

APPENDIX H8: POPULATION ESTIMATES

H8.1 Introduction

H8.1.1.1 Estimates of population densities around the PAFF and within SWS have been made to assess the numbers of people that may be impacted by events. More detailed information is available in the Affirmation of Maylor [21] for the populations within SWS and these are therefore considered in detail.

H8.2 Areas Outside SWS

H8.2.1.1 Population density estimates for personnel located outside the SWS site are provided below. The largest adjacent population is within the EcoPark and is not certain at present. The estimate for this location is based on information from an EPD spokesman: *"There are similar resources recycling facilities in other countries such as US and Japan. For example, the 'Eco Town' in Kitakyushu and Sapporo of Japan have industries set up to recover and recycle solid waste materials. Some of their experience are relevant to our EcoPark project. We expect there will be 200 jobs created during the construction period and 750 jobs when the Park is fully commissioned."* [88].

H8.2.1.2 Part of the area designated for the EcoPark, and the area beyond, is a fill bank for construction and demolition materials handling. Population figures are taken from the project profile for the expansion [89].

Area (m ²)	Development	Population
179,000	Green Island Cement Plant	136
67,500	Proposed Airport Fuelling Facilities (PAFF)	21
195,220	EcoPark (Phases I and II)	750 ¹
372,000	Fill Bank (Including Extension)	150 ²
-	Public Road - Access to Tank Farm	2
-	Lung Mun Road	35 ³
1 100% assumed present during day and 10% at night 2 The Fill Bank areas closest to the PAFF should be released to EcoPark Phase II in 2009, when the PAFF becomes operational. The EcoPark population density is higher and is used in the analysis. 3 The population of Lung Mun Road is estimated based on an annual Average Daily Traffic of 10,000 vehicles and a 1 km section of road		

H8.2.1.3 An average marine population density of 0.15 people/hectare ($1.5 \times 10^{-5} /m^2$) is used in this assessment. This is based on the estimate for Urmston Road in 2011 and 2040 in the DNV 2000 Study (Table I.13 of [38]) of between 0.10 and 0.15 people/hectare. This includes the populations on all types of vessels from rigid inflatable's to ferries.

H8.2.1.4 There is a holiday camp planned on the hillside about 600m from the PAFF. This is elevated relative to the PAFF, will be partially screened by the hill and is not identified as within the hazard contours of any of the identified scenarios. The population has therefore not been investigated.

H8.3 Areas Within SWS

H8.3.1.1 The population within SWS has been estimated based on the affirmation of Maylor [21], including the future populations identified. The information is summarised below:

Current SWS Operations			
Worker Group	Location	Population Present	Notes (paragraph refs from Maylor [21])
Total SWS employees	-	290	Para 31 - current
Daytime population (SWS employees only)	-	223	Para 31 – 08:00 to 16:00
Production Crew	1 in middle crane of 5 warehouse cranes. 21 as marked in TGM-3	22	Para 32 Four gangs operating three shifts over 24 hours. Para 55 indicates checking levels in cellars once per hour for night time crew.
Daytime operations	Supporting rolling process	18	Para 35 - 08:00 to 16:00. Location as in TGM-3
Warehouse Crew – lorry drivers	Through site (and between jetty and billet unloading during vessel visit)	14	Para 36 and 48. Typically 4 lorries at jetty during unloading at jetty. Following loading lorries pass through jetty weigh bridge and unload billets at central storage area before returning to jetty. Para 38 – 08:00 to 17:00
Warehouse Crew - - Crane operators	One at each of eight cranes in billet bay and warehouse	8	Para 37. Para 38 – 08:00 to 17:00
Warehouse Crew – Stevedores and others	Mainly in warehouse and billet bay	34	Para – 36. Para 38 – 08:00 to 17:00
Steel Trucks	Entry though Eastern barrier gate to weigh bridge. Proceed to warehouse bay, return to weighbridge and exit site.	3 persons per truck	Para 40 to 43 – 50 trucks at peak (loaded at 26 trucks per hour). Further peak at lunch. Typically three persons per truck.
Scrap trucks	Eastern barrier gate to scrap yard (West of billet bay)	Not indicated	Para 45

Current SWS Operations			
Worker Group	Location	Population Present	Notes (paragraph refs from Maylor [21])
Jetty stevedore contractors	jetty	12	Para 47 - Also notes operations performed by warehouse crew in place of (or with) contractors
Steel Vessel	Vessel	20-25	Para 47 Mooring time 4 days. No note of number of visits
Oil barges	Vessel	Not indicated	Para 49. Est. 2 visits per month. Total 139/yr visits (TGM-7).
Scrap barges	Vessel	Not indicated	Para 50. Est. 7 visits per month. Total 23 visits per year (TGM-7)
Oil barge support	jetty	2	Para 49 – personnel from SWS water plant
Scrap metal barge support	jetty	2	Para 50 – personnel from SWS scrap metal workers
Scrap Metal workers	Scrap metal yard	21	Para 52. Daytime operations
Mechanics	Throughout site, esp. in mill building and visits to cellars	21	Para 53 Daytime operations
Electricians	Throughout site	10	Para 56 Daytime operations
Mesh plant	Centrally in billet bay	9	Para 57 Daytime operations
Welders and cutters	Cutters located south of reheat furnace. Welders located throughout site,	8	Para 58 Daytime operations
Pump fitters	Mainly in water treatment plant	6	Para 59 Daytime operations
Office and general workers	Site office (NW of SWS site) for office and half of general workers. Half of general workers located in mill	46	Para 60 Daytime operations
Security (Day)	1 at each of west and east barrier gates, 1 at jetty 1 on patrol, and 1 supervisor rotating between the 4 guards	5	Para 61 Daytime operations

Current SWS Operations			
Worker Group	Location	Population Present	Notes (paragraph refs from Maylor [21])
Security (night)	Not noted	2	Para 61

Future SWS Operations (as above plus those listed in table)			
Worker Group	Location	Population Present	Notes (paragraph refs from Maylor [21])
Arc Furnace	Arc furnace	141	Para 79 (ESR assumes 90% (127) present during the day and 10% (14) present at night.
Additional trucks	Associated with future plans	39	Para 79 – 13 trucks (ESR assumes three people per truck).
Cut and bend	Cut and bend - NE of mill building	45	Para 81 (2 shifts of 45)

H8.3.1.2 Based on the above information, including the additional 225 future population, populations around SWS have been estimated. Data has been split between time periods reflecting operations involving major fluctuations in onsite populations, as follows:

- Night time – to exclude daytime workers
- Daytime operations broken down by:
 - Peak product truck population (morning and lunch assumed for approximately 3 hours per day), with vessels at jetty,
 - Background product truck rate (assumed for 6 hours per day).

H8.3.1.3 For a cautious estimate, the following assumptions have also been made:

- no allowance has been made for any reduction in populations during weekend operations.
- Vessels are assumed to be permanently located at the jetty. For conservatism SWS workers who could be located at the jetty during unloading are assumed to remain within the mill rather than at the jetty, as they are then closer to potential effects from PAFF.

H8.3.1.4 Populations around the EcoPark are uniformly distributed over the area with the full population present during the day and 10% of the population present at night.

H8.3.1.5 Population estimates are shown in figures A8.1 to A8.3 for SWS personnel and those on the public road areas.

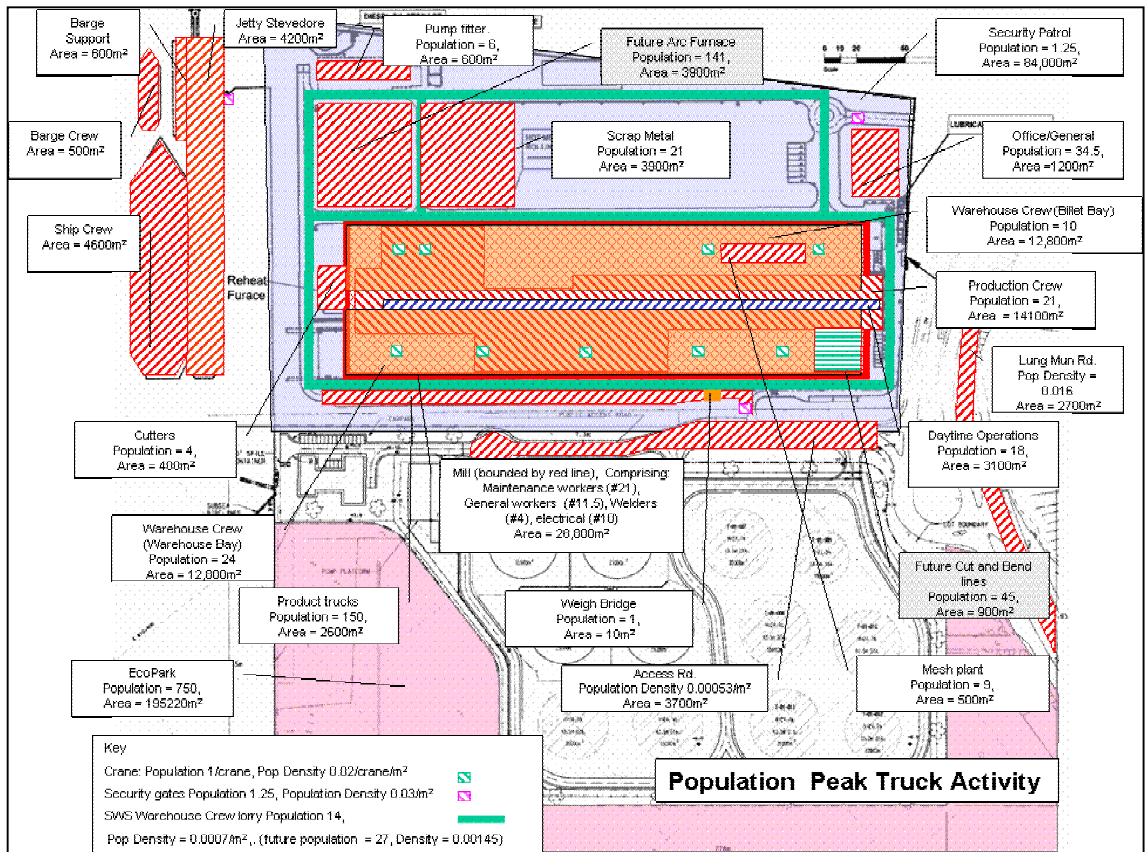


Figure H8.1: Populations Present During Peak Truck Activity at SWS (3 Hours/Day)

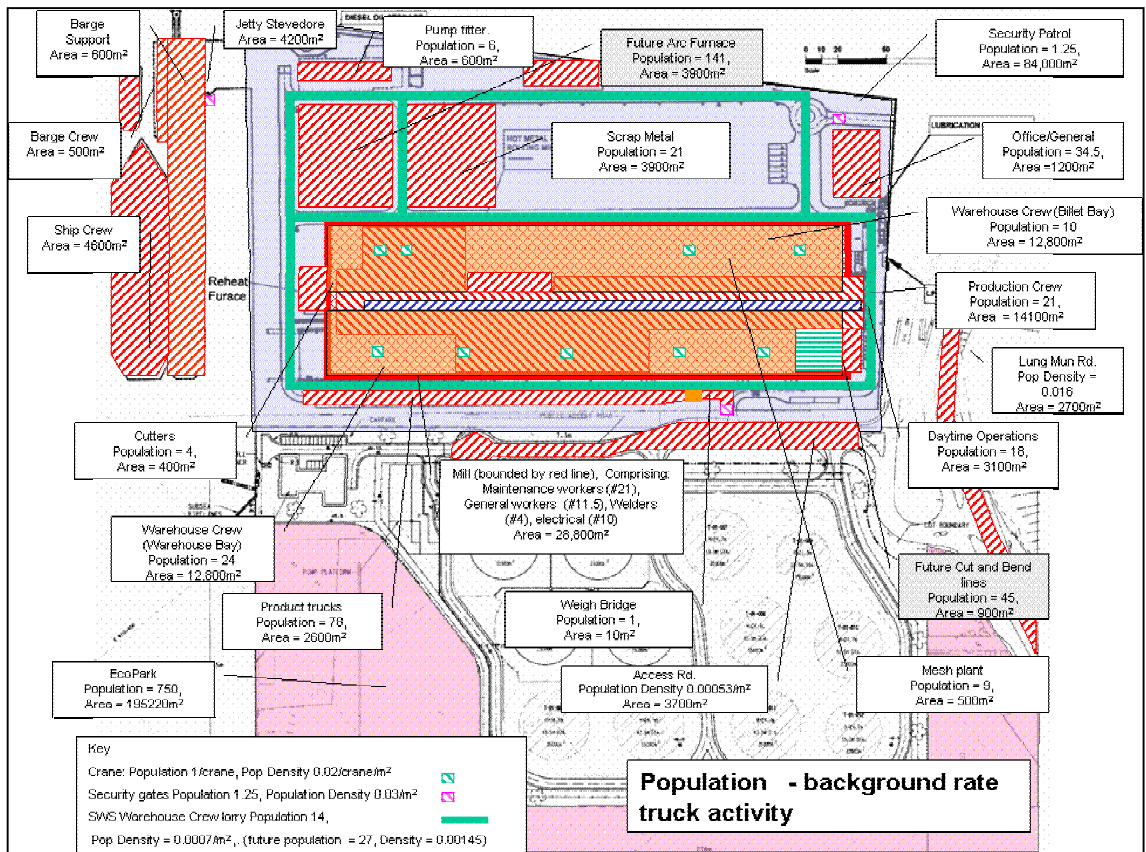


Figure H8.2: Daytime Populations With Background Truck Activity at SWS (6 Hours/Day)

