New South Wales Government
Independent Planning Commission

RORY MATTHEWS		**OBJECT**	Submission ID: 218022
Organisation:	*N/A*		
Location:	*New South Wales 2576*	Key issues:	*Other issues*
Attachment:	*Attached overleaf*		

Submission date: 11/25/2024 9:36:40 AM

The attached pdf /word document is a summary of my objection to the Plasrefine development on the basis this development poses a high fire risk to the lives and livelihood of the community, the environment (land, air and water), residential and commercial property. Equally, tourism and land property will directly be affected should this development application be approved. Simply, this is not the right site!

IPC Submission as relate to the Moss Vale Plasrefine Development Application

Rory Matthews – Bowral, Southern Highlands NSW

November 2024

The fire risk and impact related to the proposed Plasrefine facility

1. Introduction

Evidence both locally and internationally supports the high probability and danger of fires in Plastic Recycling facilities. Furthermore, fires within these facilities is on a steady increase.

In step with this trend, the scrutiny and risk evaluation in NSW in the approval process for such installations has become more onerous and relevant.

Alarmingly the risk associated with the Plasrefine application has clearly been downplayed or worse still simply ignored. The fire assessmnet requirements as may relate to the construction and operation of such recycling facilites form one of the cornerstones in the approval process – and for good reason. The danger these fires have for lives, property and the environment are significant and dramatic. The Plasrefine development proposal process is clearly flawed in process, assumptions and requirements, reliant on skant or erroneous data.

Areas of relevance to the community, business and environment

- The endangerment to the health, lives and livelyhood of local Moss Vale residents and Southern Highlands resident in general,
- The environment – air, land and water,
- Firefighting resources and related infrastrucutre required,
- Endangerment to residential, farming and commercial property,
- Financial impact as relates to tourism, local business activity and property value.

2. Bushfire Prone location

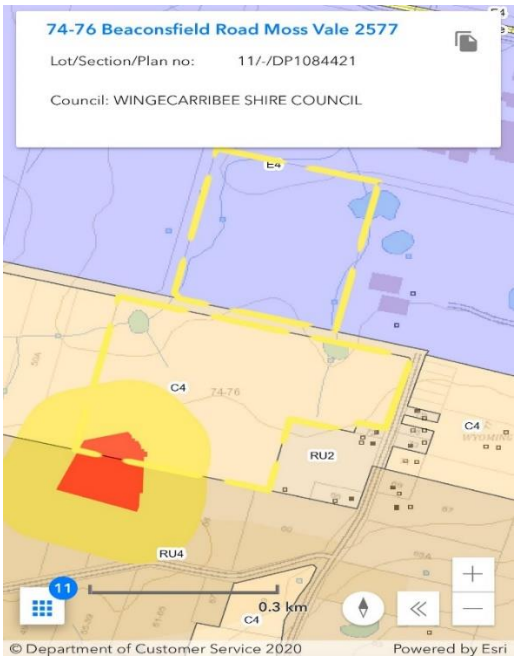
Bushfire Risk - is the site located on designated bushfire prone area?

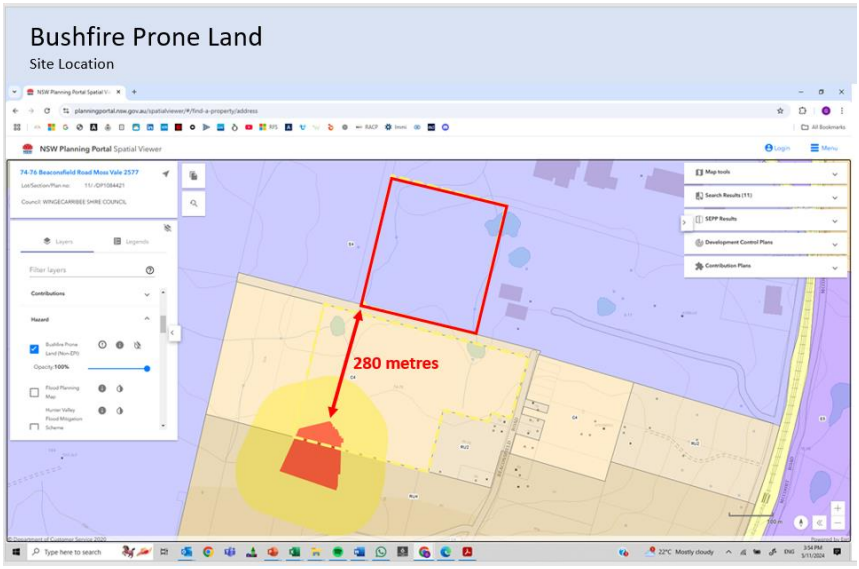
It would appear that a number of assumptions were made based on the erroneous letter provided by the RFS in 2020 which stated the proposed Plasrefine site was not in a designated bushfire prone location.

Clearly both the proponent and the RFS made use of oudated maps in this assumption where the maps referenced had not been updated since 2011. Alarmingly, despite clear fire risk related process requirements, this letter became the sole reference point pivoting attention from any further evaluation or scrutiny.

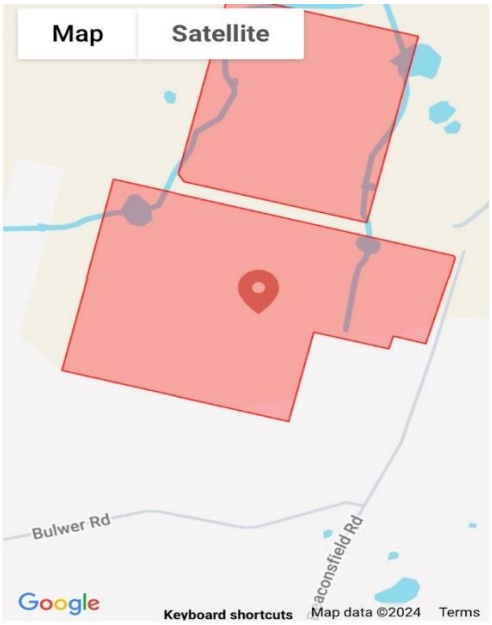
The maps referenced via the Wingecarribee Council site (below left image) are outdated and should in fact indicate the Plasrefine site on Beaconsfield Rd is in a designated bushfire category 3 prone land area as evident in the RFS site map.

Wingecarribee Shire Council BFPL map - outdated (2011)





Bushfire prone mapping – RFS NSW



Your search result

You have conducted a search of the online bush fire prone land tool for the land in the map above. This search result is valid for the date the search was conducted. If you have any questions about the Bush Fire Prone Land Tool please contact bushfireprone.mapping@rfs.nsw.gov.au

The parcel of land you have selected is within a designated bush fire prone area.

Attached – copy of original NSW RFS letter stating the Beaconsfield site is not deemed to be in bushfire prone land.

NSW RURAL FIRE SERVICE

Department of Planning & Environment (Sydney)
GPO Box 39
Sydney NSW 2001

Your reference: SSD 9409987
Our reference: DA20200930003565-SEARS-1

8 October 2020

Attention: Emma Barnet

Dear Sir/Madam,

Development Application
State Significant Development – Secretary's Environmental Assessment Requirements – Waste or resource management facility
Moss Vale Plastics Recycling Facility 74-76 Beaconsfield Road Moss Vale NSW 2577, 11//DP1084421

Reference is made to correspondence dated 23 September 2020 seeking NSW Rural Fire Service comments for the Secretary's Environmental Assessment Requirements (SEARs) for the proposed Moss Vale Plastics Recycling Facility

The NSW Rural Fire Service raises no objection to the proposed development. No specific conditions are deemed necessary in addressing the potential bush fire risk to the proposal as the site is not deemed to be located on bush fire prone land.

For any queries regarding this correspondence, please contact Adam Small on 1300 NSW RFS.

Yours sincerely,

[redacted]

Alastair Patton
A/Team Leader
Planning & Environment Services (East)

Postal address
NSW Rural Fire Service
Planning and Environment Services
Locked Bag 17
GRANVILLE NSW 2141

T 1300 NSW RFS
F (02) 8741 5433
E records@rfs.nsw.gov.au
www.rfs.nsw.gov.au

In an attempt to clarify the discrepency, in November 2024 the RFS were again requested to confirm the bushfire classification for the proposed Plasrefine site on Beaconsfield Rd.

The following is a copy from the RFS email in response where the RFS acknowledge the outdated map/s error: -

From: BushFire Prone Mapping <[redacted]>
Sent: 18 November 2024 10:42
To: [redacted]>
Cc: BushFire Prone Mapping [redacted]>
Subject: RE: FOLLOW UP REQUEST: Bushfire Prone Land: 74-76 Beaconsfield Road, Moss Vale NSW 2577

Good morning [redacted],

Thank you for reaching out to the NSW Rural Fire Service (NSW RFS) regarding the Bush Fire Prone Land (BFPL) maps.

Please note that the Bush Fire Prone Land maps are intended solely for development control approval purposes and should not be used for other applications.

You can view your property and its BFPL status via the NSW Planning Spatial Viewer at the following link:https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

The Bush Fire Prone Land layer is located under the *Hazard Group* in the interactive map.

To ensure the Bush Fire Prone Land colours display correctly, please ensure you untick the *Land Zoning* layer under *Principal Planning Layers* on the web interface.

Additionally, please be advised that the NSW RFS does not determine Bush Fire Attack Level (BAL) ratings. For BAL assessments, a site-specific evaluation is required.

For your reference, I have attached a screenshot of property in question.

Regarding the Wingecarribee Shire Council BFPL map, it was last certified in November 2011.

We are actively working with Council on updating the map, but it remains in draft form.

Please note that once the updated map is finalised, there will be significant changes, including the inclusion of grasslands, which were not previously mapped. The updated map will l kely classify this area under *Vegetation Category 3 - Grasslands*.

Currently, there are no immediate changes to how the existing BFPL map affects the address in question, but the update is forthcoming.

If you have any further questions please feel free to reach out.

Kind Regards,

Bush Fire Prone Land | Built & Natural Environment | Development Planning & Policy

RFS

[redacted]
Locked Bag 17 Granville NSW 2142
www.rfs.nsw.gov.au

3. Implications and consequences for not following relevant process

Approving a project based on erroneous and outdated bushfire data not only undermines the planning framework developed to protect communities from preventable disasters, but signals other proponents that they can bypass critical safety assessments.

Apart from eroding the integrity of the planning system, it would be an invitation to legal recourse where a party or parties could claim procedural unfairness and breach of statutory duties.

Stating the obvious, the IPC has an obligation to ensure its determinations are based on both existing and imminent accurate and up-to-date information. Approving this project without the requirement for updated bushfire assessments could be seen as a failure to meet these obligations, exposing the Commission to judicial review.

Process associated/required as relate to bushfire prone zoning

The letter above from the RFS officer Alastair Patton to Emma Barnett, dated October 8 2020, erroneously concluded the Plasrefine project to **not** deemed to be located on bushfire prone land.

However, this preliminary letter is insufficient to prove no bushfire risk is present.
If the block is mapped as bushfire prone (as demonstrated below), RFS Planning for a bushfire Protection 2019 *(PBP 2019)* and AS 3959 state that a **Bushfire Risk Assessment Report** (prepared by a qualified assessor) is *mandatory,* then surely such a report should be available as party to the application for the DPHI and the IPC?

- As State Significant Developments (SSD), PBP 2019 requires both the Department of Planning, Housing and Infrastructure (DPHI) and the RFS to oversee the bushfire assessment, where (Section 2.4.2 of PBP 2019) confirms that these agencies **must** ensure compliance.
- Planning Circular PS 21-010 - State significant developments (SSD) "...*will require a bush fire safety authority (BSFA) from the NSWRFS Commissioner under Section 100B of the Rural Fires Act 1997.*"
- Draft Planning Circular PS23-xx (pending replacement of PS 21-010) will require *"…planning proposals …within 700 metres of land mapped as 'bushfire prone land…' must consult with the Commissioner of the RFS under section 10.3 of the EP&A Act*"

DPIE Requirements for SSD's located in Bushfire prone land

DPIE is required to consult with NSWRFS in respect of SSD's located in Bushfire prone land.

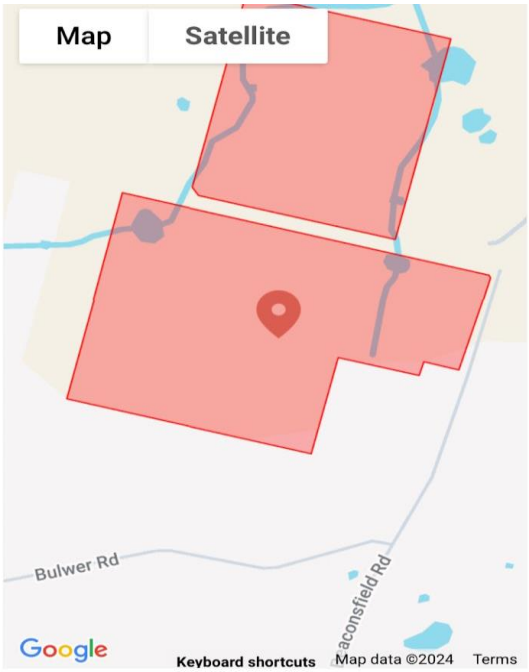
- Important considerations:
    - Bushfire protection measures
    - Asset Protection Zones
    - Building construction, siting and design
    - Access arrangements
    - Water supply and utilities
    - Emergency management arrangements
    - Landscaping

- NSWRFS guidance:
    - Determine vegetation formation
    - Assessing remnant bushland and narrow vegetation corridors
    - Bush Fire Design Brief
    - Bush Fire Management Plan
    - Pre-DA advice and qualified consultation

- First responders:
    - Safety and welfare first
    - Risk assessment

Key reference source: Planning for Bushfire Protection – A guide for councils, planners, fire authorities and developers, November 2019.

It is safe to assume **neither agency** has completed an assessment, despite the block being mapped as bushfire prone.



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The parcel of land you have selected is within a designated bush fire prone area.

<u>A full bushfire assessment would be required</u>

The land comprises of two zones - E4 (General Industrial) and C4 (Environmental Living) separated only by a paper road, Section 2.4.2 of PBP 2019 would apply to the **entire lot.**
The presence of mapped bushfire-prone land in the C4 zone should trigger a bushfire assessment for the whole property (until a subdivision occurs and these two halves become separate blocks). At present, they are one block and are required to be treated as such.

In professional practice, bushfire assessments are always required even when fire-prone mapping is distant from the building footprint. A BPAD (Bushfire Planning and Design) assessor should have been engaged to confirm this during the earliest phases.

1. **Asset Protection Zones (APZs):** This will forfeit the proponent's ability to build effective bushland screening around the factory structure. The proposed landscaping plan includes screening bushland and mature Eucalypts within 6 metres of the facility. This would trigger higher Bushfire Attack Levels (BALs) and violate APZ requirements.

2. **Multiple Site Access Points**: For evacuation and firefighting purposes, the proposal should include at least two access points, which it currently does not.

3. **Compliant Driveways:** Narrow site driveways, exacerbated by parked cars and overhanging trees, fail to meet firefighting vehicle access standards

The current design falls short in complying with 'Planning for Bushfire Protection 2019' (in terms of access for firefighting vehicles and asset protection zones) which is required for a building of this magnitude.

In fact, in the DPHI SSD report (SSD 9409987) the following "key issues" were mentioned.

DPHI assessment:

The Applicant undertook a preliminary risk screening in accordance with State Environmental Planning Policy (Resilience and Hazards) which identified there would be no hazardous materials stored on the site.

The department considers the key assessment issues are

- *Social impacts*
- *Visual impact, design and landscaping*
- *Impacts on the ABR facility*
- *Operational traffic.*

A number of other issues have also been considered. These issues are considered relatively minor

Furthermore, and referring to the *DPHI assessment*:

The Applicant advised there were three fire trucks near the site, which would be effective as first attack units. More fire trucks are available in Campbelltown and Wollongong, if required.

The DPHI therefore considers fire risk assessment - ***a relatively minor issue!***

4 Availability and magnitude of firefighting resources

Local and regional RFS resources

The region's firefighting capacity is significantly limited compared to urban centres. Backup resources are at least 1hr away in Campbelltown or Wollongong. The Moss Vale RFS together with local Southern Highlands fire stations in Mittagong and Bowral are not always staffed 24/7.
First responders do not have the units required for a potential fire of the magnitude and would in all probability wait for backup resources in the form of specialist Hazchem and aerial appliances to arrive from Wollongong or Campbelltown given Local NSWRFS and FRNSW CABA resources would be overwhelmed by anything other than a minor fire at this location.

Similar incidents suggest defensive firefighting only i.e. let it burn itself out and prevent spread to neighbouring properties.

Approving this project would therefore place undue expectations and strain on these limited resources, putting both the facility and the surrounding community at greater risk.

Hazardous Chemicals typically used in Plastic Recycling requiring Hazchem equipment:

Chemicals Commonly Used In Plastic Recycling*		
Common Name	**Hazchem Code**	**Emergence Response Guidelines**
Methanol		Toxic. May be fatal if inhaled. Vapour may be explosive. Evacuate to at least 800m
Ethanol		Highly flammable. Explosion hazard. Toxic gases. Evacuate to at least 800m
Ammonia		Toxic and/or corrosive. Toxic gases. Pressurised cylinders may explode. Isolate to at least 1600m
Hydrocarbons		Vapours may form explosive mixtures with air. In case of fire, isolate for at least 800m
Turpentine		Vapour explosive hazard. Highly flammable. Evacuate to at least 800m
Acetic Acid		Toxic and/or corrosive. Fire may produce toxic gases

Plasrefine has not disclosed in its application the chemicals to be used in the recycling process

5 Comparative firefighting resources applied at recycling facilities

Recycling plant in Hume 26 Dec 2022

In this instance, the size of the intallation was 18x smaller than the proposed Plasrefine installation (facility - 0.33 hectares compared to Plasrefine 6 hectares), contained a mix of paper and cardboard, as well as mixed waste material including compacted plastic. As is evident in the Synopsus attached **Synopsis - Hume Recycling Facility fire 26 September 2022***

This fuel load would have burnt at a lower temperature (850C), have been less toxic, and extinguishing the blaze would have been easier than a plastic only recycling facility (1200C).

Fire loads in plastic can be as high as 20GJ/M^2 equal to circa 450 domestic gas fireplaces.

Type of waste material	Burn temperature	Fire risk
Paper and carboard	850°C	Ordinary
Wood products	860°C	Ordinary
Plastic	1,200°C	High
Rubber	1,130°C	High
Refuse derived fuels	900°C	Ordinary
Solid recovered fuels	950°C	Ordinary

Table 1 Typical burn temperature and fire risk of combustible waste material

The Hume fire Synopsis* stated the following: –

- Installation was 110m x 30m (0.33hectares) with the installation's walls 6-7 m high
- The fire starting due to thermal runaway typical of damaged Li batteries (this also accounts for over 40% of fires in Plastic Recycling facilities)
- The fire was extinguished in 4hrs
- 18 fire units were deployed
- The site was monitored for a further 3 days

Plastic Recycling plant - Richmond Indiana April 2023

This facility and related fire in 2023 are a fair and reasonable comparison to the proposed Plasrefine installation, and comparable to the impact a fire at the proposed Plasrefine site would have on local fire resources and related evacuation precaution for the surrounding area.

- The footprint of the Richmond plant is 5.5 hectares and located close to residential properties.
- It processed and recycled plastic material.
- The fire ignition occurred when a 'hot' semi-trailer transporting plastic material for recycling entered the facility while on fire.
- An evacuation order affecting 2000 people within a radius of 0.8 km of the site was issued to escape harmful fine particulate matter and potentially toxic chemicals in the air.
- Over 80 fire appliances were used – and over 300 firefighters engaged to manage (defend) the blaze until the fuel source was exhausted.
- The fire was contained 6 days after it started.
- The cleanup of hazardous materials, which included the removal of over 6,000 tonnes (13,000,000 lb) of debris and 850 tonnes (1,870,000 lb) of steel, was completed in March 2024 – nearly a year after the fire occurred.

Incident	Resources Utilised	Notes
Deer Park, Vic (2024)	20 appliances, 80 personnel	Major arterial road closed, residents in 5 neighbouring suburbs ordered to lockdown
Smithfield, NSW (2023)	25 appliances, 100 personnel	
Keysborough, Vic (2023)	33 appliances, 120 personnel	Residents within a 4km radius ordered to lockdown
Richmond IA, USA (2023)	**80+ appliances and more than 300 firefighters**	**2000 residents within 1km evacuated 2 days to control fire and 6 to extinguish**
Athens, Greece (2020)	10 appliances, 49 personnel, 2 helicopters	Major highway closed due to toxic smoke
Kilburne, SA (2010)	18 appliances, 70 firefighters	Residents within a 500m radius evacuated

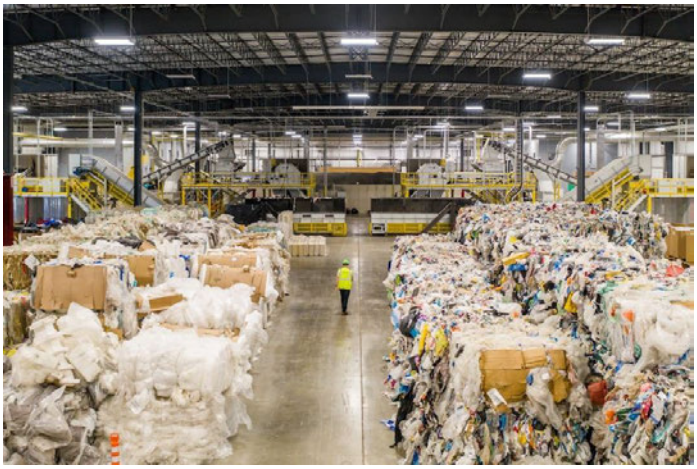
6 Comparable approved plastic recycling site in NSW

Recently the construction of an equitable Plastic Recycling facility commenced in Parkes,Central West NSW.

This is a Brightmark development, where the developer has extensive USA experience running similar operations.

This proposed installation is: –

- At the intersection of 2 railway lines allowing for the easy bulk delivery and removal of the feed plastic, the processed product, and non-recycled material
- Is clearly positioned in a location outside residential area/s
- Has adequate access and infrastructure to allow for effective fire units and equipment
- Is located on a flat aspect – reducing contamination risk from flooding, fire related run-off and artesian action
- Has more than sufficient buffer space to meet a category 3 bushfire zoning – should it be required



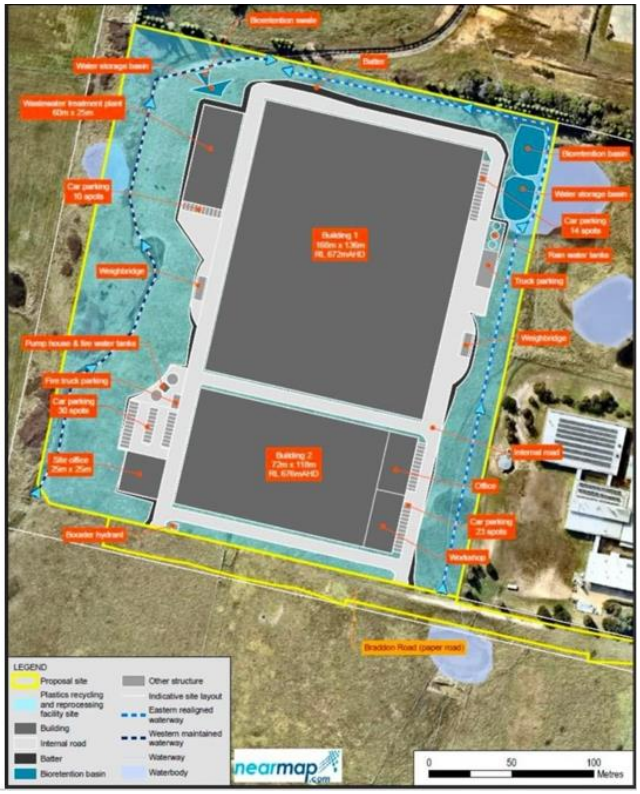
Brightmark is building a $260-million plastic recycling facility in Parkes, Central West NSW

This follows 2 'similar' and existing Brightmark recycling facilities in the USA.

By contrast the proposed Plasrefine installation has a proponent with no experience or history in running such installations, and a number of key differences highlights the naivety and danger of the application.

Plasrefine proposed installation is: -

- Reliant on large, high volume truck movement through residential areas for the feed plastic, the processed product and non-recycled material
- I clearly located close to residential and alongside a sensitive medical research facility
- Has inadequate access (single points of access, requires 2 for fire related approval) and site infrastructure to allow for effective fire units and equipment
- Is located on a sloping aspect – increasing the risk of contamination from flooding, fire related run-off and artesian activity. In fact, the proposed site sits on artesian streams that feed local and Sydney drinking water supply
- Has insufficient buffer space to meet level 3 bushfire zoning requirements
- The site is within 200m of a significant and internationally revered Medical Research facility



Plasrefine – proposed facility site layout and construction.

There is no evidence from the proponent of local skills, knowledge or experience in the construction, running and management of Plastic Recycling plants.
In fact the proponent has virtually no local presence.

7 Conclusion

Conclusion – Key questions

- Are the applicant, DPHI and IPC aware that the proposed site is designated “Bushfire Prone Land?”
- Is there any intention to consult with and seek planning guidance from the department of the NSWRFS Commissioner?
- Is the IPC satisfied that the likelihood and impacts of a major fire have been adequately assessed and addressed and that a detailed and robust facility and community disaster plan has been developed?
- Has a detailed study been completed to identify and quantify the resources that would be needed for a major fire response at the proposed facility?
- Are the applicant, DPHI and IPC aware of the limitations of local firefighting resources and the location and required travel times of specialist, major incident response appliances?
- Are the IPC aware despite being classified as a State Significant Development, crucial fire related assessment and compliance is required?
- Had the IPC considered failure to implement and apply the mandated process as relate to fire for consideration pre-approval could result in the IPC being liable post-approval for any damages relating to fire events?

The risks associated with fire at the proposed Plasrefine site is real and relevant. Required assessment and evaluation which has been side-stepped in the application process would no doubt deem the present location unsuitable and the related development proposal deficient.

Together with many other relevant factors merely mentioned in this paper, approving such an installation on this site would be irresponsible, flawed and dangerous to lives, property and the environment.

JUST NOT THE RIGHT SITE

8 References

References

- Letter from Alastair Patton, NSWRFS to Emma Barnett dated 8 October 2020
- "Construction of building in bushfire prone areas" Australian Standard AS 3959:2018
- "*Development on bushfire prone land*" Planning Circular PS 21-010, NSW Government, 2 December 2021
- "*Development on bushfire prone land*" Draft Planning Circular PS 23-xx, NSW Government – pending issue
- "*Planning for bushfire protection – A guide for councils, planners, fire authorities and developers*" NSW Government and NSWRFS, November 2019
- "*Standards for asset protection zones*" NSWRFS
- "*Literature review and hazard identification relating to fire safety in commercial plastic recycling facilities*" Devine, Flores and Walls, Journal of Fire Sciences 2023, Vol 41(6) 269-287
- "*Why recycling plants keep catching fire*" Nugent, Time Magazine, 13 April 2023
- "*Fire safety in waste facilities*" NSW Government and FRNSW, Version 02.02 issued 27 February 2020
- "*Fire safety in waste recycling facilities*" presentation by Jamie Vistnes and Michael Henly NSWRFS, 20 June 2018
- "*Access for fire brigade vehicles and firefighters*" NSW Government and FRNSW, Version 05 issued 4 October 2019

9 Appendix

Synopsis* - Hume Recycling Facility fire 26 September 2022

Synopsis On 26th December 2022 at 2242 ACT Fire & Rescue received a single 000 call about a fire at the back of the Recycling facility at John Cory Rd & Recycling Rd Hume. This facility was a large concrete and steel building, approximately **110 meters long and 30 metres** wide, (or 3300m2 = 0.33 Hectares), with approximately **6 to 7 metre high walls**. Our investigation was conducted on 29th December 2022 and supported later from CCTV footage acquired in the following weeks. The evidence found through this investigation shows the area of origin to be the waste chute/compactor plant located external of the building. The waste compactor and conveyer were located approximately 6-7 metres away from a large roller door on the Alpha side that led into the internal of the building. The evidence, as demonstrated throughout this report, indicates to the fire starting due to thermal runaway typical of damaged Li batteries. The fire has quickly spread from the waste chute igniting the conveyer belt and any remaining contents on the belt. The fire then transferred along the conveyer belt through the opening in the external of the wall into the internal of the building. Once the fire was internal of the building, the roof initially contained the smoke, allowing it to spread across the building and preheating a nearby pile of cardboard located on the Charlie side, approximately 30 metres away from the breaching point. Firefighting crews arrived as this pile was preheating, and at that time the only active fire was on the Alpha side of the building near the area of origin. Crews commenced firefighting operations on the Alpha side, attacking the active fire. As these firefighting operations were underway, the cardboard pile ignited and added to the smoke that was preheating other contents inside the facility. Due to the prevailing winds travelling in an easterly direction, the smoke was also pushed down to the Bravo end of the structure, where 2 very large piles of co-mingled materials were stored (approximately 50-60 metres away). These piles contained all items placed into the yellow kerbside recycling bins, predominantly consisting of cardboard, glass and hard plastics, such as plastic drink bottles and packaging, most of which have a very high heat release rate. The smoke built up, preheated these piles of co-mingled materials to their ignition point, and once these piles ignited, the fire was active in approximately 80% of the structure. Firefighting crews worked for approximately 4 hours to bring the fire under control. Complete extinguishment was not achieved until all recyclable material was removed from the building on 29th December 2022. ACT Fire & Rescue committed **18 resources** to the initial firefighting operations

and continued to have resources in attendance for the 3 days following. Based on the evidence found during the CCTV reconstruction and the supporting evidence gathered during the on-site investigation, **including the presence of multiple batteries of varying types identified in the remains of the waste compactor area, this investigation determines that this fire was accidental and was caused by a Li battery that has been damaged in the waste compactor causing the battery to go into a state of thermal runaway**, in turn igniting the surrounding flammable materials and transferring into the facility where the high fuel load and type of products contained within supported the extremely rapid rate of spread of the fire.

Increasing fire risk at Plastic Recycling installations

Recycling fires are increasingly common in North America. The number of major fires reported at plants in the U.S. and Canada has increased by more than a third since 2017, hitting 390 in 2022. By the end of March this year, 75 more had taken place. Those figures come from Ryan Fogelman, an entrepreneur who works with fire prevention company Fire Rover and began tracking media coverage of recycling fires in 2016 in the absence of official data. With smaller fires going unreported, he estimates that the real number is closer to 2,400. The blazes killed three people and injured 63 last year. They also release toxic fumes, increase the risk of wildfires, and cause millions of dollars in damage for a sector under pressure to scale up as part of cities' green goals.

Experts say the recycling industry is facing a cocktail of factors that increase the risk of fires, from a growing number of new plants opening to deal with growing demand, to major new hazards in the products people recycle, to global shifts in the management of waste. On top of that, a hotter, drier climate is making it easier for fires to spread inside plants, with blazes starting earlier each year.

How risks have grown in recycling plants

Recycling has always involved some fire risk. In the U.S., the practice of repurposing waste, rather than burying it, began to take off in the late 20th century, with the volume of recycled waste growing twelvefold from 1960 to 2018, per the EPA. Ever since then, plant operators—a mix of government agencies and private contractors—have had to deal with a wide range of flammable substances, like aerosols, paint, fuel canisters, and ashes. While those things are meant to go to special facilities, waste management experts say they are often dumped in with paper and plastic recycling by the public. They also arrive hidden in debris from construction sites and damaged cars sent by industrial recycling customers.

But over the last five years, an explosion in the number of products containing rechargeable lithium-ion batteries, such as vapes, air-pods, cell phones, and smart watches, has turbocharged the problem. When damaged in the transport or crushing of waste, these batteries can begin to release the energy they contain and self-ignite, potentially setting fire to the materials around them. A 2018 survey by the California Product Stewardship Council found that 40% of fires at the state's waste management facilities are triggered by lithium ion batteries.

The challenge is not just the growing number of batteries being thrown away. (Safe recycling campaign group Call2Recycle estimates that 58 million pounds of lithium ion batteries reached the end of their usable life in 2020.) It's also the increased difficulty of filtering out these tiny combustibles. "In the old days, you would have these traditional hazards like a propane tank that a human being could spot and pull out before it got into your shredders," Fogelman says. "Now, even some greeting cards [contain batteries]. Even a sophisticated robotic arm is going to identify that as a piece of paper, it doesn't know it's metal."

There are other aggravating factors beyond the batteries. Plant managers say they are struggling to shift large stockpiles of plastic waste. The main market for recycling U.S. plastic used to be China. But in 2018, after public backlash over the impact of millions of bales of contaminated waste on Chinese communities and the environment, the government enacted a ban on plastic waste imports. While many large U.S. cities have managed to find domestic markets for plastic, small towns have struggled, leading to a build-up of plastic products at plants. And because plastic is made from oil and natural gas, the build-up provides plenty of long-burning fuel for battery fires. (It seems the initial fallout from China's policy change may have contributed to a spike in fires in 2018, while it appears reduced recycling activity during COVID lockdowns may have limited the numbers in 2020.)

Though officials have yet to determine the cause of Richmond's blaze, plastic build up may have played a role. The city's fire chief said Tuesday that the facility was "completely full from floor to ceiling and from wall to wall."

Faltering efforts to curb fires

The number of fires has continued to grow in the first three months of 2023 compared to last year, per Fogelman's figures. That's despite efforts to get a grip on the problem. Municipalities, national governments, and national recycling organizations are pushing public education campaigns to stop people sending dangerous substances into the recycling system. The EPA has advice on how to safely recycle products containing lithium ion batteries.
Some states, including California, have introduced so-called "extended producer responsibility" schemes, obliging the manufacturers of electrical goods to set up systems to recycle lithium batteries. Health-related bans on disposable vapes in many countries, including Mexico and China, should also reduce the pressure on recyclers