

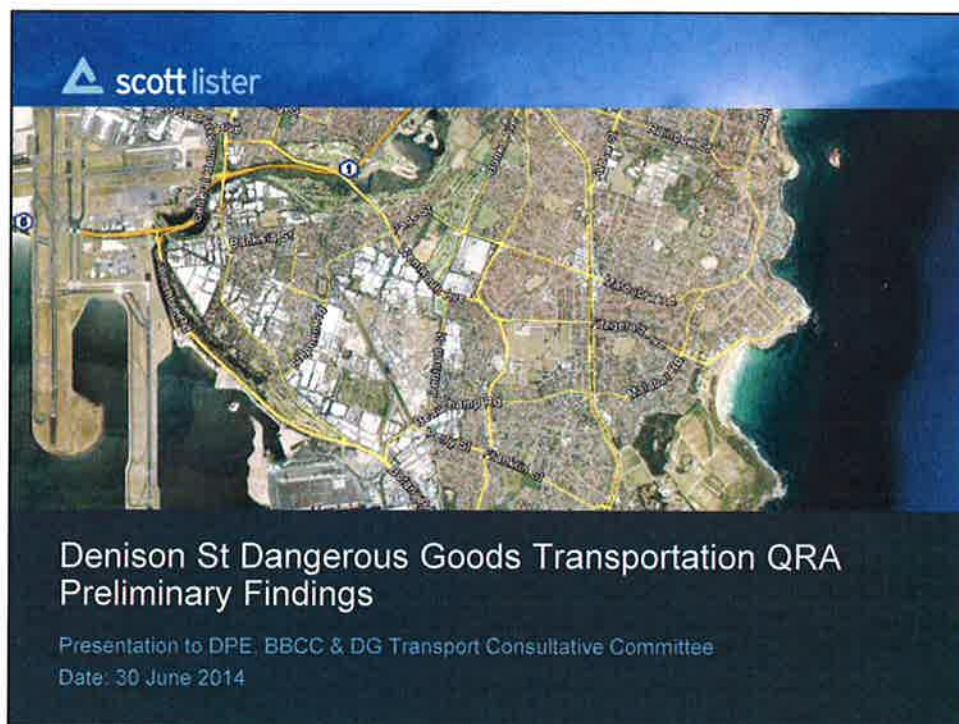
## **Individual Fatality Risk Criteria for Land Use Safety Planning**

### **A. New Facility**

<b>Land Use</b>	<b>Suggested Criteria (risk in a million per year)</b>
Hospitals, schools, child-care facilities, old age housing	0.5
Residential, hotels, motels, tourist resorts	1
Commercial developments including retail centres, offices and entertainment centres	5
Sporting complexes and active open space	10
Industrial	50

### **B. Existing Facilities**

<b>Risk Level at Residential Land Use (Risk in a million per year)</b>	<b>Suggested Approach</b>
Above 10	1. Ongoing risk reduction and safety reviews at the existing facility. 2. No residential intensification
Between 10 and 1	No residential intensification
Below 1	No restrictions on residential intensification



## Background

### DPI 2001 Botany Randwick Land Use Safety Study

- Found risks from fixed facilities comply with DPE criteria, but
- Particular consideration should be given to the possible effect of dangerous goods traffic when assessing residential development in Stephen Road, Denison Street and any other roads carrying significant volumes of dangerous goods traffic.

### A proposed commercial development (Bunnings) is currently before the JRPP

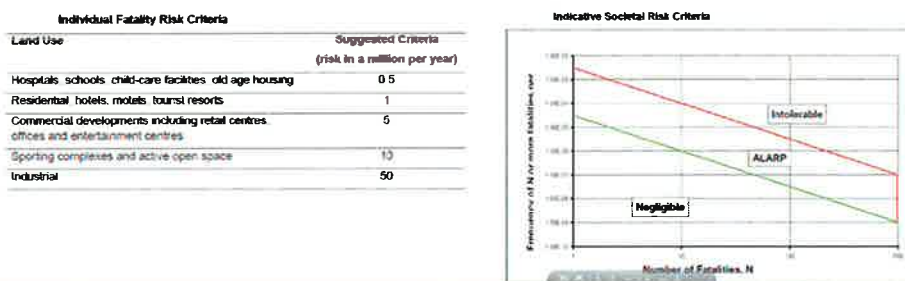
- Submissions on the DA have raised issue of DG transport risk
- DPE seeks to understand level of risk to inform its recommendations and decisions

## Risk Criteria

Currently no recommended criteria for DG transport risk in NSW

No robust criteria identified interstate or overseas

A reasonable approach, in this instance, is to use DPE criteria for fixed installations (per HIPAP 4) as a guide (note: does not mean DPE has adopted this as policy)



## Hazards

Key DG transport hazards associated with the BIP and Port Botany Facilities

### Qenos:

- Polymer Grade Polypropylene (PGP)
- Liquefied Petroleum Gas (LPG)
- Iso Hexane
- Hexene

### Huntsman:

- Ethylene Oxide
- Propylene Oxide

### Orica:

- Liquid Chlorine gas

### Port Botany Facilities:

- LPG
- Class 3 materials (eg petrol)

## DG Traffic

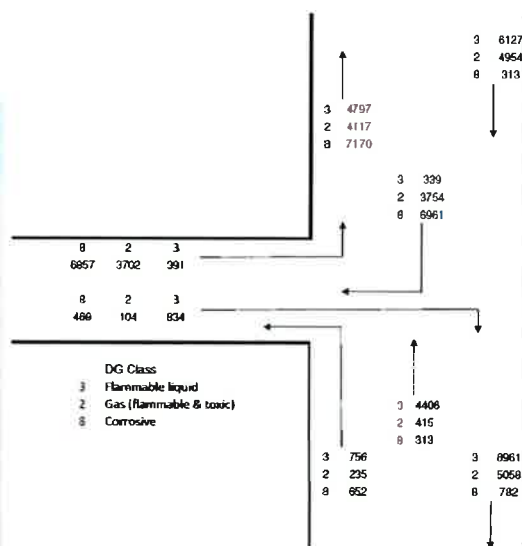
Gate 3 traffic => BIP QRA

Through traffic => Roar

Comparison BIP QRA & Roar data for Gate 3 (annual traffic)

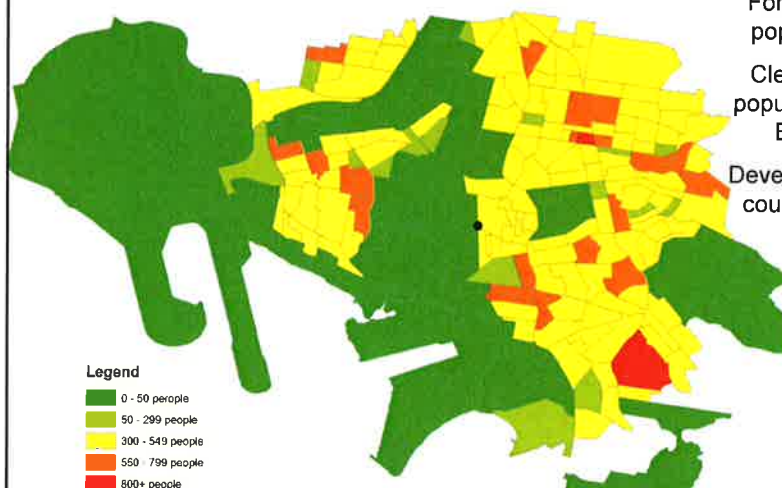
Class	ROAR data	BIP QRA Data
3	2320	1124
2	7795	9302
8	14939	16200

BIP QRA overestimates except for class 3. (Roar was measuring fuel tanker stabling operations, now discontinued)



Roar Traffic Survey July 2012 scaled to one year

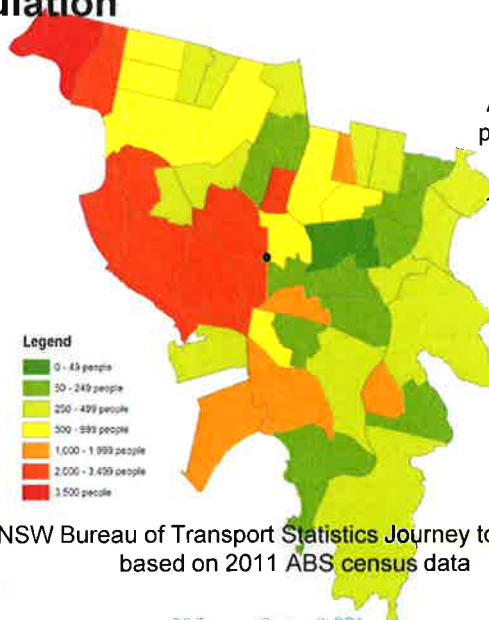
## Night Population



For BIP night shift population added  
Cleaning/security population added for Eastgardens  
Developments before council considered

Source - Australian Bureau of Statistics (ABS), 2011 Census of Population and Housing, Place of Usual Residence database

## Day Population



20% of night time residential population assumed present

Additional 200 person population assumed for Bunnings

100 person population assumed Hensley athletic field

Developments before council considered

Source – NSW Bureau of Transport Statistics Journey to Work data. This is based on 2011 ABS census data

## Results

### Two cases considered

- **Worst case for situation as assessed in BIP QRA and Roar survey in 2012**
- **Current 2014 case with reduced PGP following closure of Shell Clyde Refinery and LyondellBasell**

For each case risks were calculated as;

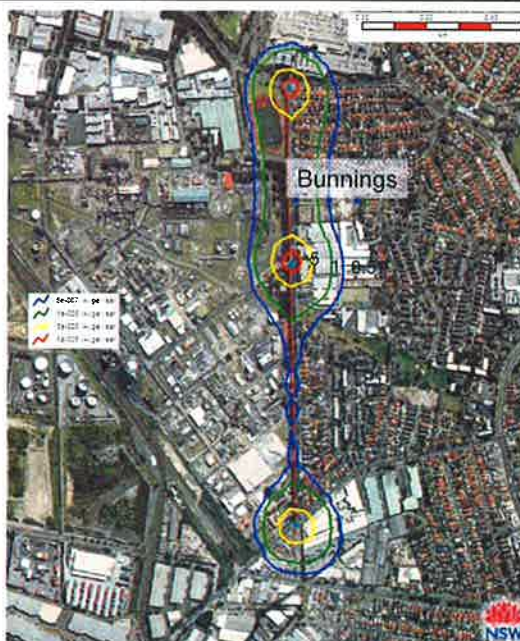
- **Location specific individual risk of fatality**
- **FN curves representing societal risk**



## Worst Case 2012 – Individual Risk

### DPE Individual Risk Criteria

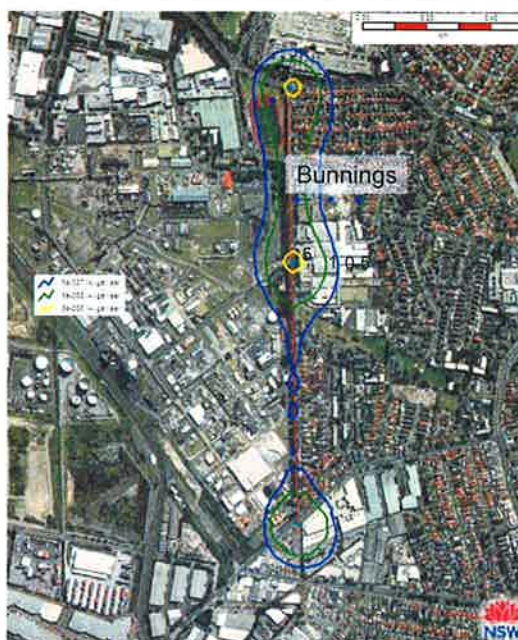
Sensitive	0.5 in a million
Residential	1 in a million
Commercial	5 in a million
Sports areas	10 in a million
Industrial	50 in a million



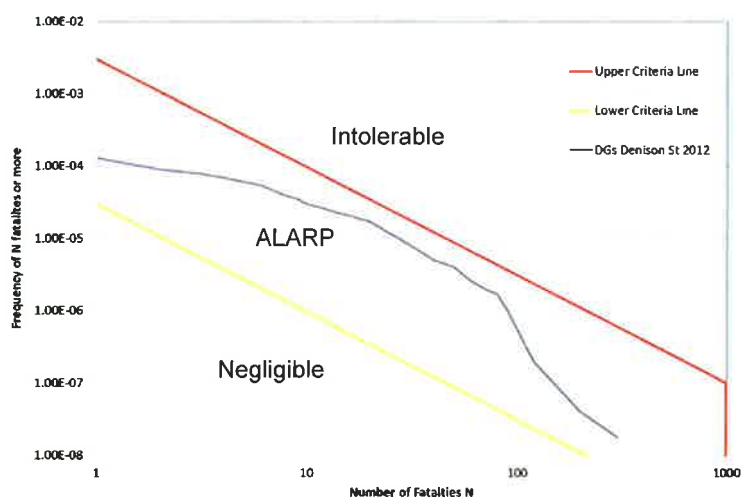
## Current Case 2014 – Individual Risk

### DPE Individual Risk Criteria

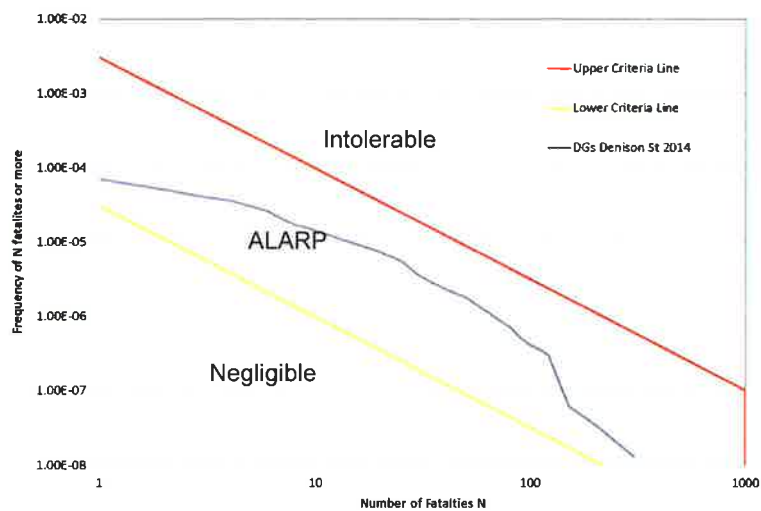
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## Worst Case 2012 – Societal Risk



## Current Case 2014 – Societal Risk

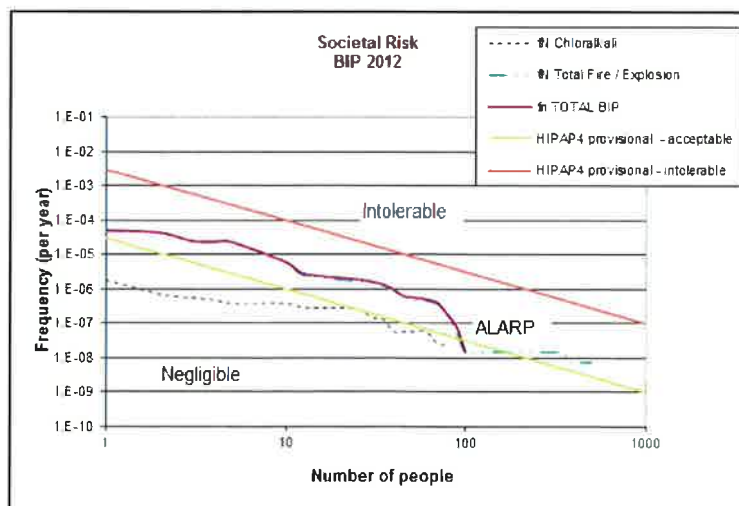


## BIP QRA - Individual Risk



## BIP QRA – Societal Risk

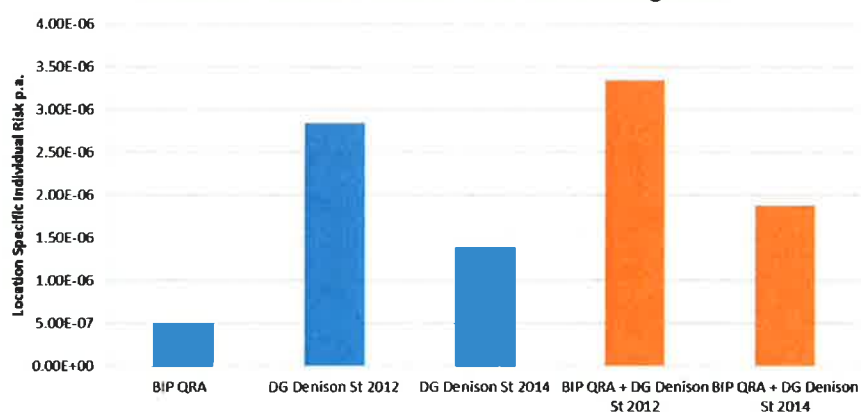
FIGURE 9.8: SOCIETAL RISK



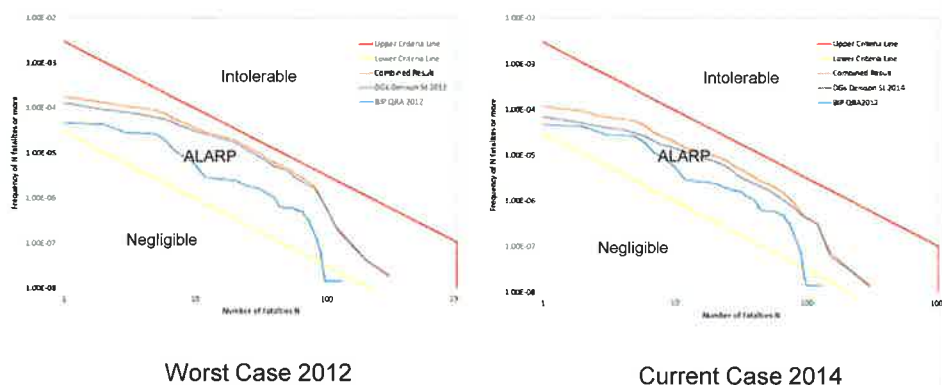


## Combined individual risk results

### Individual Risks at Western Side of Bunnings Site



## Combined societal risk result



**Thank – you**

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