



# Risk Management Plan for Bushfire

Pilbara Regional Waste Management Facility

Lot 150 Onslow Road, Talandji,  
Shire of Ashburton

Associated Bushfire Management Plan

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BPP Group Pty Ltd t/a Bushfire Prone Planning

ABN: 39 166 551 784

Level, 159-161 James Street

Guildford WA 6055

PO Box 388

Guildford WA 6935

Ph: 08 6477 1144

Email: [admin@bushfireprone.com.au](mailto:admin@bushfireprone.com.au)



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<b>Author:</b>	Syd Bignell	
<b>Approval:</b>	Kathy Nastov	
	Level 3 Bushfire Planning and Design Practitioner	Accreditation: BPAD27794
	BPP Group Pty Ltd TA Bushfire Prone Planning ACN: 39 166 551 784	
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## Introduction

A regional waste management facility is proposed for development at 150 Onslow Road, Talandji, Western Australia. The development when complete will receive, sort/decline, store and manage waste.

### Aim

Provide a Risk Management Plan that addresses bushfire risk management to the site for any flammable on-site hazards or activities.

### Scope

The scope of this plan is to address all identified risks that potentially ignite flammable on-site hazards and/or bushfire, prolonging a bushfire's duration, or increasing its intensity.

### Plan Objectives

The objectives of this Plan are to:

- Prevent on-site activities starting a bush fire on external land.
- Reduce the risk of ignition of on-site hazards when exposed to a local area bushfire.
- Mitigate risk that exposes the community (site workers and roadway users), fire fighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event.

## Establishing Context

### Justification for risk management plan

The proposed Pilbara Region Waste Management Facility has been determined by State Planning Policy 3.7 (SPP3.7) – Planning in Bushfire Prone Areas to be of a high-risk land use.

The SPP3.7 Part 7 definition of high-risk land use is: - A land use which may lead to the potential ignition, prolonged duration and/or increased intensity of a bushfire. Such uses may also expose the community, site workers, roadway, firefighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event.

The WA Planning Commission's Guidelines for Planning in Bushfire Prone Areas version 1.3 of Dec 2017, Part 5.6 provides examples of what constitutes a high-risk land use presented but not limited to; service stations, landfill sites, bulk storage of hazardous materials, fuel depots and certain heavy industries as well as military bases, power generating land uses, saw-mills, highways and railways. As such, the proposed Pilbara Regional Waste Management Facility incorporates the high risks of landfill sites and bulk storage of hazardous materials<sup>1</sup>.

Further, proposals for non-residential high-risk land uses in bushfire prone areas are to comply with policy measure 6.6 (of the Guidelines) which requires a Bushfire Management Plan jointly endorsed by the local government and the Department of Fire and Emergency Services. This may include establishing an appropriate

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<sup>1</sup> Hazardous materials due to the storage of various waste types and the unknown contamination and mixing of waste types

Asset Protection Zone (APZ) and should be supported by a risk management plan that addresses bushfire risk management measures for any flammable on-site hazards. A risk management plan may determine that a reduction in on-site flammable material, or appropriate storage of such material, would be required to reduce the threat.

### Authority

The Shire of Ashburton has requested a Risk Management Plan that addresses bushfire risk be provided with the Bushfire Management Plan under WA Planning Policy 6.6 (refer Bushfire Management Plan BPP reference 180227).

### Context

The proposed site at Lot 150 Onslow Road, Talandji, Shire of Ashburton is within a Bushfire Prone Area as identified and designated by the Fire and Emergency Services' Commissioner under the Fire and Emergency Services Act 1998 (as amended) as "Designation of an area as being bushfire prone reflects the potential of bushfire to affect that site".

### Stakeholder group

The stakeholder group in respect to ignition of bushfires is limited to the site (including all waste partners) and adjacent bushland owner – Landgate (assumed land owner), the Shire of Ashburton and the Department of Fire and Emergency Services (DFES). In terms of a bushfire being exacerbated by the facility, or its operations, through an increase in duration or increase in fire intensity and/or the potential increase of hazard exposure to the community (site workers and roadway users), firefighters and the environment the stakeholder group extends to the Department of Water and Environmental Regulation, Department of Biodiversity, Conservation and Attractions' (DCBA) Parks and Wildlife Service (P&WS), Main Roads and WA Police.

### Identifying Risks and Opportunities

Within the context of bushfire, the Risk Context table below describes bushfire impact from external to the site OR the outcome from on-site practices in causing bushfire external to site.

Context	There is a risk that
Bushfire external to the facility impacts the site	<ol style="list-style-type: none"> <li>1. Fire embers enter site and ignites waste products and other flammables.</li> <li>2. Subsequent fire within the site prolongs duration or increases intensity of the bushfire.</li> <li>3. Subsequent fire within the site causes increased or dangerous hazard exposure to the community, site workers, roadway users, firefighters and the environment.</li> </ol>
On-site activities start bushfire	<ol style="list-style-type: none"> <li>1. A fire starting in plant, storage or transport vehicle causes a bushfire external to site that threatens communities, site workers, roadway users, other infrastructure and the environment.</li> </ol>

Table 1 Bushfire Risk Context

In all cases opportunities come from any successes with the introduction of a waste management system that poses little or no increased risk to the community, site workers, roadway users and environmental values.

## Analysis of Risks

### External bushfire threat

There is little that can be done within the site that would ameliorate any existing risk of ignition of a bushfire in external bushland (surrounding the site). However, it is a requirement of the associated Bushfire Management Plan that the whole of the subject site be managed to a low bushfire threat state. Additionally, a 10 metre wide Asset Protection Zone will be established external to the extents of the development.

Any localised bushfire may pose considerable threat to on-site operations. Responders accessing an incident involving the site will prioritize the safety of personnel and, wind direction permitting, the protection of exposures and locally threatened operations.

Ember attack will become the critical threat for waste resources, resource recovery operations and business continuity.

The Shire of Ashburton is obliged to implement fire prevention and preparedness measures as prescribed in the *Bush Fires Act 1954* (The BF Act) and in accordance with the State Hazard Plan for Fire (Westplan Fire).

### Internal fire or activity threat to bushland

Operations of plant and vehicles as well as storage of bulk waste outside of approved storage areas will require strict monitoring to reduce the likelihood of fire developing or an ignition source transferring to bushland. Maintenance of plant, equipment and vehicles entering the site will need to be managed in respect of not just internal fire risk but also that of fire to external land, property and environment as primary exposures.

Based on the known frequency of fires starting in the waste storage compartment of road transport vehicles, it is critical to focus on the prevention of fire hazards being introduced to site in any of the trucks arriving with mixed waste. The reduced ability to control external transport operators will most likely become a primary risk for business continuity.

### Evaluation of Risks

A further and more complex strategic risk assessment should be undertaken from the perspectives of political, economic, social, technological, legal and the environment. Noting again here that the risk context only examines risk from a bushfire perspective and it is expected that corporate and other risks will be assessed with all partners and treated in house.

## Treatment Options/Considerations

Treatment options are discussed / proposed in the following points. These will be refined in the Recommendations Section in the Risk Management Plan.

- Work with the adjacent land owners/managers to ensure both on-site and off-site bushfire threat is mitigated. Bushfire fuel load reduction/management plans for lands adjacent to property boundaries is the primary bushfire risk management treatment option.
- The management of human-caused ignitions through the obligations in the BF Act *and Bush Fire Regulations* is another important risk treatment option.
- The complete removal of bushfire fuel load, at a minimum of 10 metres wide external to the active site boundary, and in all areas adjacent to waste storage and any flammable on-site hazards will limit site exposure to bushfire and restrict any on-site fires extending through external boundaries of site. **Refer to Recommendation 1.**
- A whole-of-site bushfire fuel load management plan will protect on-site assets from the threat of bushfire.
- Good access to all the site and external land will ensure a bushfire fuel load management plan can be supported and will allow fire prevention and preparedness activities to be easily conducted on-site, and that any required firefighting response can be effectively delivered to all areas. **Refer to Recommendation 2.**
- Strict maintenance and monitoring regimes in place for on-site plant and equipment including road transportation to the site, potentially from other operators, will be an effective risk treatment for fires starting on -site. Hand held infra-red camera heat detection equipment operated by trained workers will detect hot spots in transportation compartments as well hot spots in contrast to the normal operating temperatures of drive trains, axles, wheel bearings and brake components therefore further reducing the risk of incoming fire situations. **Refer to Recommendation 3**
- As fires occur in transport equipment an isolated dumping or parking area adjacent to, or with easy access to, firefighting water may allow for on-site operations to continue safely whilst a fire incident is managed away from waste management areas. This area may become critical for isolating waste that has been subject to long distance transport. A safe dumping/parking area will still need considerable separation from bushland exposures and site operations. **Refer to Recommendation 4.**
- Bushfire prone area construction standards applied to any high-risk areas in the facility will protect high-risk infrastructure from bushfire ember attack. **Refer to Recommendation 5.**
- Storage of waste in non-approved areas will be limited to the regulated bulk storage of recyclables. **Refer to Recommendation 6.**
- As bushfire is an all year threat in the Shire of Ashburton, with elevated risk occurring during the months from May through November, the sourcing of fire danger information regularly from the Bureau of Meteorology (BoM), DFES, Shire of Ashburton and the DCBA P&WS during these higher-risk months will inform sound decision making for all on-site operations as well as hazard mitigation and response planning.
- During the higher-risk bushfire period DFES may on occasions, in accordance with s22 of the BF Act, declare a Total Fire Ban (TFB) for the BoM West Pilbara Coast Fire Weather Forecast Area which Talandji is located within. Whilst exemptions for prohibited activities during a TFB are available by



application (subject to approvals) through the DFES it is noted in one TFB Exemption Clause that prohibited operations should be postponed if possible for another safer fire weather day. **Refer to Recommendation 7.**

- The provision of an on-site bushfire response capability that includes the maintenance, regular testing/exercising of the activation of trained workers and on-site firefighting water storage will be an excellent first aid response until the arrival of local/regional emergency responders. **See Recommendation 8.**
- The training, equipping and participation of on-site workers as a fire mitigation and response capability will ensure that any potential for fire on-site or off-site will be reduced and/or responded to quickly during site operating hours reducing any further threat to the community, other site workers, roadway users, firefighters and the environment. As the mobility of any firefighting resource is critical for an effective response, a 10,000 litre all-wheel drive water cart with additional fire-fighting capability will support normal day to day dust suppression as well as a single person response effort. **See Recommendation 8.**
- A traffic management or exclusion plan will be important if the site is threatened by a bushfire or on-site fire. **See Recommendation 9.**
- Evacuation planning during a bushfire threat as per site procedures.

Note: any fire involving waste within the land-fill infrastructure should be treated as a hazardous materials fire and no persons should be operating in burning waste smoke.

Appendix A is a brief version from 'Fires in waste to energy power generation plants- A guide to loss prevention' provided by HSB Engineering Insurance Limited of England and Wales in December 2014. Much of this document relates to on-site operations for waste to energy plant, however is a useful guide to all aspects of fire that can and will cause fire externally in bushland as well from any waste management site.

## Recommendations

1. Construct and maintain mineral earth fire breaks at or adjacent to active site boundaries to a minimum of 10 metres wide and having turnaround areas for firefighting appliances no greater than 250 metres apart. The radius of the turnaround areas is to be compliant with the turning circle of the proposed onsite firefighting appliance and a minimum of 20 metres. Continuously manage bushfire fuel loading on-site and off-site with other landholders.
2. Ensure good access for at least a light duty four-wheel-drive vehicle across whole of lower levels of site. Provide access around hilly areas and through boundary fencing (if installed) to enable a response to adjacent properties.
3. Infra-red heat detection camera manually operated by trained staff at site entry to scan each load of incoming waste for potential fire.
4. A clear area/zone required away from exposures, within reach of a firefighting water supply system for unloading/parking and managing a potential fire within an incoming transportation vehicle.
5. Building construction standards as per Australian Standard AS 3959 Construction of Buildings in Bushfire Prone Areas - Western Australia are encouraged to eliminate the entry of bushfire embers to site critical infrastructure.
6. Waste management facility is continually compliant with bulk waste regulations as per Department of Water and Environmental Regulation standards.
7. Establish and maintain effective working relationships with all fire agencies and the Shire of Ashburton to ensure a timely and accurate information flow for on-site operational decision making.
8. Due to the distance of emergency response from Onslow - in consultation with the Shire of Ashburton which is the controlling agency for bushfire in Talandji<sup>2</sup> and for the implementation of fire prevention and preparedness activities prescribed in the BF Act and in accordance with Westplan Fire, provide an on-site mitigation and fire incident response capability<sup>3</sup> commensurate with residual risk on-site and the uncontrolled risk aspects that remain off-site. The response capability is best described as an all-wheel drive 10,000 litre water cart adapted for fire response with an in-cab remote controlled fixed fire water monitor that can apply a spray and jet to 50 metres distance.
9. Fire and hazardous materials incident traffic management plan developed to allow for responder access and safe egress to site workers and transport contractors. Incoming waste transports should also be briefed or potentially denied access fire or hazardous materials incidents.
10. Response plan developed for communicating and acting on a fire or hazardous materials incident
11. Develop and test a Bushfire Emergency Plan for the site which is readily available to all key stakeholders.
12. Communicate effectively with waste partners and land holder groups through established networks to be ongoing.

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<sup>2</sup> Bush Fires Act 1954 Part IV

<sup>3</sup> 1. Note that the term 'capability' includes the ongoing vehicles, equipment, systems and maintenance, logistics, competently trained people with currency maintained and procedures that are exercised on a regular basis and before periods of increased risk

## Response Planning

1. Establish and test procedures for all incident response mechanisms.
2. Establish and test evacuation procedures for all on site workers and contractors for all hazards.
3. Review risk and manage level of readiness to minimise/eliminate risk.
4. Monitor systems and surroundings within normal operations for disruption, arson incidents, threat of fire to site, infrastructure and bushland.
5. Report all fires and hazardous materials incidents through 000 to Fire (DFES) or of calling from a satellite telephone call +618 9395 9395.
6. Local readiness and response managed for appreciated risk.
7. Report all fire, bushfire and hazardous materials incidents early with
  - a. Location and cause (if known) what is involved,
  - b. Size or area of fire/bushfire/hazardous materials incident,
  - c. Flame height, smoke or gas plume area,
  - d. Road or access restrictions/access ways if known,
  - e. Wind and fire/plume direction as well as assets under threat.
8. Communicate response planning with the Department of Fire and Emergency Services, DCBA Parks and Wildlife Service and the Shire of Ashburton.
9. Exercise bushfire procedures regularly and before the end of May each year.
10. Monitor and review procedures after emergencies, incidents, near misses and procedural exercises.
11. Communicate risk and readiness effectively with employees, waste partner stakeholders and community (site workers and roadway users).

## Appendix A

### Fires in waste to energy power generation plants- A guide to loss prevention

Author - HSB Engineering Insurance Limited of England and Wales in December 2014

Bushfire risk items are highlighted with *additional comments in italics*

The risks from waste fuel streams can include dust, spontaneous combustion, poor housekeeping, the delivery of already smouldering loads, ignition in bulk storage bins or conveying systems, the use of hydraulically actuated processing equipment, flue gas filtration systems and the use of combustion engine powered loading shovels.

A designated bunker (*isolated dumping/parking*) area should be provided for unloading waste loads that are smouldering on arrival. This area should be at least 15m from any other structure or building and be provided with fire extinguishing equipment.

Spontaneous combustion, smoking, arson, the delivery of smouldering loads, adjacent hot-work and ignition by glass refracted sunlight are all common causes of stockpile (*or landfill*) fires.

Stockpiles of combustible materials should be separated from buildings (*exposures are also bushlands*) and plant by a minimum distance of 15m with a minimum of 5m clear separation from the site perimeter fence line. Where 15m separation is not possible, a two hour-rated fire barrier is required to protect adjacent plant and buildings.

The work area should be examined periodically during the hour immediately after work is completed to ensure there are no smouldering or incipient fires (*isolate last hour loads and infra-red camera used to scan piles prior to committing to landfill area*)

Regular thermal imaging inspections of motors, bearings, transformers and electrical equipment should be carried out to detect possible overheating as a cause of fires (*including road transportation storage areas*).

To prevent the accumulation of (*very dry*) combustible materials, equipment should be regularly cleaned and washed down.

Flammable liquids should be stored in fire resistant steel cabinets specifically designed for the purpose. The volume of stored flammable liquids should be maintained at the lowest possible level.

LPG and flammable welding gases should be stored and secured in the upright position in locked and well-ventilated cages outside. Full and empty flammable bottles should be kept in separate cages and all oxygen bottles must be stored separately. Gas bottle storage areas should be sited as far away as is reasonably practical from any building or boundary fence. The use and storage of acetylene is discouraged, and an alternative should be found.

Note: Where the fire service is called to attend a fire and acetylene gas bottles are involved, current fire service practice is to establish a 200m hazard exclusion zone around the incident and leave the cylinders involved undisturbed for 24 hours. All fire-fighting activity in the designated hazard zone must cease and the area must be evacuated.

**Smouldering loads** - Maintain close observation of delivered loads and provide a safe and suitably equipped place to dump and extinguish the load.

**Housekeeping** - Establish a continuous process of removing accumulations of dust and combustible materials to reduce fire risks.

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