


**ATTACHMENT N**

**CONTINGENCY PROCEDURES FOR EMERGENCY  
ENVIRONMENTAL INCIDENTS**

# Contingency Procedures for Emergency Environmental Incidents

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Position	Name	(tick one column only)		Signature	Date
		Approve	Review		
Environment Manager	Trina Jensen	<input checked="" type="checkbox"/>			27/11/2019

**Contingency Procedures for Emergency Environmental Incidents**

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**REVISION HISTORY**

Revision	Revision Date	Document Status	Revision Comments	Author	Approved By
0	15/01/2018	Issued for Use	Updates from WSGP version	Brendan Cowie	Trina Jensen
1	27/11/2019	Issued for Use	Minor updates	H.Wood	T.Jensen

**1. INTRODUCTION**

The procedure for Emergency Environmental Incidents (referred to as the CPEI) provides an overview of Senex’s documents in place to manage emergency environmental incidents in Queensland operations.

An ‘emergency environmental incident’ is defined as ‘a sudden and immediate threat to the well-being of the environment that requires immediate measures to minimise its adverse consequences’. Natural events can present immediate and unacceptable short-term or long-term threats to coal seam gas (CSG) infrastructure, the environment and persons. In addition, CSG activities can result in unauthorised and unforeseen releases of hazardous and/or polluting substances that can present an immediate and unacceptable short-term or long-term threat to infrastructure, the environment and persons.

Depending on the risks to environmental values or proximity to sensitive receptors, such releases require timely or immediate emergency action to coordinate and implement countermeasures to protect the environment, persons and infrastructure from adverse effects and for notifying appropriate stakeholders and authorities.

**2. OBJECTIVE**

The procedure has been developed to satisfy the requirements of Environmental Authority conditions, with reference to obligations under the *Environmental Protection Act 1994* (EP Act), Maranoa Regional Council Local Disaster Management Plan v.6 2013 and Western Downs Local Disaster Management Plan v1.10 2015. The CPEI provides a framework for Senex to:

- Understand the risks of natural events and Senex activities to the integrity of infrastructure and the environment and safety of persons;
- Respond to emergency environmental incidents;
- Communicate with the appropriate parties in the event of emergency environmental incidents;
- Investigate the cause and impacts of emergency environmental incidents that have occurred; and
- Restore the environment or mitigate any environmental harm caused.

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### 3. SCOPE

Under Senex's Project Risk Management Process (SENEX-WSGP-RM-PRC-001) an emergency environmental incident equates to an Environmental Impact Score of 5 (Very High). Examples of emergency environmental incidents include:

- Natural events such as flooding and bushfire;
- Senex activities that have resulted in:
  - Significant release of produced water (e.g. due to loss of pipeline integrity);
  - Loss of well integrity
  - Loss of a regulated/unregulated dam/tank integrity (i.e. overtopping or structural failure); or
  - Significant uncontrolled release of hazardous chemicals and fuels.

#### 3.1. Natural Events

##### 3.1.1 Bushfires

Bushfires may occur when periods of low rainfall and high temperatures coincide at the end of winter months. A decline in annual and seasonal average rainfall, particularly in winter and spring, may lead to more severe droughts and provide more favourable conditions for bushfires where vegetation is available as fuel. Bushfires can impact:

- Vegetation and wildlife
- Rehabilitation
- Infrastructure integrity
- Gasfield operations where transportation routes and access to in-field infrastructure are blocked
- Workforce safety and travel.

##### 3.1.2 Extreme Rainfall and Flooding

A decline in annual and seasonal average rainfall and associated increase in the frequency of dry years may occur into the future and it is likely that rainfall events will be more intense during wet seasons. Periods of increased rainfall intensity and flooding are most likely in late spring through to summer when cyclonic activity is more common (Australian Bureau of Meteorology, 2015). Potential impacts of flooding include:

- Damage to and loss of vegetation and fauna habitat
- Site erosion
- Modification of floodplain and watercourse alignments
- Damage to infrastructure and loss of integrity
- Impairment of gasfield operations if flooding blocks transportation routes and access to in-field infrastructure.
- Isolation of workforce.

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Heavy rainfall or flooding can result in exceedance of design criteria for storage, drainage and erosion and sediment control systems. This could result in an unplanned overflow of produced water holding dams or failure of bunding at chemical, fuel or waste storage areas. Where loss of containment occurs, contaminants may flow onto adjacent land and into adjacent water bodies, potentially resulting in environmental harm.

### 3.1.3 Cyclones

Various studies indicate that frequency of cyclones off the east coast of Australia will either remain unchanged or decrease by up to 9% (Santos GLNG, 2014). However it is thought that the intensity of cyclones that do occur will increase in intensity by 56% by 2050 using a 30 km global model and by 22% by 2050 using a 50 km global model (AECOM, 2015). In addition to extreme rainfall and associated flooding, cyclones can result in extreme winds that can damage infrastructure, fell existing vegetation, damage rehabilitation works and limit access to parts of the tenure.

### 3.1.4 Management

The potential for natural events impacting on Senex's Queensland infrastructure will be minimised where reasonably practicable by:

- Avoiding siting infrastructure outside potential impact areas (e.g. dams located outside known floodplains).
- Mitigation including engineering design specifications, inspection and maintenance programs and implementing procedures and strategies.
- Management, including the plans and procedures in Section 4.

## 3.2. Senex Activities

Senex activities are managed to ensure compliance with Environmental Authority conditions, EP Act requirements and other regulatory requirements, however, emergency environmental incidents can occur as a result of unforeseen or unusual circumstances. Potential emergency environmental incidents relating to Senex activities may include:

- Significant release of produced water (e.g. due to loss of pipeline integrity)
- Loss of unregulated /regulated dam or tank integrity (i.e. overtopping or structural failure)
- Significant uncontrolled release of hazardous chemicals or fuels
- Loss of well integrity

These activities are subject to a number of processes, procedures and controls designed to minimise the risk of an emergency environmental incident occurring.

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### 4. EMERGENCY RESPONSE PLANS AND PROCEDURES

Senex has developed a number of plans and procedures relevant to emergency environmental incident management. These comprise:

- Surat Basin Emergency Response Plan (ERP) (SENEX-QLDS-ER-PLN-001)
- Crisis Management Plan (CMP) (SENEX-CORP-EC-PLN-001)
- Spill Response Plan (SENEX-CORP-ER-PLN-006)
- Surat Basin Operations Safety Manual (SENEX-QLDS-HS-MAN-001)
- Wellsite Safety Bridging Manual (SENEX-QLDS-HS-MAN-002)
- Surat Basin Construction Safety Manual (SENEX-QLDS-HS-MAN-003)
- Journey Management and Vehicles Procedure (SENEX-CORP-HS-PRC-014)
- Incident Management Procedure (SENEX-CORP-HS-PRC-004).

These documents contain information regarding:

- Roles and responsibilities of relevant emergency response personnel
- Emergency response procedures
- Resources to be used in response to an emergency environmental incident
- Details of associated forms and documentation
- Relevant training
- Communication procedures and coordination with stakeholders (e.g. emergency services, local government and state government)
- Notifications and reporting
- Incident investigation.

### 5. RESPONSIBILITIES

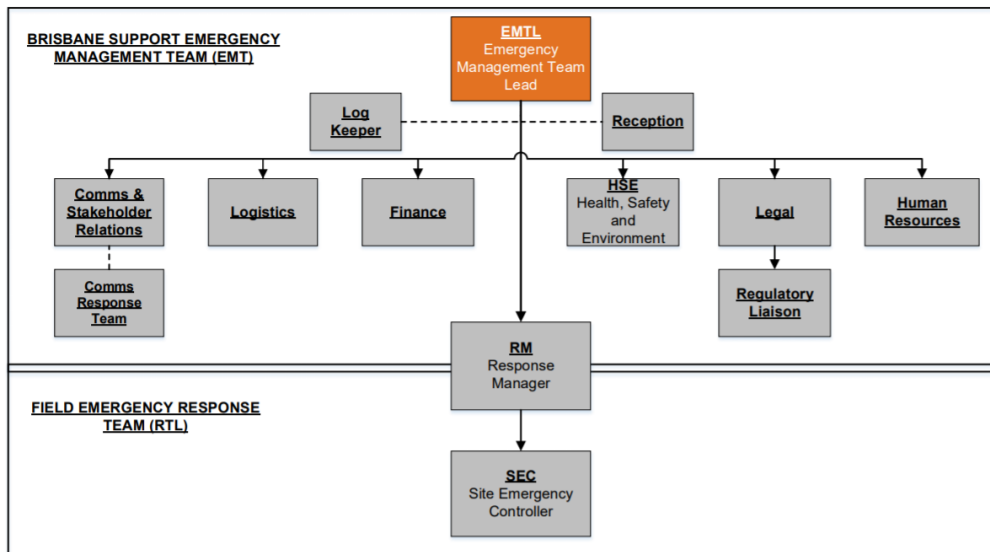
Roles and responsibilities for responding to an emergency environmental incident are provided in the Senex ERP.

The Senex emergency response structure consists of:

- Field response led by the Response Manager (RM), with a team assembled based on resources available and the nature of the emergency; and
- Corporate support led by the Emergency Management Team Lead (EMTL) with a team assembled to suit the support required by the field Response Team.

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Figure 1: Senex Emergency Response Structure



## 6. EMERGENCY RESPONSE ACTIONS

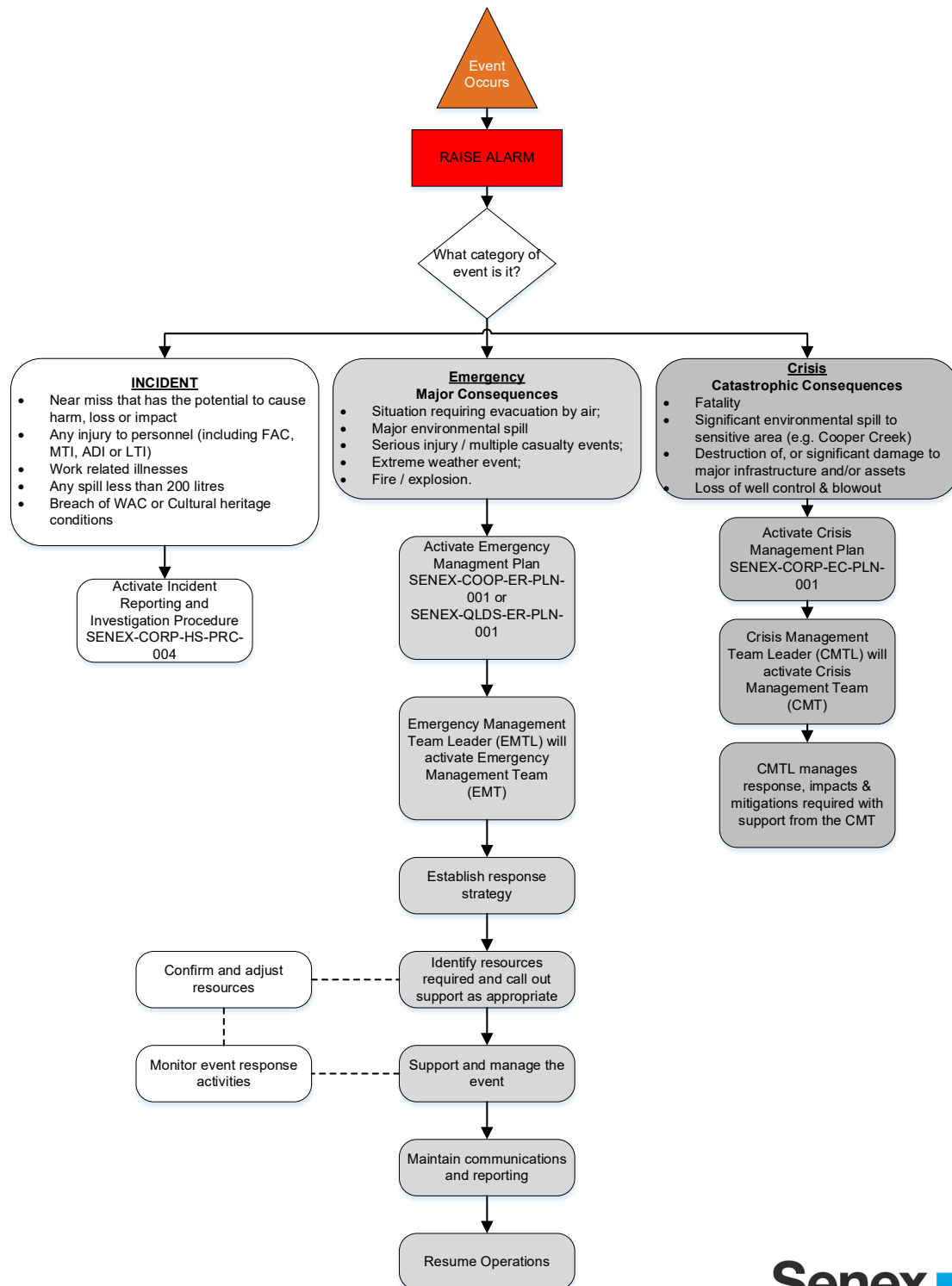
The following priorities are executed in response to an emergency environmental incident:

- Preserve life and ensure the safety of people;
- Minimise the impact on the environment; and
- Preservation of Senex’s reputation, commercial operability and business continuity.

The response process flow chart on the following page (Figure 2) illustrates how to categorise the situation, what happens at each step, and also guides the user on what needs to be done.



Emergency Response Process Flow



SENEX-CORP-ER-FLO-001  
Revision 3 – 14/05/2018

Figure 2: Emergency Response Process

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### 6.1. Response Measures

General response measures comprise, in order of priority:

1. Evacuate (all non-essential personnel).
2. Eliminate (sources of ignition, sparks, etc.).
3. Stop and coordinate (stop source of the incident (e.g. spill) and coordinate shut down of relevant equipment, if possible).
4. Notify (internal and external notifications).
5. Identify material (if previously unknown) and identify personal protection equipment (PPE), hazards, and response procedures, with reference to relevant safety data sheet (SDS).
6. Contain or isolate (contain released material or incident using emergency response equipment and/or set up perimeter to isolate area).
7. Stabilise and neutralise spilt material (where relevant), using absorbents and spill kits.
8. Clean up (remove released materials, spill response materials, any affected media etc.)
9. Evaluate.
10. Document.
11. Investigate and remediate (if necessary).

Once the situation has stabilised the proper notifications will be made and environmental monitoring undertaken as required.

Specific response actions and resources depend on the type and location of the emergency environmental incident, and are found in the ERP as follows:

- Bushfire
- Flooding/extreme weather event
- Major spill of hazardous substances
- CSG water release
- Pond failure leading to CSG water release.

## 7. COMMUNICATIONS

### 7.1. Internal Communications and Regulatory Notifications

Senex requires that all incidents are reported and fully investigated in accordance with their specific level of potential risk. The Incident Reporting and Investigation Procedure (SENEX-CORP-HS-PRC-004) defines:

- the process for the investigation and reporting of incidents
- ensures that Senex meets all regulatory notification requirements
- how to report emergency environmental incidents to:
- Internal communications.

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- Regulatory notifications.
- Local Government notifications.

When it has been determined whether regulatory reporting is required and if there is not a requirement to maintain legal privilege the Senex Incident Notification Form is to be completed and emailed to the Senex Incident Notification Group - [incidentnotificationgroup@senexenergy.com.au](mailto:incidentnotificationgroup@senexenergy.com.au).

If legal privilege is deemed necessary, the Senior Health and Safety Manager or Environmental Manager (or delegate) will liaise directly with General Counsel to maintain the confidential and privileged nature of the incident. Further information is included in section 6.4.4 of the Incident Management Procedure (SENEX-CORP-HS-PRC-004).

### 7.2. Stakeholder Notifications

Under the duty to notify requirements of the EP Act, it is necessary to provide written notice to any occupier of the affected land or any registered owner of the affected land regarding the event, its nature and the circumstances in which it happened within the prescribed time frame after becoming aware of the event.

It may be necessary to communicate details of the emergency environmental incident to other potential stakeholders. The emergency response and management teams may be required to liaise with regulatory authorities and other stakeholder groups such as local councils, landowners and emergency services. Communications with stakeholder groups must be carried out in accordance with the guidance provided in the Senex ERP.

Reporting of the incident to stakeholders and the regulatory authorities must be completed in the manner and timeframes and as per the Safety Management Plan and Senex Incident Management procedure.

## 8. INCIDENT INVESTIGATION

All emergency environmental incidents will be investigated to determine the casual factors and associated underlying systematic weaknesses (root causes). Remedial actions will be identified where relevant. This will be done in accordance with the Incident Management Procedure (SENEX-CORP-HS-PRC-004). The general steps involved in incident investigation are as follows:

1. Secure the investigation site(s) and evidence.
2. Assign an investigation team (varies based on type of investigation).
3. Gather factual information.
4. Determine the sequence of events based on fact gathering.
5. Identify the casual factors involved.
6. For each casual factor identify the root cause (why the casual factor occurred).
7. Recommend corrective actions for each root cause.

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8. Document the investigation and ensure learnings are relayed back to relevant team members and management.

### 9. ENVIRONMENTAL MONITORING

Environmental monitoring will be conducted in response to an emergency environmental incident where required. The specific aspects of the environmental monitoring activities, including suitable monitoring locations, will vary depending on the nature of the incident and could include:

- Visual and olfactory inspections to determine the nature and extent of impacts and ongoing response actions.
- Vapour monitoring associated with the release of gases and petroleum hydrocarbon and/or chemical vapours to atmosphere.
- Field measurements of pH and conductivity in released waters, waters contained within temporary containment structures or tanks and receiving waters.
- Laboratory measurements to identify constituents of concern in affected media where required (e.g. waters, soils).

More robust sampling and analysis may be conducted during the post-incident investigation, assessment and if required, remediation activities. This could include the implementing receiving environment monitoring programs where contaminants have been released to land or water, so as to determine the extent of any environmental impact. Programs could include upstream, downstream and impact site monitoring for releases to waters and a detailed soil monitoring program for releases to land.

### 10. ENVIRONMENTAL RECOVERY

If initial monitoring conducted in response to an emergency environmental incident identifies the potential for land contamination, a contaminated site assessment will be conducted to determine the potential risk to human health and/or the environment (either on or off the site), and to determine whether any contamination present warrants remediation or a management control, depending on the current or proposed land use.

In the event of a spill the Senex Spill Response Procedure (SENEX-CORP-ER-PLN-006) must be activated which specifies the appropriate response protocols.

On the basis of the release and potential area of impact, an investigation work plan will be developed. This work plan will consider the fluids or chemical released, the impacts to land and/or water and the environmental setting. If site assessments identify unacceptable risk associated with impacts, Senex will implement management controls or conduct remediation and rehabilitation of the affected media until the remaining risk is acceptable. Any remediation of contaminated areas will be site specific and conducted in accordance with relevant guidelines and the Senex Spill Response Plan.

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### 11. TRAINING OF STAFF

Personnel will be trained to ensure they can effectively fulfil their roles and responsibilities in the prevention and response to emergency environmental incidents. Some simulated emergencies, practical drills, desktop exercises and equipment checks may be utilised and will include relevant personnel likely to be involved. These exercises will be conducted to test the effectiveness of emergency procedures and to reinforce the readiness of relevant personnel. Opportunities for improvement will be identified and incorporated on an ongoing basis.

### 12. EVALUATION AND REVIEW

The procedure shall be reviewed on an as required basis, specifically if any of the following occur:

- Any area of the procedure is identified as not adequately managing any particular matter
- Relevant legislative requirements change
- The area of Senex activity changes.

The outcomes of reviews will be communicated to relevant Senex personnel.

[Senex template statutory declaration for certifying plans, procedures, programs and reports under Environmental Authorities]

Oaths Act 1867

Statutory Declaration

QUEENSLAND  
TO WIT

I, **John William Earley**, Environmental Specialist of Senex Energy, of 180 Ann Street Brisbane, in the State of Queensland, do solemnly and sincerely declare that the Contingency Procedures for Emergency Environmental Incidents (SENEX-QLDS-EN-PRC-024\_1) 27 November 2019 required to be developed under Environmental Authority EPPG00651513 and EA0001207 has been prepared such that:


- (a) relevant material, including current published guidelines (where available) have been considered in the written document;
- (b) the content of the written document is accurate and true; and
- (c) the document meets the requirements of the relevant conditions of the environmental authority.

**And I make** this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1867 (Qld).

**Signed and declared** by the abovenamed declarant at Brisbane, in the State of Queensland this 27 day of November 2019,  
Before me:



\_\_\_\_\_  
Signature of person before whom the declaration is made



\_\_\_\_\_  
Signature of declarant

SOPHIE ELIZABETH LOVE PARKYN, SOLICITOR

Full name and qualification of person before whom the declaration is made