of Environmental Protection Licences (EPLs) to prepare, keep, test and implement a Pollution Incident Response Management Plan (PIRMP). The specific requirements for PIRMPs are set out in Part 5.7A of the POEO Act and the *Protection of the Environment Operations (General) Regulation 2009* (POEO (G) Regulation). In summary, this legislation requires the following:

- holders of EPLs must prepare a Pollution Incident Response Management Plan (Section 153A, POEO Act);
- the plan must include the information detailed in the POEO Act (section 153C) and the POEO(G) Regulation (Clause 98C) and be in the form required by the POEO(G) Regulation (clause 98B);
- licensees must keep the plan at the premises to which the EPL relates (section 153D, POEO Act);
- licensees must test the plan at least every 12 months and after a pollution incident in accordance with the POEO(G) Regulation (clause 98E); and
- if a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened within the meaning of Part 5.7 of the POEO Act, licensees must immediately implement the plan (Section 153F, POEO Act).

As the holder of EPL 11262, Verdant Earth Technologies (Verdant) is required to comply with the POEO Act. As such, this document has been developed to satisfy the PIRMP requirements documented above and detail the procedures for notification of pollution incidents resulting in or having the potential to cause material harm to the environment.

The notification of environmental incidents under this PIRMP is only required for those incidents causing or threatening to result in material environmental harm (a material harm incident) as defined in the POEO Act.

2 Scope

2.1 Regulatory Requirements

Specific detail is required for inclusion in the PIRMP. *Table 2-1* lists information mandated under Section 153C of the POEO Act and Clause 98C of the POEO (G) Regulation, and details where this information is located in this document.

Table 2-1: Regulatory Requirements and Document Directory

Section	Detail required	Location in this document
153C (a)	<p>The procedures to be followed by the holder of the relevant EPL in notifying a pollution incident to:</p> <ul style="list-style-type: none"> the owners or occupiers of premises in the vicinity of the premises to which the EPL relates; the local authority for the area in which the premises to which the EPL relates, are located and any area affected, or potentially affected, by the pollution; and any persons or authorities required to be notified by Part 5.7 (of the POEO Act) 	<p>Section 5.3</p> <p>Section 5</p> <p>Section 5.2</p>
153C (b)	A detailed description of the action to be taken, immediately after a pollution incident, by the holder of the relevant EPL to reduce or control any pollution	Section 4
153C (c)	The procedures to be followed for coordinating with the authorities or persons that have been notified, any action taken in combatting the pollution caused by the incident and in particular, the persons through whom all communications are to be made	Section 5.2
98C	<p>Any other matter required by the Protection of the Environment Operations (General) Regulation 2009 (as set out below):</p> <p>98C (1)(a)</p> <p>A description of the hazards to human health or the environment associated with the activity to which the licence relates (the “relevant activity”).</p>	Section 2.3
	<p>98C (1)(b)</p> <p>The likelihood of any such hazards occurring, including details of any conditions or events that could, or would, increase that likelihood.</p>	Section 2.3
	<p>98C (1)(c)</p> <p>Details of the pre-emptive action to be taken to minimise or prevent any risk of harm to human health or the environment arising out of the relevant activity.</p>	Section 2.4
	<p>98C (1)(d)</p> <p>An inventory of potential pollutants on the premises or used in carrying out the relevant activity.</p>	Section 2.4

Section	Detail required	Location in this document
	<p>98C (1)(e) The maximum quantity of any pollutant that is likely to be stored or held at particular locations (including underground tanks) at or on the premises to which the licence relates.</p>	Section 2.4
	<p>98C (1)(f) A description of the safety equipment or other devices that are used to minimise the risks to human health or the environment and to contain or control a pollution incident.</p>	Section 4
	<p>98C (1)(g) The names, positions and 24-hour contact details of those key individuals who:</p> <ul style="list-style-type: none"> (i) are responsible for activating the plan; (ii) are authorised to notify relevant authorities under Section 148 of the POEO Act; and (iii) are responsible for managing the response to a pollution incident. 	Section 3.2
	<p>98C (1)(h) The contact details of each relevant authority referred to in section 148 of the POEO Act.</p>	Section 5.2
	<p>98C (1)(i) Details of the mechanisms for providing early warnings and regular updates to the owners and occupiers of premises in the vicinity of the premises to which the licence relates or where the scheduled activity is carried on.</p>	Section 5.3
	<p>98C (1)(j) The arrangements for minimising the risk of harm to any persons who are on the premises or who are present where the scheduled activity is being carried on.</p>	Section 4
	<p>98C (1)(k) A detailed map (or set of maps) showing the location of the premises to which the licence relates, the surrounding area that is likely to be affected by a pollution incident, the location of potential pollutants on the premises and the location of any stormwater drains on the premises.</p>	Figures 2-1 to 2-3
	<p>98C (1)(l) A detailed description of how any identified risk of harm to human health will be reduced, including (as a minimum) by means of early warnings, updates and the action to be taken during or immediately after a pollution incident to reduce that risk.</p>	Section 4

Section	Detail required	Location in this document
	98C (1)(m) The nature and objectives of any staff training program in relation to the plan.	Section 6.1
	98C (1)(n) The dates on which the plan has been tested and the name of the person who carried out the test.	Section 6.2
	98C (1)(o) The dates on which the plan is updated.	Section 6.2
	98C (1)(p) The manner in which the plan is to be tested and maintained.	Section 6.2

2.2 Site Details

Verdant Energy Hub – Hunter Valley (VEH-HV) is currently in care and maintenance, however this PIRMP incorporates considerations for power generation and related activities for the safe storage and care of the plant as well as any future operations, including maintenance, refurbishment or testing plant and equipment. VEH-HV operates under EPL 11262 and is located at Warkworth, approximately 9 kilometres south-west of Singleton in the Hunter Valley of New South Wales (*Figure 2-1*).

The surrounding area, which may potentially be impacted by a pollution incident occurring at VEH-HV, in addition to the premises itself, may include the following:

- landholders adjacent to the site;
- downstream watercourses (including inundation areas and adjacent landholders): Sandy Hollow Creek and Dights Creek, which subsequently flow into the Hunter River;
- Dyno Nobel Warkworth Depot; and
- Mount Thorley Warkworth coal mine.

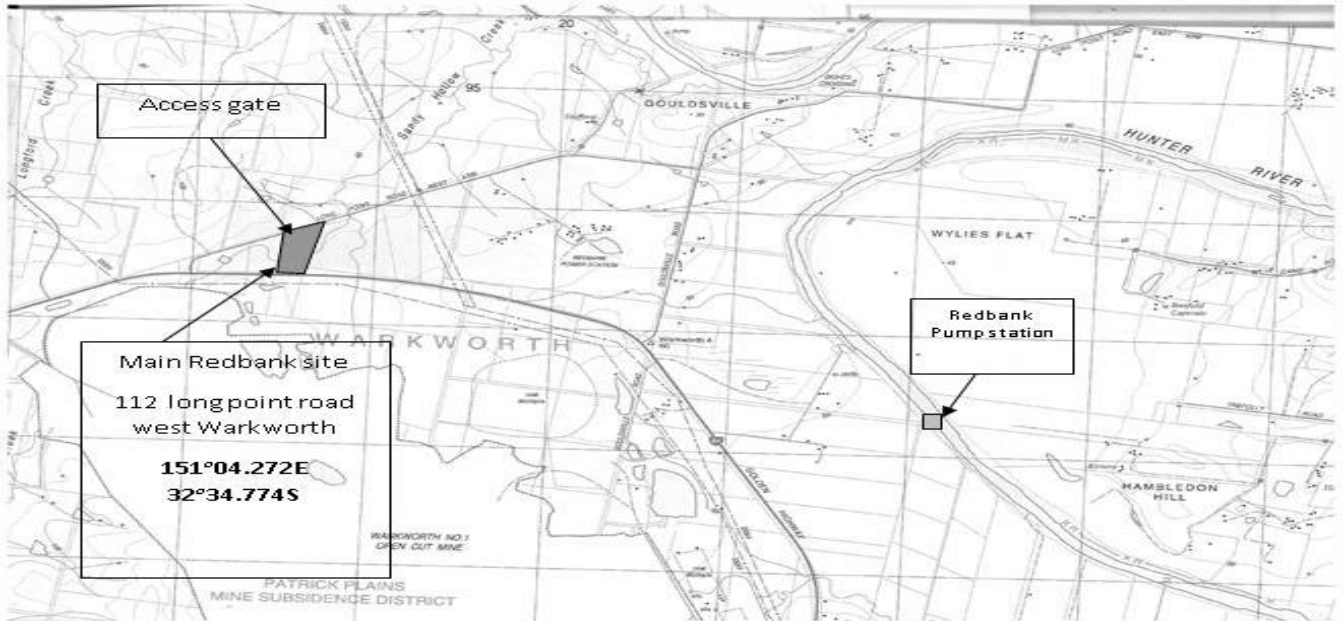


Figure 2-1: Site Locality

2.3 Major Hazards

The potential major hazards which have been identified for VEH-HV include:

- spills resulting in land contamination;
- spills resulting in water contamination;
- major water discharge (e.g. dam failure);
- fire; and
- explosion.

Verdant is committed to minimising the circumstances under which pollution incidents may occur, using regularly scheduled meetings, employee and contractor discussions, routine inspections and the implementation of our operating procedures. Using this process we should be able to identify conditions that might lead to a pollution incident and proactively prepare preventative actions.

Employees, as part of their site inductions and ongoing training, will be trained in the steps to report and respond to facility conditions or issues that might give rise to pollution incidents where these are found to exist.

2.4 Chemicals and Potential Pollutants

All chemicals are accompanied by the relevant Safety Data Sheets (SDS) as required by Work, Health and Safety Regulations.

The facilities that store fuel, oil and hazardous chemicals have been designed in accordance with Australian Standard 1940 – 2014 to incorporate:

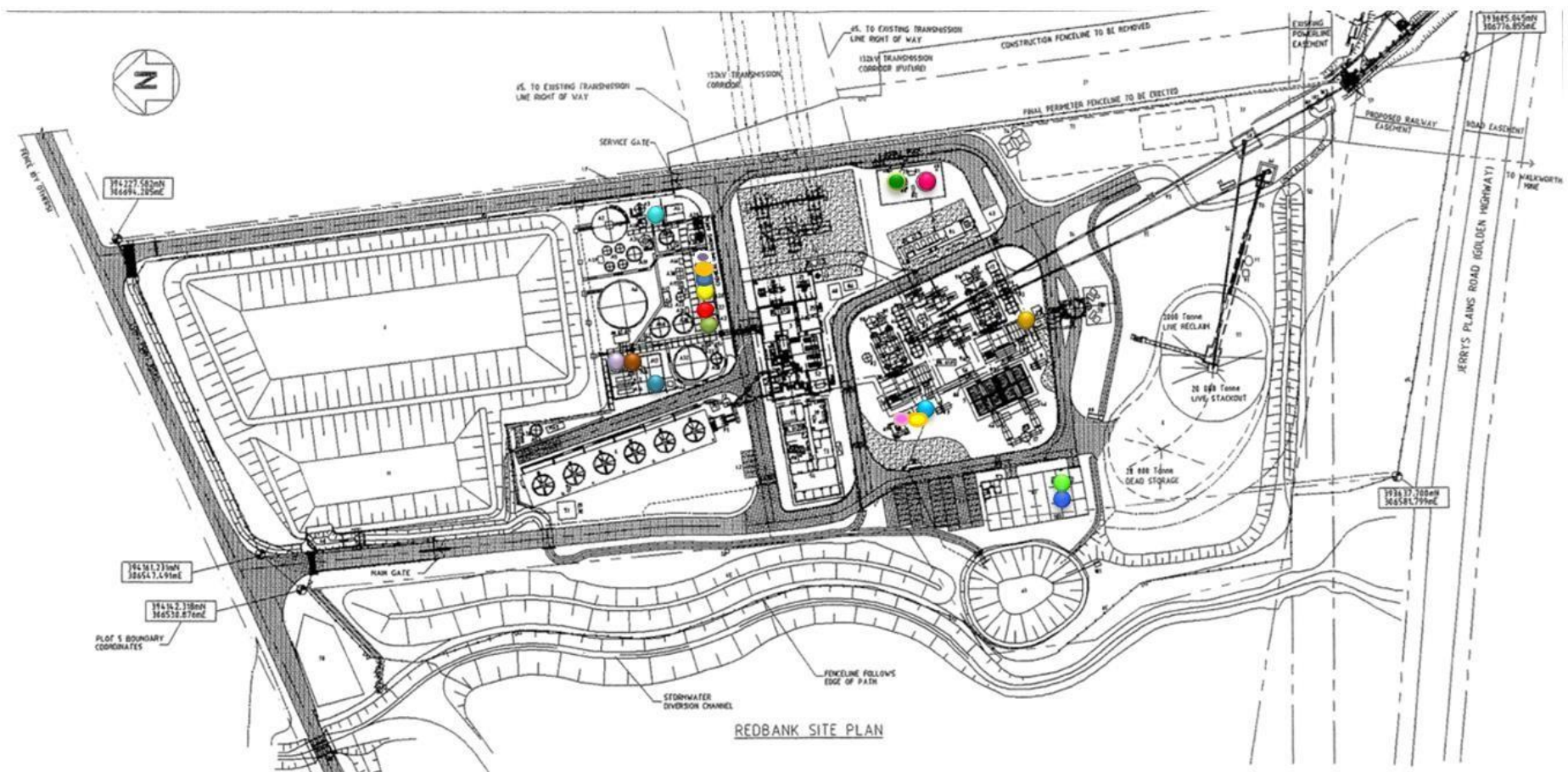
- impervious walls and floors;

- sufficient capacity to maintain 110% of the volume of the largest tank (or 25% of the total volume stored in all tanks, whichever is greater);
- walls not less than 250 mm high; and
- floors graded to a collection sump.

Potential pollutants created as part of operations and, thus, excluded from registers, include:

- ash slurry;
- cooling tower blow down water;
- sediment laden surface/storm water runoff from stockpile area; and
- effluent waste.

Figure 2-2 and *2-3* display the location of hazardous chemicals and potential pollutants at the VEH-HV Site and *Table 2-2* provides a list of these hazardous chemicals and the maximum and typical quantities stored.



Site 1	Magnesium Chloride	Site 2	Sodium Hypochlorite	Site 3	Ferric Chloride ~60%	Site 4	Caustic Soda ~50%	Site 5	Sulphuric Acid 98%	Site 6	Hydrochloric Acid 20%
Site 9	Hydrochloric Acid <10%	Site 11	Sodium Metabitesuphite	Site 12	Phosphonic Acid >99%	Site 15	Diesel	Site 16	Diesel	Site 17	Carbohydrazide
Site 18	Ammonia Anhydrous~35%	Site 19	TriSodium Phosphate	Site 21	Sodium & Potassium (OH)	Site 22	Acetylene	Site 23	Oxygen Gas	Site 24	LPG Propane

Figure 2-2: Hazardous Chemical Locations

- 1. Storm water & overflow to Dights Creek- dam volume – 4 ML
- 2. Cooling tower blow down – 3.2 ML – leak path same as ash slurry
- 3. Treated sewage – 75,000 litres leak path same as storm water
- 4. Untreated sewage – 20,000 litres leak path same as storm water
- 5. Dry ash potential emissions to air – 1000 tonnes
- 6. Dights Creek

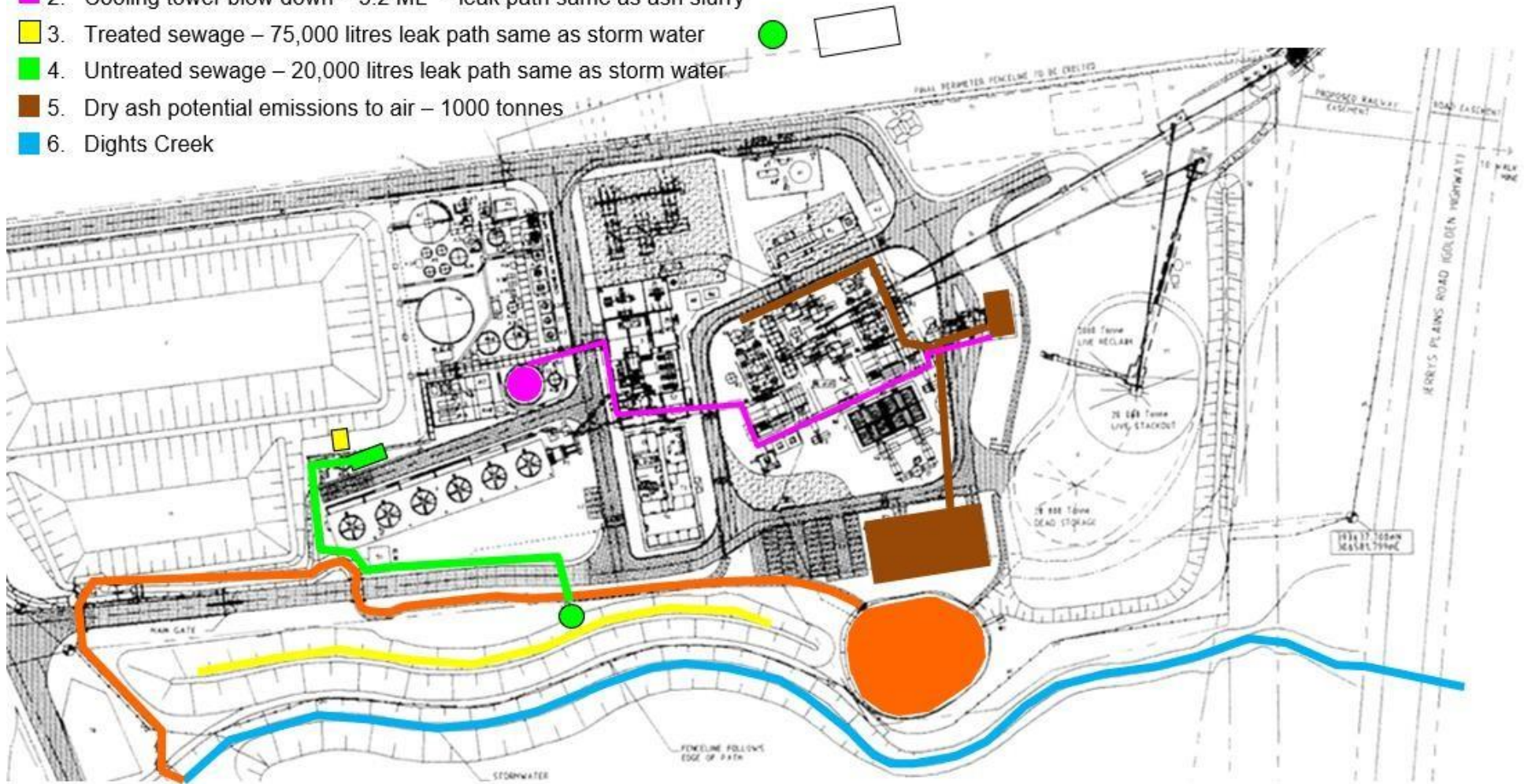



















Figure 2-3: Potential Pollutants, Quantities and Flow Paths

Table 2-2: Hazardous Chemicals List and Locations

VEH-HV List and Locations of Hazardous Chemicals NDG034526

Location of Storage	Product Name	CAS Number	CLASS	Packin g Group	Hazardous Chemical Code	U.N. Number	Dangerous Goods Symbol	Maximum Capacity (L)	Typical Fill Capacity (L)
1 	Magnesium Chloride	7791-18-6	NA	NA	NA	NA	-	10,000	9,000
2 	Sodium Hypochlorite 10-15%	7681-15-29	8	III	2X, H314 H400	1791		10,000	9,000
3 	Ferric Chloride 30-60%	1705-08-0	8	III	2X	2582		10,000	9,000
4 	Caustic Soda 46-50%	1310-73-2	8	II	2 R, H 290 H314	1824		10,000	9,000
5 	Sulphuric Acid 98%	7664-93-9	8	II	2P, R35 & R41	1830		10,000	9,000
6 	Hydrochloric Acid 20%	7732-18-5	8	II	2R	1789		3,000	2,500
9 	Hydrochloric Acid <10%	7732-18-5	8	II	2R	1789		5,000	2,700
11 	Sodium Metabisulphite	7681-57-4	8	NA	H302 H318	2693		2,500	1,400
12 	Phosphonic Acid >99%	2235-43-0	NA	NA	NA	NA		2,500	1,400
15 	Diesel Fuel	68334-30-5	C1	NA	H302 H304 H315 H373 H411	NA		380,000	70,000
16 	Diesel Fuel	68334-30-5	C1	NA	H302 H304 H315 H373 H411	NA		40,000	20,000
17 	Carbohydrazide	497-18-7	9	III		3077		3,500	1,400

VEH-HV List and Locations of Hazardous Chemicals NDG034526

Location of Storage	Product Name	CAS Number	CLASS	Packin g Group	Hazardous Chemical Code	U.N. Number	Dangerous Goods Symbol	Maximum Capacity (L)	Typical Fill Capacity (L)
18 ●	Ammonia Anhydrous 10-35%	7732-18-5	8	III	2R, H314 H335 H400	2672		2,500	1,400
19	TriSodium Phosphate	10101-89-0	8	III	H314 H335	3262		3,500	1,400
21 ●	SAS 602 Sodium & Potassium Hydroxide	Product No. 4512	8	III	R25, R41, S12, S26 and S45	3266		300	270
22 ●	Acetylene Gas	74-86-2	2.1	NA	2SE	1001		555	500
23	Oxygen Compressed Gas	7782-44-7	2.2	NA	2S	1072		410	370
24 ●	LPG Propane Gas	68476-85-7	2.1	NA	NA	1075		400	360

3 Management and Responsibilities

3.1 Legal Duty to Notify

All Verdant employees and contractors are responsible for alerting management personnel to all environmental incidents or hazards which may result in environmental harm or the potential to cause environmental harm, regardless of the nature or scale.

Notification responsibilities are detailed in the POEO Act (Section 148), which encompasses all site personnel, including contractors and sub-contractors. These can be categorised broadly as:

- the duty of an employee or any person undertaking an activity;
- any person engaged as an employee or undertaking an activity (at the licensed premises) must, immediately after becoming aware of any potential incident, notify their relevant manager of the incident and all relevant information about it. This is to be undertaken as per **Section 5.2**; and
- the duty of the employer or occupier of a premises to notify.

An employer or occupier of the premises on which the incident occurs, who is notified (or otherwise becomes aware of) a potential pollution incident, must undertake immediate notification to the appropriate regulatory authority of any “material harm incidents”, including relevant information. Notification shall be undertaken by the Health, Safety and Environment Manager, General Manager or Engineering Manager as per **Section 5.2**.

3.2 Contact Details

The specific responsibilities associated with the management and implementation of the PIRMP are outlined in **Table 3-1** below.

Table 3-1: PIRMP Contact Details

Name	Contact Details	Position	Responsibility
Costa Tsiolkas	Mobile: 0409 849 361	General Manager	Responsible for authorising the PIRMP and all subsequent updates Responsible for ensuring adequate resourcing for implementation of the PIRMP Authorised to liaise with the relevant authorities
Angela van der Kroft	Mobile: 0408 777 049	Health, Safety & Environment Manager	Responsible for undertaking notification as defined in this PIRMP Responsible for managing the response to a pollution incident

Name	Contact Details	Position	Responsibility
			Responsible for arranging testing and updating of the PIRMP Responsible for coordinating communications with affected community members
Owen Hassall	Mobile: 419 619 279	Engineering Manager	Authorised to act on behalf of the General Manager in their absence

4 Incident Management

A pollution incident is defined in the POEO Act as an incident or set of circumstances during, or as a consequence of, which there is, or is 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 includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

In the case of an environmental incident, prior to any other action, the site must contact 000 if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service are the first responders, as they are responsible for controlling and containing incidents.

If the incident does not pose any threat to human health or property, concurrently with contacting emergency services (000), all possible actions should be taken to control the pollution incident and minimise health, safety and environmental consequences. These actions must be employed to the maximum extent possible to:

- provide for the safety of people at and within the vicinity of the site, and
- contain the pollution incident.

The actions to be implemented in the event of an incident include the following:

- secure the scene and contain the incident;
- gather information (i.e. environmental monitoring, photographs);
- investigate the incident;
- review and classify information and determine actions;
- complete actions; and
- analyse trends.

Arrangements, including description and location of safety equipment for minimising risk of harm to people and the environment as result of a pollution incident, and for containing or controlling a pollution incident, are included in ***SPR-0020 - Emergency Response Plan*** which documents the roles and accountabilities of key personnel in the event of an incident.

Incident management at VEH-HV focuses on actions to:

- secure and assign necessary tactical response resources, including equipment and/or personnel to minimise the environmental impacts associated with the incident;
- establish that tactical response operations are carried out in a safe, well-organised, legal and effective fashion;
- provide for the safety and welfare of all responders, employees, contractors and visitors;
- continuously assess the incident to determine the adequacy of tactical response operations and the need for assistance from external bodies;
- manage stakeholders arriving at site;
- minimise effects on people, the environment, property, production and company reputation; and
- implement an environmental monitoring program to quantify impacts as a result of the incident as well as to be used as the basis to notify adjacent landholders and downstream water users as to whether avoidance or remediation measures are required.

With regards to the specific major hazards identified in ***Section 2.3***, the following incident procedures have been developed:

- ***SPR-0020 - Emergency Response Plan***
- ***SPR-0024 - Incident Notification and Reporting Procedure***
- ***SPR-0006 - Spill Response Procedure***

All Verdant employees and contractors receive emergency preparedness and response training during their site induction. Controls of personal protective equipment and incident containment and control equipment are detailed in the Induction.

Verdant has limited authority to undertake pollution management activities on private property, or outside the site boundary and, in such cases, will liaise directly and provide appropriate assistance to the relevant authority and emergency services.

5 Notification Procedures

5.1 Determination of Material Harm

Following containment of the incident, immediate action must be taken to determine if the

incident can be classified as a '**material harm incident**', i.e. considered to be causing or threatening material harm. As defined by Section 147 of the POEO Act, a **material harm incident** has occurred if the incident:

- involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial; or
- results in actual or potential loss (including all 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) or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations).

It is possible for a material harm incident to occur on land that is within the boundary of the EPL.

The determination of a material harm incident will be made by the General Manager in consultation with the Health, Safety and Environment Manager. If the General Manager is not available immediately, the determination will be made by the Health, Safety and Environment Manager in consultation with the Engineering Manager.

5.2 Internal and External Notification

As discussed in *Section 3.1*, notification of an environmental incident is the responsibility of all site and contractor personnel.

In the instance of identification of an environmental incident or hazard, the personnel will report the issue immediately to their manager, who, in turn, shall report it to the Health, Safety and Environment Manager, or any member of the Management team. 'Immediately' is taken to mean 'promptly and without delay'. **As per guidance provided by the EPA, the decision on whether to notify the incident in accordance with Part 5.7 of the POEO Act should not delay immediate actions to provide the safety of people or contain a pollution incident. However, incident notification will be made as soon as it is safe to do so¹.**

The agencies listed in *Table 5-1* must be contacted in the order given below.

Record-keeping of incident details, including investigations and outcomes, will be undertaken in accordance with ***SPR-0024 – Incident Notification and Reporting Procedure***.

After initial notification of any material harm incident, it will be the responsibility of the Health, Safety and Environment Manager to liaise with the authorities listed in *Table 5-1* or

¹ EPA, *Frequently Asked Questions Regarding the Duty to Notify of a Pollution Incident* (March 2012)

<<http://www.environment.nsw.gov.au/legislation/poefaqsnofity.htm>>

any authority that is providing directions for management of the material harm incident and provide any additional information that is required or requested. This may include incident investigation reports and ongoing environmental monitoring results.

Table 5-1: External Contact Details

Agency	Contact Details
Fire and Rescue	000 (To be contacted first if the incident presents an immediate threat to human health or property and emergency services are required, or contacted last if emergency response is not required)
NSW EPA	131 555
NSW Health	(02) 4924 6477 (ask for Public Health Officer on call)
SafeWork NSW	13 10 50
Singleton Council	(02) 6578 7290 (office hours) or (02) 6572 1400 (after hours)

5.3 Notification to Local Landholders and Community

Community notification shall be undertaken at the determination of the Health, Safety and Environment Manager. Names and contact details of stakeholders, including local residents, are included in ***REG-0021 - PIRMP Stakeholder Register***. The following notification methodology is proposed to be utilised as required:

- early warnings: same day telephone notification to landholders who may be affected by the incident over the subsequent 24-hour period;
- updates: follow-up phone calls to all landholders who may have been notified by the initial early warning on an as required basis. Updates may be provided to the broader local community in affected areas via information sheets or newsletters, Community Consultative Committee meetings, Verdant's website and media statements; and
- priority will be granted to notification of sensitive premises in close proximity.

Information provided to the community will be relevant to the incident and may include:

- type of incident that has occurred;
- potential impacts local landholders and the community;
- site contact details; and
- advice or recommendations based on the incident type and scale.

6 Training, Testing and Communication

6.1 Training

Incident management and emergency response shall be included in all VEH-HV Site Inductions.

6.2 Testing, Review and Maintenance

The testing of the PIRMP will be undertaken to check that the information is accurate and current and that the plan is capable of being implemented in a workable and effective manner. Testing shall be undertaken in the following ways:

- the PIRMP will be tested by assessing and reviewing it and making any necessary changes as identified. Testing is taken to be either a desktop review or an environmental emergency drill procedure. Testing will include all components of the plan, including training requirements;
- a review of the PIRMP will occur every 12 months commencing from the date of authorisation by the General Manager. Contact details in this document must be kept current at all times; and
- the PIRMP will be reviewed within one month from the date of any pollution incident that occurs in the course of an activity to which the EPL relates. This review will be undertaken in light of the incident, to provide the information included in the plan is accurate and up to date and the plan is still capable of being implemented in a workable and effective manner.

Testing of this PIRMP along with the dates and description of updates to this plan are recorded in the table in **Appendix A**. Information to be retained regarding PIRMP testing includes:

- the manner in which the test was undertaken;
- dates when the plan has been tested;
- the person who carried out the testing; and
- the date and description of any update or amendment to the plan.

6.3 Availability of the PIRMP

The PIRMP shall be kept in written form at the EPL premises and shall be made available to all personnel responsible for implementing the plan and to an authorised officer (as defined in the POEO Act) on request.

The PIRMP will be made publicly available within 14 days of finalisation (taken to be authorisation of the PIRMP by the General Manager) via the Verdant website, in a prominent position and on a publicly available page.

No personal information (within the meaning of the Privacy and Personal Information Protection Act, 1998) will be made publicly available as part of the PIRMP.

APPENDIX A - PIRMP Testing and Review History

Date	Review Team	Nature of the Test	Actions
01/11/2019	C Tsiolkas	Desktop Review	Updated to Hunter Energy
18/06/2020	C Tsiolkas	Desktop Review	Updated entire document to include PIRMP requirements
30/06/2020	C Tsiolkas	Desktop Review	Issued as final
7/07/2020	C Tsiolkas	Desktop Review, discussion with employees & inspection of chemical storage facilities.	Nil
2/07/2021	A vd Kroft	Desktop Review	Updated to Verdant Earth Technologies branding
21/07/2021	A vd Kroft	Desktop Review	Streamlined document
15/07/2022	A vd Kroft	Desktop Review	Nil