ATMOSPHERIC IMPACT REPORT
WEST POINT FISHMEAL PLANT

Commissioned by:

West Point Processors (Pty) Ltd

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Details and Declaration of Interest by the Specialist

This report has been professionally independently prepared by DDA Environmental Engineers cc, which is a South African Professional Consulting company, with a team of professionals specialising in air quality and noise pollution.

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The author of this report, Demos Dracoulides, does hereby declare that he is an independent consultant appointed by West Point Processors (Pty) Ltd and has no business, financial, personal or other interest in the activity, application or appeal in respect of which he was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of the specialist performing such work. All opinions expressed in this report are his own.

Demos Dracoulides:

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GLOSSARY AND ABBREVIATIONS

AEL	Atmospheric Emission Licence
CO	Carbon monoxide
DDA	DDA Environmental Engineers
DEA	Department of Environmental Affairs
H_2S	Hydrogen sulphide
HFO	Heavy fuel oil
MfE	Ministry for Environment
mg	Milligram
m/s	Meter per second
Nm^3/s	Normal cubic meter per second
NAAQS	South African National Ambient Air Quality Standards
NO	Nitrogen oxide
NO_2	Nitrogen dioxide
OEUHHA	Office of Environmental Health Hazard Assessment
O_3	Ozone
Pb	Lead
PM	Particulate matter
PM_{10}	Particulate matter with aerodynamic diameters of 10 micrometres or less
$PM_{2.5}$	Particulate matter with aerodynamic diameters of 2.5 micrometres or less
ppb	parts per billion
SO_2	Sulphur dioxide
SAAQIS	South African Air Quality Information System
tph	Ton per hour
USEPA	US Environmental Protection Agency
UTM	Universal Transverse Mercator coordinate system
$\mu g/m^3$	Microgram per cubic meter
WHO	World Health Organisation

1 INTRODUCTION

West Point Processors (Pty) Ltd (WPP) operates a fish processing plant, including a fish meal plant in St. Helena Bay on the West Coast. The fish processing plant is located at the entrance of St Helena Bay. The land in the area is mainly open land with sparse residences. Laingville, which is the closest residential area, is situated approximately 1.2 km southeast of the fishmeal plant (see Figure 1-1). WPP has a valid Atmospheric Emission Licence (Number: WCWD001205).

DDA Environmental Engineers (DDA) was appointed by West Point Processors to prepare an Atmospheric Impact Assessment report for its operations. The main aims of this report are to identify and quantify the emissions from the plant and assess the odour and air pollution impacts that are likely to occur in the surrounding areas of the plant due to its operations.

Figure 1-1. Locality Map

1.1 Scope of the Study

West Point Processors has embarked on a series of plant upgrades, with the main targets being the improvement in energy and production efficiency, as well as the reduction of the air pollution and odour emissions released from the plant. This upgrade is required to optimally accommodate the fish availability in the main fishing season and to ensure the allocated quotas that are caught and processed.

The total upgrade will be completed in 4 stages, and the design capacity will reach 120 tons per hour (tph) of raw fish, with an average processing capacity of approximately 100 tph. The boiler utilisation for each phase of the total upgrade can be seen in Appendix A.

The upgrade process is currently between Phases 2A and 2B, and by October 2024 the plant will be in Phase 3. The current processing capacity is 65 tph, which in Phase 3 will reach 82 tph. Other plant upgrades that have taken place include:

- The installation of one additional cooker. However, only two cookers are used at any given time.
- The reduction of the number of fish pits from 7 to 4.

Phase 2A entails the utilisation of the existing boilers, which include two coal boilers and two HFO boilers. In Phase 2B, an additional 20-ton coal boiler will be introduced, and one of the two HFO boilers will only be used as backup. Phase 3, which will be implemented from October 2024 onwards, will entail three coal boilers, and only one HFO boiler is expected to be utilised.

The scope of the air quality study was:

- To identify the emission sources at the plant and quantify the emissions for Phase 3;
- To establish an emissions inventory for the identified emission sources;
- To obtain local meteorological data and background air quality monitoring data (if available);
- To perform air dispersion modelling following the Regulations Regarding Air Pollution Dispersion Modelling;
- To predict the hourly, daily and annual air pollutant concentrations;
- To compare the resulting concentrations against the South African Air Quality Standards and international guidelines;
- To assess the expected air quality impacts due to the operations of the plant; and
- To identify emission reduction opportunities and cost-effective emission abatement strategies, if necessary.

1.2 Study Approach

The impact assessment study was based on the following approach:

- The air pollutants emitted by the plant operations were identified and their emissions quantified, based on emission factors and stack testing results. The air pollutants quantified included particulate matter, nitrogen oxides, sulphur dioxide, carbon monoxide and hydrogen sulphide.
- The emissions mentioned above were then used as input into the air pollution dispersion model. The latest AERMOD View model was used for the air dispersion modelling. This model

is based on the USEPA regulatory model AERMOD, which is designed to treat both surface and elevated sources in simple and complex terrains.

- The resulting highest hourly, daily and annual air pollutant concentrations around the plant were determined via the above-mentioned model.
- The highest ground-level concentrations for each of the examined air pollutants were compared against National Ambient Air Quality Standards and international guidelines, and the atmospheric impacts were assessed.

2 ENTERPRISE DETAILS

2.1 Enterprise Details

The details of the facility are summarised in Table 2-1.

Table 2-1. Enterprise Details

Enterprise Name	West Point Processors (Pty) Ltd
Trading As	West Point Processors (Pty) Ltd
Type of Enterprise, e.g. Company/Close Corporation/Trust, etc	Company
Company/Close Corporation/Trust Registration Number (Registration Numbers if Joint Venture)	1990/07321/07
VAT registration number	429 0115 221
Registered Address	Main Road West Point, St Helena Bay
Postal Address	PO Box 15, St Helena Bay, 7390
Telephone Number (General)	022 736 1100
Industry Sector	Processing of pelagic fish to fishmeal
Land Use Zoning as per Town Planning Scheme	Fishing industry
Land Use Rights if outside Town Planning Scheme	N/A
Name of Responsible Officer (ACO)	Gerhard Potgieter
Name of Emission Control Officer (ECO)	Dudley Lesch
Telephone Number	022 736 1100
Cell Phone Number	079 155 5331
Fax Number	022 736 1282
E-mail Address	gerhard@soldanha.co.za dudley@saldanha.co.za
After Hours Contact Details	066 284 6987 (ACO) 079 155 5331 (ECO)

2.2 Location and Extent of Plant

Table 2-2. Location and Extent of Plant

Physical Address of the Plant	Main Road, St Helena Bay
Description of Site (Where No Street Address)	Erf 1097 St Helena Bay
Coordinates of Approximate Centre of Operations	North-south: 32°46' 40.1" S East-west: 18° 02' 57.4" E
Property Registration Number (Surveyor-General Code)	CO 4600'01030 100 9070 00
Extent (km^2)	0.15803
Elevation Above Mean Sea Level (m)	+/- 5 m
Province	Western Cape
Metropolitan/District Municipality	West Coast District Municipality
Local Municipality	Saldanha Bay Local Municipality
Designated Priority Area	N/A

2.3 Atmospheric Emission Licence and Other Authorisations

West Point Processors (Pty) Ltd has a valid Atmospheric Emission Licence (AEL). The licence number is WCWD001205.

The listed activity undertaken at the facility and licenced for is Category 10 and can be seen in Table 2-3 below.

Table 2-3. Listed Activity Undertaken

Category of Listed Activity	Sub-category of the Listed Activity	Description of the Listed Activity	Application
Category 10:	N/A	Animal Matter Processing	Processes for the rendering, cooking, drying, dehydrating, digesting, evaporating or protein concentrating of animal matter not intended for human consumption

3 NATURE OF PROCESS

3.1 Process Description

The process entails the operation of a fish meal processing plant producing fish meal products. Production relates to the Total Allowable Catch approved by the Regulatory Authorities and fish offcuts from the cannery process. Fishmeal is produced by processing raw pelagic fish with the following unit processes:

- Cookers,
- Separating equipment,
- Pressers,
- Stick water evaporation,
- Conveyors,
- Steam driers,
- Extraction system,
- Sea water scrubber,
- Chemical scrubber,
- Dry-milling,
- Packing and
- Fish oil.

Fish offloading and storage:

Raw fish is caught via fishing vessels and is offloaded by means of a vacuum conveyor system into the fish holding facility. There are currently 4 fish holding tanks.

Fish cooking and dewatering:

The raw fish is transported into the processing plant directly from the fish holding tanks into the continuous steam-jacketed cookers. The fish is then cooked in the cookers, and all excess liquids are extracted via dewatering screens, presses and decanters.

There are three cookers at the plant. However, only two are being used at any given time.

Separation and evaporation:

The liquid phase is put through centrifuges, where the oil is separated from the stick water. The oil is then polished by adding hot water to it and separating it through a centrifuge. Separating equipment includes Separators and Oil polishers.

The stick water is evaporated into concentrate via a Waste Heat or Steam Evaporating Plant. The stick water is then added back into the solid press cake before it is dried.

Drying:

The fish meal is currently partially dried via Disc Steam Driers and then further dried in Rota Tube Driers. The drier function is seen as one drying step that can be utilised in various configurations.

Milling and bagging:

The produced fishmeal is then conveyed to the bagging plant, where it is milled using Hammer Mills. The final product is bagged into 50kg or bulk bags. Any dust that is generated in the Bagging Plant is removed via cyclone and bag filters.

Fish meal warehouses:

The bagged fish meal is stored in the warehouses.

Steam generation:

The steam required for the cooking and evaporating of liquids from the process is generated by the boilers. There are two fuel oil boilers and three coal boilers at the facility.

Seawater scrubber and chemical scrubber:

The water vapour collected from the plant areas and process units is sent to the Seawater Scrubber, where steam is condensed and odour carrying particulate matter removed.

The remaining air from the Seawater Scrubber is then routed to the Chemical Scrubber for further removal of odours before being released into the atmosphere.

The process flow diagram of the above-mentioned processes can be seen in Figure 3-1 below.

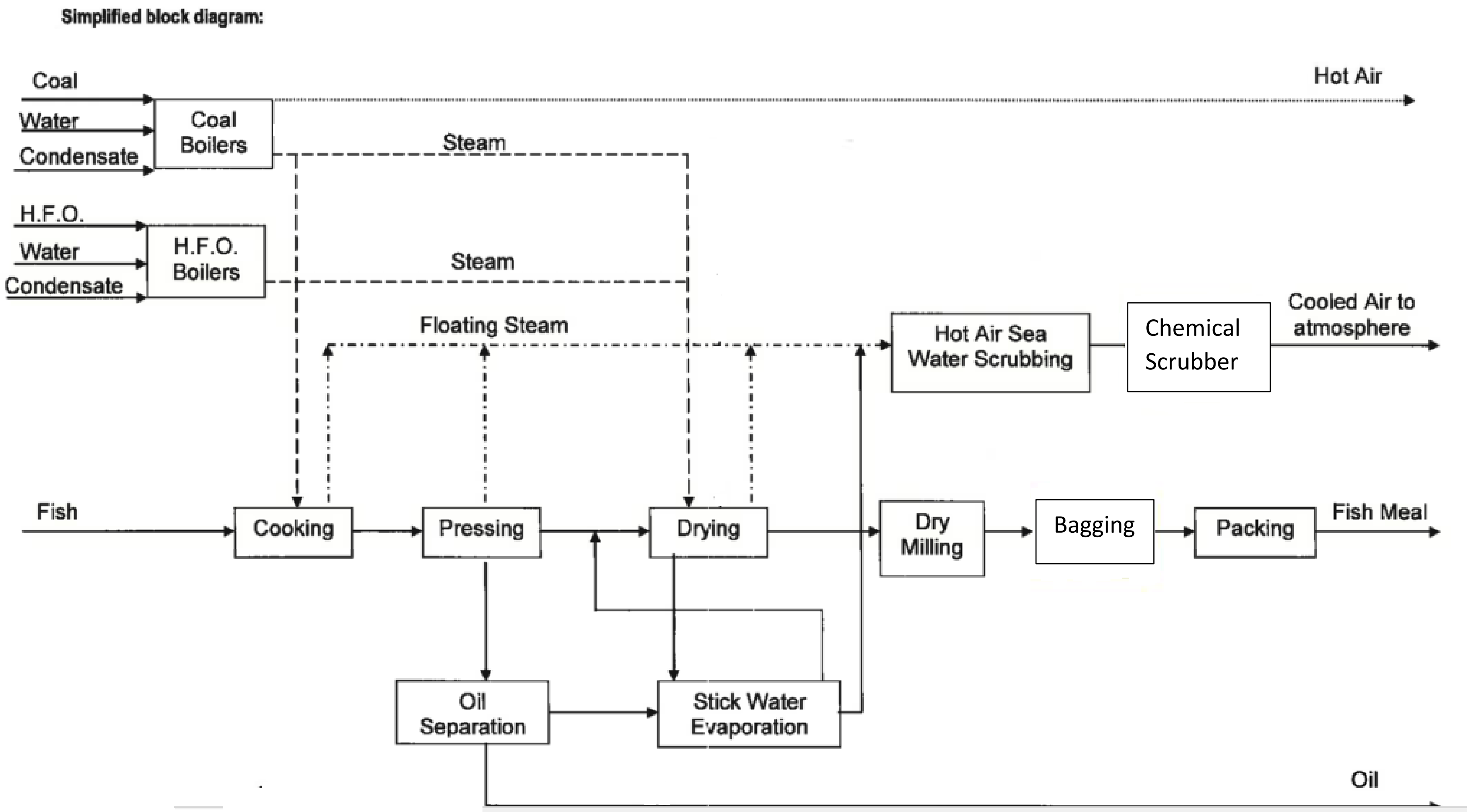

Figure 3-1. Process Flow Diagram

3.2 Unit Process

Table 3-1. Unit Process

Unit Process	Unit Process Function	Batch or Continuous Process
Cookers	Cooking of raw fish	Continuous
Pressers/Dewatering Screens/Decanters	Dewatering of cooked fish	Continuous
Dryers	Drying of cooked fish to fish meal	Continuous
Dry Milling	Size reduction of fish meal	Continuous
Packing	Packing of fish meal in 50kg or 1000kg bags for storage or transport as well as bulk storage	Continuous
Oil Separators and Polishers	Separating press water into stick water and fish oil	Continuous
Stick Water evaporators	The concentration of stick water	Continuous
Coal Boiler	Steam generation	Continuous
H.F.O Boilers	Steam generation	Continuous
Sea Water Scrubbers	Condensing of steam and removal of condensable odour carrying particulate matter	Continuous
Chemical Scrubbers	Secondary treatment of condensable and non-condensable compounds	Continuous
Fish Pits	Raw fish storage prior to processing	Continuous
Oil Tanks	Tanks are used for the storage of fish oil	Continuous
Coal Ash Storage Area	Wet coal ash is stored in tuff bags. Removed from the site in bags.	Continuous

3.3 Hours of Operation

Unit Process	Operating Hours	Number of Days Operated per Year
Cookers	24	365
Pressers/Dewatering Screens/Decanters	24	365
Dryers	24	365
Dry Milling	24	365
Packing	24	365
Oil Separators and Polishers	24	365
Stick Water Evaporators	24	365
Coal Boilers	24	365

Unit Process	Operating Hours	Number of Days Operated per Year
H.F.O Boilers	24	365
Sea Water Scrubber	24	365
Chemical Scrubbers	24	365
Fish Pits	24	365
Oil Tanks	24	365
Coal Ash Storage Area	24	365

4 TECHNICAL INFORMATION

4.1 Raw Materials Used

Table 4-1. Raw Materials

Regulated Raw Materials		
Raw Material Type	**Maximum Permitted Consumption Rate**	**Units (Quantity/Period)**
Fish	120	Tons/hour
Formaldehyde	2.5	Litre/ton
Non-Regulated Raw Materials		
Raw Material Type	**Maximum Permitted Consumption Rate**	**Units (Quantity/Period)**
Anti-oxidant in meal	5	Litre/ton
Anti-oxidant in oil	5	Litre/ton
Water	225,000	Litre/hour

4.2 Production Rates

Table 4-2. Production Rates

Product	Maximum Permitted Production Capacity	Units (quantity/period)
Fish Meal	30	Tons/hour
Fish Oil	18	Tons/hour

4.3 Materials Used in Energy Sources

Table 4-3. Materials Used in Energy Sources

Materials for Energy	Sulphur Content of the Material	Ash Content of Material (%)	Actual Consumption Rate (Quantity)	Units (quantity/period)
Coal	0.25-0.8%	15-20%	7.7	Tons/hour
Electricity	-	-	3.5 Plus, additional 2 MVA	MW/hour
HFO (FO180)	2.6%	0.04%	1.5	Tons/hour

4.4 Appliances and Abatement Equipment Control Technology

There is currently one seawater scrubber and one chemical scrubber serving the plant.

Table 4-4. Abatement Equipment

Appliance Name	Appliance Type / Description	Appliance Function / Purpose
Seawater Scrubber	Wet scrubber	The vapour and gases collected from the plant areas and the outlet from the Stickwater Plant are sent to the Seawater Scrubber, where steam is condensed and odour carrying particulate matter is removed.
Chemical Scrubber	Wet scrubber	The remaining air from the Seawater Scrubber is then routed to the Chemical Scrubber for the removal of additional odours, before being released into the atmosphere.

5 ATMOSPHERIC EMISSIONS

5.1 Point Source Parameters

From approximately October 2024 onwards, the West Point plant will be in Phase 3 of its upgrade. The operating boilers at the plant will be:

1) 20-ton coal boiler, point source code PS1,
2) 16-ton coal boiler, point source code PS6,
3) 20-ton coal boiler, point source code PS8,
4) 11-ton HFO boiler, point source code PS2,
5) 10-ton HFO boiler, point source code PS3 (standby),
6) Chemical Scrubber, point source code PS6.

PS8 is currently being installed. The HFO boilers are currently running on high-sulphur fuel oil (FO180).

The vapours collected from the various plant sections and the production operations are treated in a Seawater Scrubber and a Chemical Scrubber before being released into the atmosphere via the scrubber stack.

The list of the point sources is presented in Table 5-2 below.

5.2 Point Source Maximum Emission Rates (normal operating conditions)

The emission rates calculated for the WPP point sources can be seen in Table 5-3.

The coal boilers are tested annually for stack emissions, as these boilers fall under Controlled Emitters. The most recent stack emission testing was conducted in October 2023 (Yellowtree, 2023a). The HFO boilers do not fall under Controlled Emitters and thus do not require annual stack emission testing. The emissions from the HFO Boiler PS2 were last tested in 2021.

The emission rates utilised in the dispersion modelling for the boiler stacks are based on the above-mentioned stack emission tests. The emission parameters for the new coal boiler (PS8) were assumed to be the same as those of the other 20-ton boiler since the type and technology are similar.

In order to determine the PM_{10} fractions of the $PM_{2.5}$ emissions from the boiler stacks, the emission factors in the USEPA AP42 documents for *Bituminous and Subbituminous Coal Combustion* (USEPA, 1998) and *Fuel Oil Combustion* (USEPA, 2010) were used. The cumulative particle size distribution for coal and HFO combustion can be seen in Table 5-1 below.

The existing and the new coal boilers are equipped with multi-cyclone units for the mitigation of PM emissions. The particle size distributions for the use of multiple cyclones were used to calculate the PM_{10} fractions for the coal boiler stacks. The HFO combustion PM emissions are not controlled.

Table 5-1. Cumulative Particle Size Distribution

Particle Size (µm)	Cumulative Mass % <= State Size			
	Coal Combustion			HFO Combustion
	Uncontrolled	Multiple cyclones	Scrubber	Uncontrolled
10	23	29	71	71
Point source applied		PS1, PS6, PS8		PS2

The Chemical Scrubber stack is tested twice a year for H_2S emissions. The most recent testing was conducted in October 2023 (Yellowtree, 2023b). For the dispersion modelling, the maximum allowable rate based on the 5 mg/Nm^3 was used for the scrubber stack (PS4) as a worst-case scenario.

Table 5-2. List of Point Sources and Source Parameters

Unique Stack ID	Source Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Height of Release Above Ground (m)	Height Above Nearby Building (m)	Diameter at Stack Tip / Vent Exit (m)	Actual Gas Exit Temperature (°C)	Actual Gas Volumetric Flow (m^3/hr)	Actual Gas Exit Velocity (m/s)
PS1	20-ton Coal Boiler # 5	-32.776756°	18.049747°	31	18.8	1.1	198	32,086	9.38
PS2	11-ton H.F.O. Boilers # 6	-32.776514°	18.049622°	14.5	4	0.9	210	17,724	6.9
PS3	10-ton H.F.O. Boilers #8	-32.776495°	18.049671°	16	8.5	1.2	220	17,100	4.2
PS4	Chemical Scrubber Stack #1	-32.776943°	18.049787°	11	2	0.5	18	6,001	10.48
PS6	16-ton Coal Boiler # 7	-32.776561°	18.049537°	24	6	1.28	196	34,972	7.55
PS8	20-ton Coal Boiler	-32.776453°	18.049837°	31	18.8	1.1	198	32,086	9.38

Table 5-3. Point Source Emission Rates during Normal Operating Conditions

Point Source Number	Point Source Name	Pollutant Name	Maximum Emission Rate (mg/Nm³) [c]	Actual Emission Rate (mg/Nm³)	Emission Rate for Modelling (mg/Nm³)	Emission Rate for Modelling (g/s)	Emission Hours	Type of Emission
PS1 [a]	20-ton coal boiler	PM	250	256	-	-	24-hour	continuous
		PM_{10}		74.2	74.2	0.36	24-hour	
		SO_2	2800	1213	1213	5.93	24-hour	
		NOx	-	333	333	1.63	24-hour	
		CO	-	272	272	1.33	24-hour	
PS2 [b]	11-ton HFO Boiler # 6	PM	-	80	-	-	24-hour	
		PM_{10}		56.8	56.8	0.16	24-hour	
		SO_2 [d]	-	3,333	3,333	9.25	24-hour	
		NOx	-	889	889	2.47	24-hour	
		CO	-	0	0	0	24-hour	
PS4 [a]	Scrubber Stack	H_2S	5	0.8	5	0.008	24-hour	
PS6 [b]	16-ton coal boiler	PM	250	171	-	-	24-hour	
		PM_{10}		49.59	49.6	0.26	24-hour	
		SO_2	2800	1212	1212	6.40	24-hour	
		NOx	-	380	380	2.01	24-hour	
		CO	-	57	57	0.30	24-hour	
PS8 [a]	20-ton coal boiler	PM	250	256	-	-	24-hour	
		PM_{10}		74.2	74.2	0.36	24-hour	
		SO_2	2800	1213	1213	5.93	24-hour	
		NOx	-	333	333	1.63	24-hour	
		CO	-	272	272	1.33	24-hour	

a. Stack emission report. Yellowtree, 2023.
b. Stack emission report. DDA, 2021.
c. Emission standards for small boilers and scrubber stack.
d. Based on measured emissions and use of HFO as fuel.

5.3 Point source maximum emission rates (start-up, shut-down, upset and maintenance conditions)

Table 5-4. Upset and Maintenance Conditions

Unit Process	Description of Occurrence of Potential Releases	Pollutants and associated amount of emissions	Briefly Outline Back Up Plan
PS1, PS8	Black smoke during boiler start-up	PM, max 250 mg/Nm³	After 60 minutes we stop the boiler if the abnormality does not stop, and repair the breakage.
PS4	Elevated odour due to the lowered scrubbing efficiency	H_2S, max 5 mg/Nm³	Scale back or halt operation if - Emissions have or are likely to have a negative impact on the environment as well as human health and wellbeing or are in contravention with NEM: AQ relating to control of offensive odours. - When critical control points such as odour control equipment are non-functional or require maintenance.
PS6	Black smoke during boiler start-up	PM, max 400 mg/Nm³	After 60 minutes we stop the boiler if the abnormality does not stop, and repair the breakage.

5.4 Fugitive Emissions

The fugitive emission sources/area sources can be seen in Table 5-5 below. It should be noted that coal ash is wet and is stored in industrial bulk bags that are removed from the site regularly.

With proper housekeeping and maintenance, the potential fugitive odour and dust emissions at the plant are expected to be of low significance. The fugitive emissions are not considered further in this report.

Table 5-5. Fugitive Emission Sources

Unique Area Source ID	Source Name	Source Description	Latitude (decimal degrees) of SW corner	Longitude (decimal degrees) of SW corner	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Emission Hours	Type of Emission (Continuous/ Intermittent)
AS1	Coal Storage bunker	Storage Area for Coal	-32.776698	18.049604	3	25	30	24	Continuous
AS2	Coal Ash Storage Area	Storage Area for Coal ash	-32.776579	18.049427	0	25	25	24	Continuous
AS3	Fish Storage Pits	Storage Area for fish pending processing	-32.774419	18.049976	8	40	20	24	Continuous
AS4	Bag Filters	Filtering the dust from the hammer mills air flow	-32.776766	18.050259	8	15	16	24	Continuous
AS5	Oil Tanks	Storage of fish oil	-32.777058	18.049561	9	8	40	24	Continuous
AS6	Fishmeal Storage Warehouse	Fishmeal bagging and storing area	-32.777561	18.050516	12	130	56	24	Continuous
AS7	Conveyor Belt System	Transportation of fish from	-32.775633	18.050579	8	182	3	24	Continuous

5.5 Emergency Incidents

There were no complaints received or incidents in 2022 and 2023.

6 AIR QUALITY REGULATIONS AND GUIDELINES

6.1 National Ambient Air Quality Standards (NAAQS)

The South African legislation and guidelines on the environmental management and air quality emission standards are:

- The National Environmental Management Act, Air Quality Act (Act No. 39 of 2004);
- The South African National Ambient Air Quality Standards (24 December 2009); and
- The National Ambient Air Quality Standard for Particulate Matter with Aerodynamic Diameter Less Than 2.5 Micron Meters ($PM_{2.5}$) (29 June 2012).

The South African National Ambient Air Quality Standards are presented in Table 6-1.

Table 6-1. National Ambient Air Quality Standards

Pollutant	Molecular Formula	Averaging Period	Concentration		Frequency of Exceedance	Compliance Date
			µg/m³	ppb		
Sulphur Dioxide	SO_2	10 minute	500	191	526	Immediate
		1 hour	350	134	88	Immediate
		24 hour	125	48	4	Immediate
		1 year	50	19	0	Immediate
Nitrogen Dioxide	NO_2	1 hour	200	106	88	Immediate
		1 year	40	21	0	Immediate
Carbon Monoxide	CO	1 hour	30,000	26,000	88	Immediate
		8 hour	10,000	8,700	11	Immediate
Particulate Matter	PM_{10}	24 hour	120	-	4	Immediate – 31 Dec 2014
			75	-	4	1 Jan 2015
		1 year	50	-	0	Immediate – 31 Dec 2014
			40	-	0	1 Jan 2015
	$PM_{2.5}$	24 hour	65	-	4	Immediate – 31 Dec 2015
		24 hour	40	-	4	1 Jan 2016 – 31 Dec 2029
		24 hour	25	-	4	1 January 2030
		1 year	25	-	0	Immediate – 31 Dec 2015
		1 year	20	-	0	1 Jan 2016 – 31 Dec 2029
		1 year	15	-	0	1 January 2030
Ozone	O_3	8 hour	120	61	11	Immediate
Lead	Pb	1 year	0.5	-	0	Immediate
Benzene	C_6H_6	1 year	10	3.2	0	Immediate – 31 Dec 2014
			5	1.6	0	1 Jan 2015

6.2 Emission Limits for Small Boilers

The Department of Environmental Affairs (DEA) has established emission standards for small boilers, in terms of Section 24 of the National Environmental Management: Air Quality Act of 2004. Small boilers include any boiler with a design capacity greater than or equal to 10MW (equivalent to 14 tonnes) but less than 50MW net heat input per unit, based on the lower calorific value used. According to the document, the operator of the small boiler must:

1) Submit at least one emission report per annum to the relevant air quality officer in the format set out in Annexure C of the document.
2) Submit the first emission report to the relevant air quality officer within 12 months from the date on which the notice takes effect.
3) Provide an additional emissions report as requested by the air quality officer, for the implementation of this notice.
4) Record all measurement results and keep a copy of this record for at least five years after obtaining the results.
5) Produce the record of the measurement results for inspection if requested to do so by the air quality officer.

The emission limits for solid and liquid fuel-fired small boilers are shown in Table 6-2 and Table 6-3 below.

Table 6-2. Emission Standards for Solid Fuel-Fired Small Boilers

Description:	**Small Boilers Fueled with Solid Fuels, Excluding Biomass**		
Application:	All small boilers fueled with hydrocarbon based solid fuels		
Substance or Mixture of Substances		Small Boiler Status	Limit Value (Dry mg/Nm^3 at 273K: and101.3 kPa and 10% O_2)
Common Name	Chemical symbol		
Particulate Matter	PM	New	120
		Existing	250
Sulphur Dioxide	SO_2	New	2,800
		Existing	2,800

Table 6-3. Emission Standards for Liquid Fuel-Fired Small Boilers

Description:	**Small boilers fueled with liquid fuels**		
Application:	All liquid fuel-fire small boilers		
Substance or Mixture of Substances		Small Boiler Status	Limit Value (Dry mg/Nm^3 at 273k: and101.3 kPa and 3% O_2)
Common Name	Chemical Symbol		
Particulate Matter	PM	New	100
		Existing	150
Sulphur Dioxide	SO_2	New	500
		Existing	3,500

6.3 Atmospheric Emissions Licence

According to Section 21 of the National Environmental Management: Air Quality Act, the Minister of Environmental Affairs is required to publish a list of activities which result in atmospheric emissions and to establish minimum emissions standards in respect of a substance or mixture of substances resulting from those listed activities. The consequence of the listing is that to conduct a listed activity in the Republic; a person requires a Provisional Atmospheric Emissions License or an Atmospheric Emission License.

The list of activities which result in atmospheric emissions and have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published on 22 November 2013 (DEA, 2013).

Fishmeal processing falls under category 10: Animal Matter processing. For this listed activity, there are no emission limits given for air pollutants, but "*Best practice measures intended to minimize or avoid offensive odours must be implemented by all installations*". In the current AEL of West Point, the West Coast District Municipality has set the emission limit for H_2S at 5 mg/Nm^3 for the scrubber stack.

6.4 Ambient Guidelines for Hydrogen sulphide

Hydrogen sulphide is a colourless gas that carries an offensive odour, similar to that of rotten eggs. It is formed during bacterial decomposition of sulphur-containing organic substances. Hydrogen sulphide is responsible for odour complaints about fishmeal plants. Humans detect it at levels of 0.2-2.0 µg/m^3, depending on its purity. This is the odour threshold, which is defined as the concentration at which 50% of a group of people can detect an odour. At about three to four times this concentration range it smells like rotten eggs.

Concentrations that substantially exceed the odour detection threshold can result in annoying and discomforting physiological symptoms of headache and nausea (Amoore, 1985). The World Health Organization (WHO) recommends that in order to avoid substantial complaints about odour annoyance, 30-minute average hydrogen sulphide concentrations should not exceed 5 ppb (7 µg/m^3; WHO, 1981).

H_2S causes nuisance effects because of its unpleasant odour at concentrations well below those that cause health effects. Ambient guidelines for H_2S have been established by various countries/organisations, these include:

- Ministry for the Environment (MfE), New Zealand.
- World Health Organisation.
- California Office of Environmental Health Hazard Assessment (OEUHHA).
- US Environmental Protection Agency (USEPA).

Table 6-4. H_2S Ambient Air Quality Guidelines

Country/Institution	Guideline		Averaging Period	Comment
	µg/m^3	ppm		
SA	11	0.008	-	Odour threshold (DEA, 2012)
New Zealand	7		1 hour	Odour annoyance
WHO	7		30 minutes	Avoidance of odour annoyance
	150		24 hours	Avoidance of eye irritation

Country/Institution	Guideline		Averaging Period	Comment
	µg/m³	ppm		
California OEHHA	42		Acute/hours	Nervous system
	10		Chronic/annual	Respiratory system
USEPA	765	0.51	1 hour	Acute exposure guideline Level 1: Notable discomfort, irritation, or certain asymptomatic non-sensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.
	495	0.33	8 hours	
Conversion factors for H_2S: 1 ppm = 1.5 mg/m³ 1 mg/m³ = 0.670 ppm				

7 IMPACT OF ENTERPRISE ON THE RECEIVING ENVIRONMENT

7.1 Baseline Characterisation

7.1.1 Air Quality Sensitive Receptors

The West Point fish meal plant is located in St Helena Bay. The plant borders the sea towards the north and the east. Towards the west, the land is mainly vacant, with a few houses directly opposite the plant. There are also sparse residences further north and south of the WPP plant. The closest residential area is Laingville, which is situated approximately 1.2 km southeast of the fishmeal plant (see Figure 1-1).

The Saint Helenabaai Primary School is located in Laingville and is approximately 1.5 km southwest of the plant. The Steenberg's Cove Primary School is approximately 2.6 km northwest of the plant.

7.1.2 Existing Sources of Emissions and Ambient Air Quality

The Modelling Regulations also require the air quality impact assessment to consider the ambient background concentrations.

Currently, there are no ambient air quality monitoring stations in St Helena Bay and the surrounding areas. However, the Western Cape Government operated an ambient air quality station in St Helena Bay, which was decommissioned in April 2021. The station was located in a residential area approximately 9 km northwest of the West Point Processors plant.

The only air pollutant monitored there was hydrogen sulphide. The average concentration measured in 2019 was 1.35 ppb (1.91 $\mu g/m^3$) and 2.0 ppb (2.83 $\mu g/m^3$) in 2020. The data availability was 80% and 62% respectively (source: SAAQIS).

Considering that WPP is located more than 4.5 km away from another similar emission source (fishmeal plant) and the worst air quality impacts occur near the sources (within less than 3 km), the cumulative impacts in areas close to WPP are insignificant. Therefore, the background ambient air concentrations will not be considered further in this air quality impact assessment.

7.1.3 Area's Meteorology

Transport and dispersion of air pollutants are affected by wind speed, wind direction, atmospheric turbulence parameters, ambient temperature, as well as mixing height. The atmospheric boundary during the day is normally unstable, as a result of the sun's heating effect on the earth's surface. The thickness of the mixing height depends strongly on solar radiation, amongst other parameters. This mixing layer gradually increases in height from sunrise, to reach a maximum at about five to six hours thereafter. Cloudy conditions, surface and upper-air temperatures also affect the final mixing height and its growth. During these conditions, dispersion plumes can be trapped in this layer and result in high ground-level concentrations. This dispersion process is known as Fumigation and is more pronounced during the winter months due to strong night-time inversions, weak wind conditions and slower-developing mixing layers.

7.1.4 Temperature

The air temperature is utilised in the dispersion modelling as one of the incorporated parameters for the parametrisation of the atmospheric conditions. Temperature plays an important role in the transportation and dispersion of air pollutants since it affects the plume buoyancy and the atmospheric boundary layer development.

The historical monthly average maximum and minimum temperature profile for St Helena Bay is presented in Figure 7-1 below (Meteoblue, 2024). The mean daily maximum temperature in the area ranges between 31°C and 19°C and the mean daily minimum temperature of 15°C and 7°C.

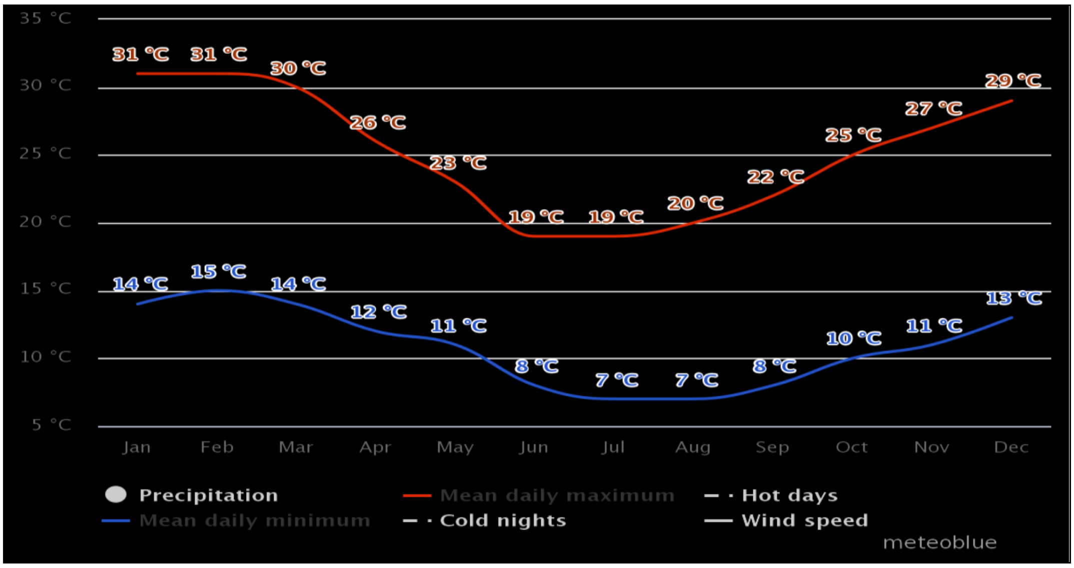

Figure 7-1. Monthly Temperature Profile

7.1.5 Precipitation and Air Pollution

Precipitation assists in the removal of air pollutants from the atmosphere. Gaseous air pollutants and particulate matter are removed by the falling rain droplets through adsorption and deposition.

Rainfall in the Western Cape occurs mainly in winter due to its Mediterranean climate. The historical average monthly precipitation profile is shown in Figure 7-2 below (Meteoblue, 2024). As can be seen, the highest monthly maximum precipitation is 54 mm in June, and the lowest is 5 mm in January and February.

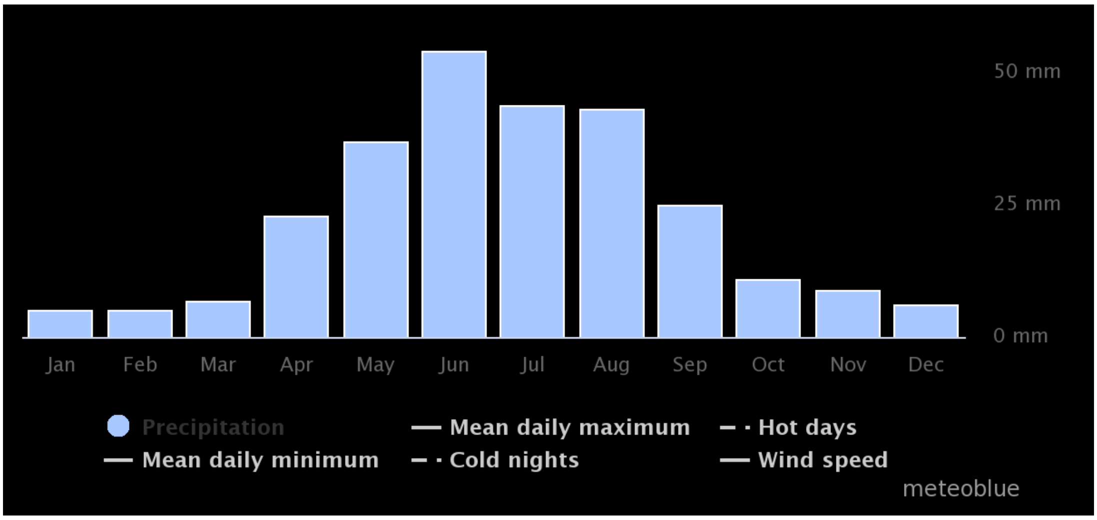

Figure 7-2. Monthly Precipitation Profile

7.1.6 Local Wind Field

Three years (2021-2023) of meteorological data was obtained from Lakes Environment for the St Helena Bay area. This dataset was generated by utilising a prognostic mesoscale model called the Weather Research and Forecast Model and a modelling resolution of 9 km. The centre point of the data set is at 32.777028 (Latitude) and 18.050033 (Longitude).

This data was also used for the establishment of the local wind field as wind roses. The wind roses were generated for all hours, daytime, night-time, as well as for the winter and summer periods and are illustrated in the figures below. These wind roses depict the frequency of the wind speeds for each of the 16 cardinal wind directions. The wind directions in the figures show from where the wind blows. The wind classes are indicated by coloured bars, and the frequencies of occurrence for each wind direction are specified by the dashed circles.

The wind roses and wind frequency distribution for all hours, daytime and night-time are shown in Figure 7-3. As can be seen, the most predominant winds in the area are from the southerly direction. The occurrence is approximately 22.5 % during daytime and increases to 37% at night time. The winds from the easterly and westerly directions are minimal. The average wind speeds during the daytime and night-time are 5.67 m/s and 5.03 m/s respectively.

The winter and summer wind patterns are shown in Figure 7-4. During winter, north-westerly and south-easterly winds are predominant. In summer, southerly winds are prevailing, with the occurrence of approximately 42%. The average wind speeds during winter and summer are 4.23 m/s and 6.61 m/s respectively.

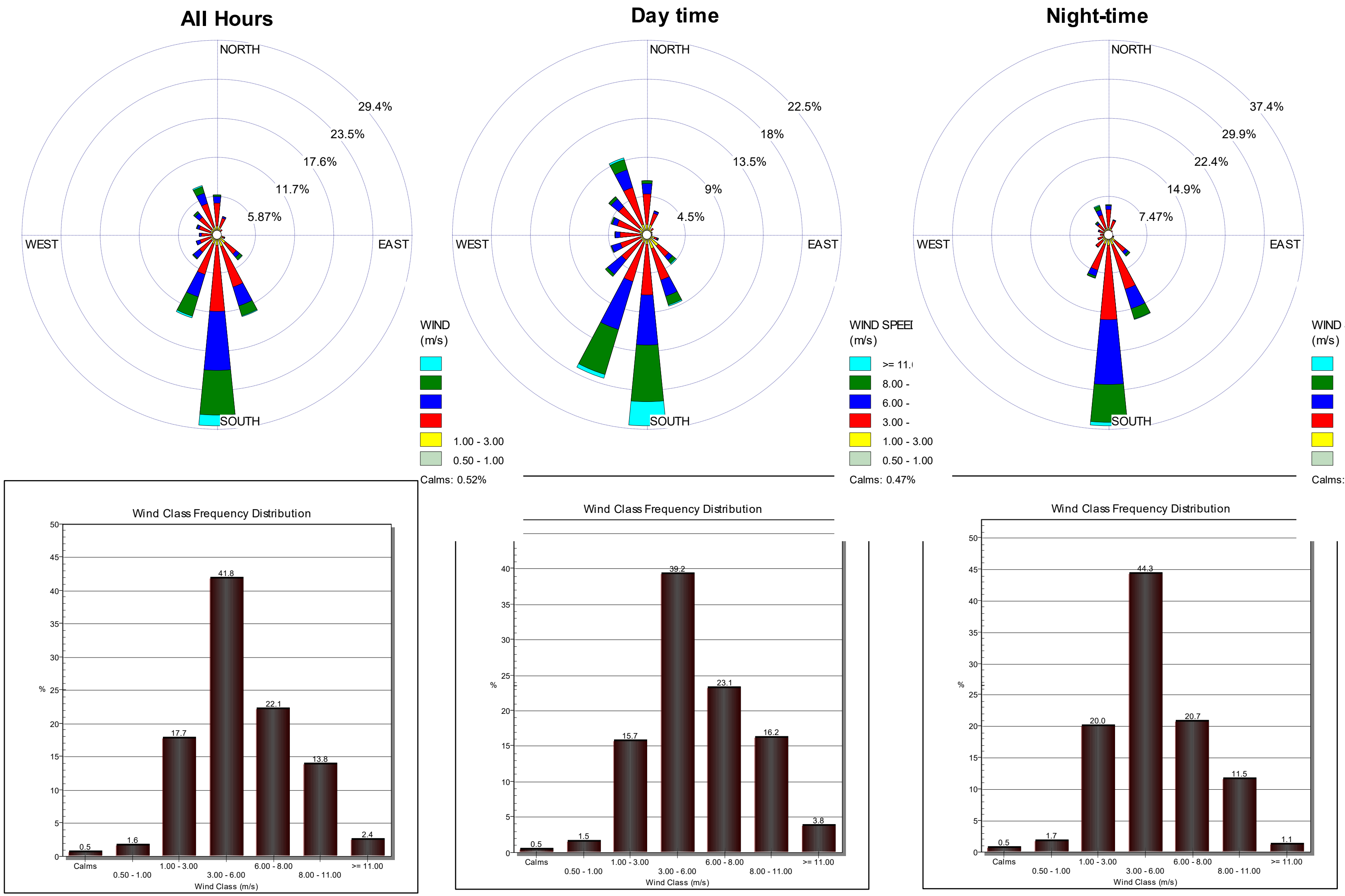

Figure 7-3. Wind Roses and Wind Speed Frequency Distribution: All-hours, Daytime and Night-time

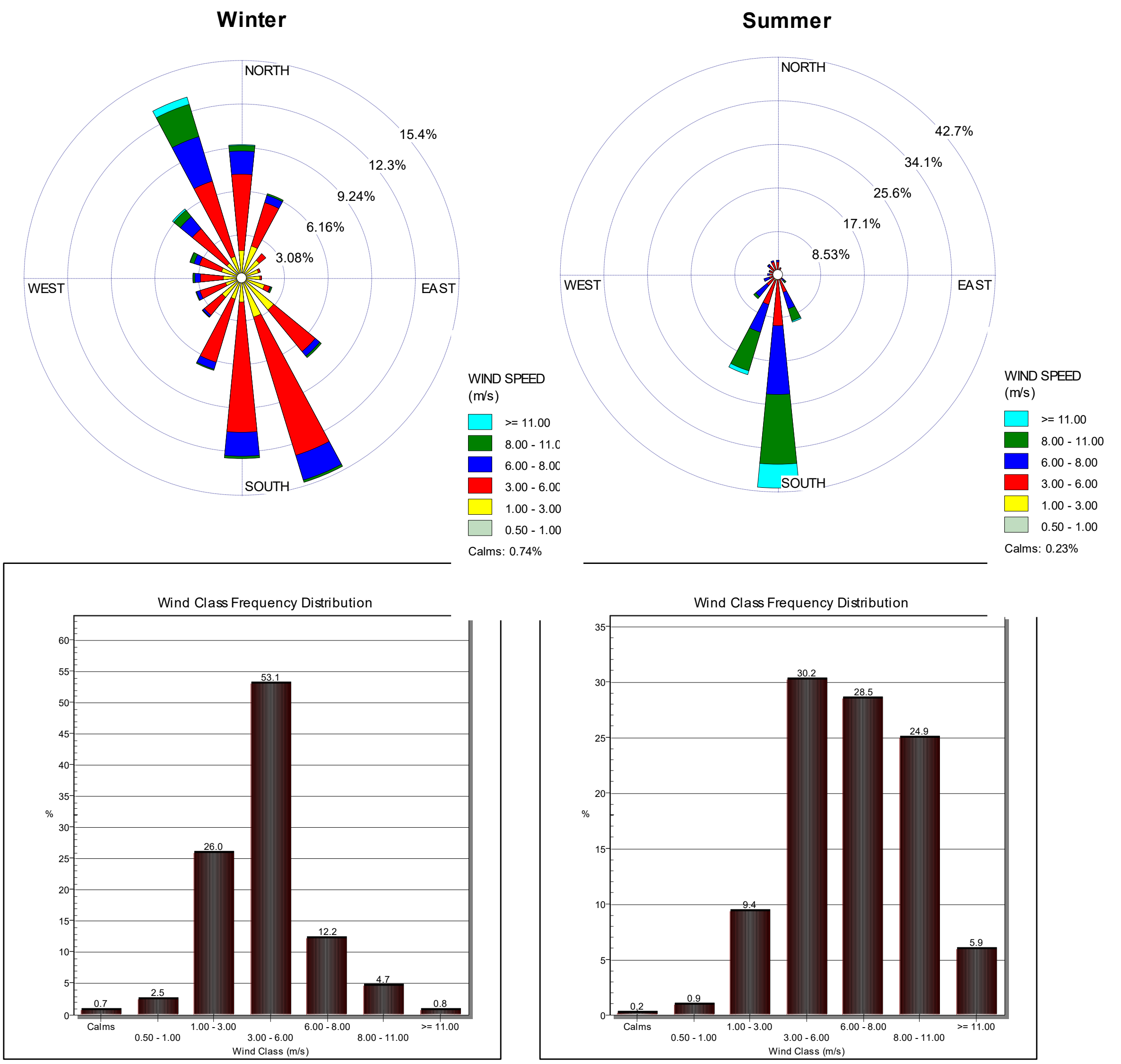

Figure 7-4. Wind Roses and Wind Speed Frequency Distribution: Winter and Summer

7.2 Atmospheric Dispersion Modelling

7.2.1 Atmospheric Dispersion Model

The air dispersion modelling was carried out according to the Level 2 assessment, as stipulated in the Regulations Regarding Air Dispersion Modelling (DEA, 2014). The Level 2 assessment is suitable for determining the air quality impacts as part of a license application or amendment processes, where the impacts are expected to occur within a few kilometres downwind (less than 50 km) from the emission source.

The US EPA AERMOD model was utilised for the air pollution dispersion modelling. The AERMOD model is a steady-state Gaussian plume dispersion model. It is based on the planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. It is used to model air pollution dispersion up to 50 km from the source.

Some of the AERMOD features include the treatment of the vertical non-homogeneity of the planetary boundary layer, management of surface releases and irregularly-shaped area sources, a three-plume model for the convective boundary layer and limitation of vertical mixing in the stable boundary layer.

7.2.2 Model Set-up and Data Input

The source configuration and emission quantities for the point sources were used as input into the model. The settings utilised within the model included:

- Regulatory options: Default,
- Terrain height option: Elevated,
- Dispersion coefficient: Rural,
- Output type: Concentration,
- Building downwash: Included.

Dispersion modelling was carried out following the Regulations Regarding Air Dispersion Modelling. In line with these regulations, for the short-term concentrations (i.e. 1-hour and 24-hour), the 99th percentiles were calculated for comparison against the NAAQS.

Only point sources at West Point and the associated emissions were used as emission input. In addition, 15 December to 15 January each year were excluded from the modelling, as the plant is not operational.

The modelling domain was set to be a 10 km x 10 km grid with the fishmeal plant at the centre. For the modelling of the ground-level concentrations, a Cartesian grid with a spacing of 100 m was utilised.

In addition to the grid calculations, the ambient concentrations were also determined at several discrete receptors around the project site. The locations of the receptors are shown in Figure 7-5, and the coordinates can be found in Table 7-1.

The resulting maximum ground-level concentrations at each receptor point were used to generate the concentration isopleths for each pollutant and averaging time. These results are presented in the sections below.

Table 7-1. Identified Sensitive Receptors

Receptor	UTM Coordinates		Description
	X	Y	
R01	221797.8	6371260	Steenberg's Cove Primary School, ~ 2.5 km northwest of the plant
R02	223353.4	6369797	Residence, about 300 m north of the plant
R03	223341.6	6369973	Residence, about 400 m north of the plant
R04	223491.7	6369545	Residence, about 160 m west of the plant
R05	223870.2	6369262	Residence, about 250 m south of the plant
R06	224355	6368577	Residence in Laingville, ~ 1.2 km south of the plant

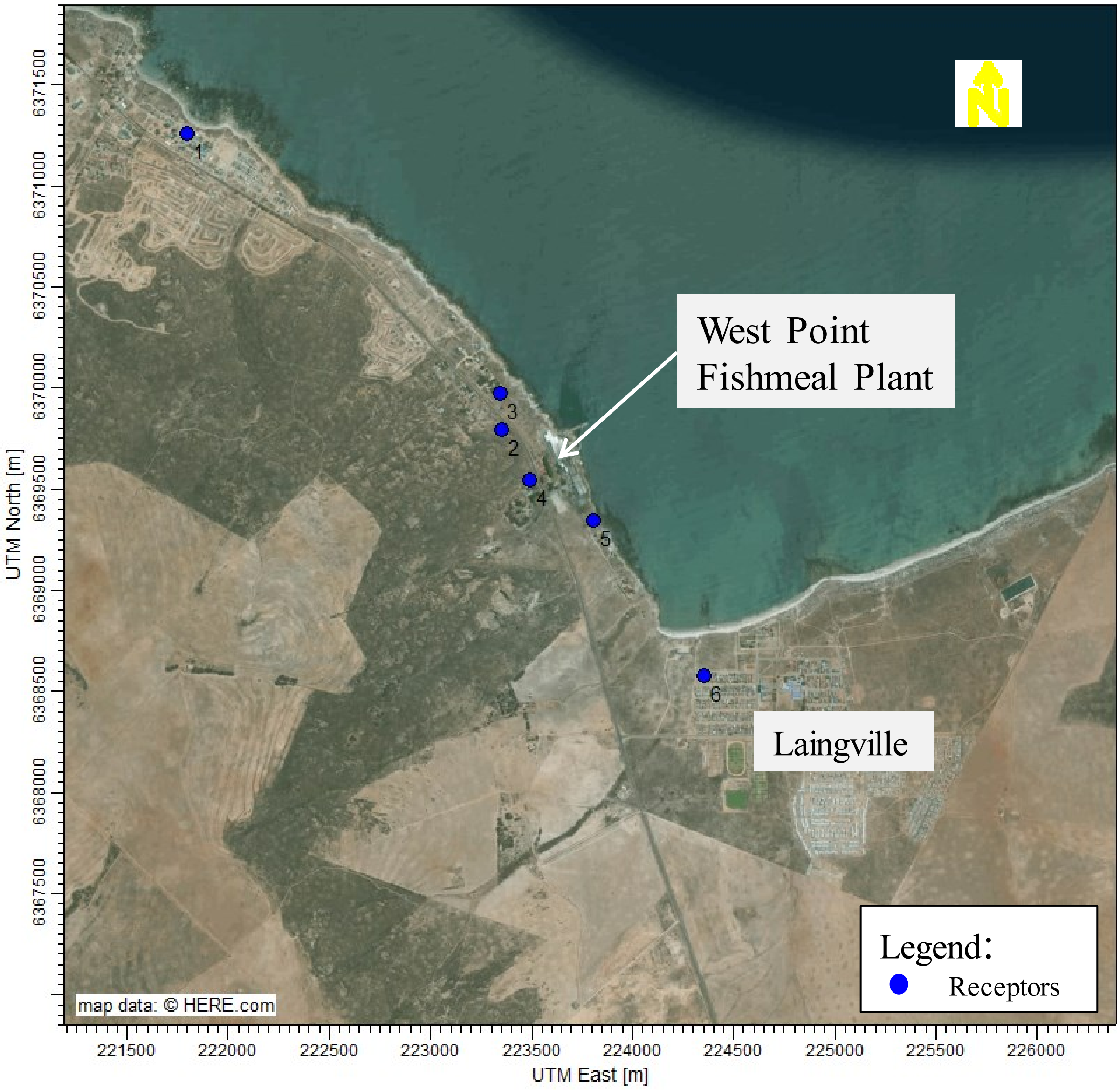

Figure 7-5. Discrete Receptor Locations

7.2.3 Dispersion Simulation Results

7.2.3.1 Hydrogen Sulphide

The modelled H_2S ground-level concentrations, maximum 1-hour (99th percentile), maximum 24-hour (99th percentile) and annual are shown in Figure 7-6 to Figure 7-8 further below.

It can be seen that the modelled H_2S ground-level concentrations were very low. The 1-hour concentrations were below the odour threshold of 11 µg/m³. The 24-hour and annual concentrations were well below the guidelines of 150 µg/m³ (WHO) and 10 µg/m³ (California OEHHA) respectively.

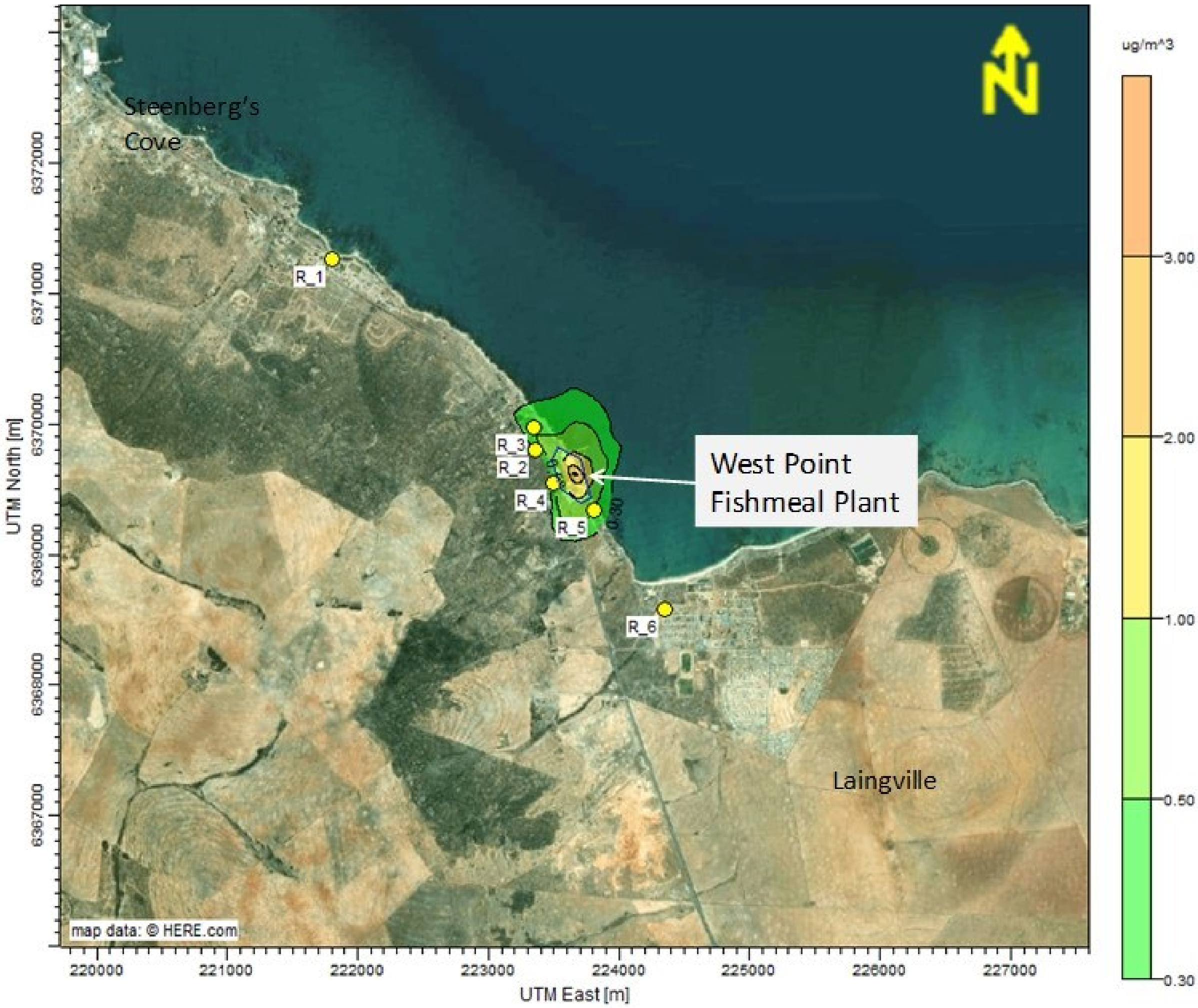

Figure 7-6. Maximum 1-hour H_2S Concentrations 99th Percentile (Guideline: 11 µg/m³ (odour))

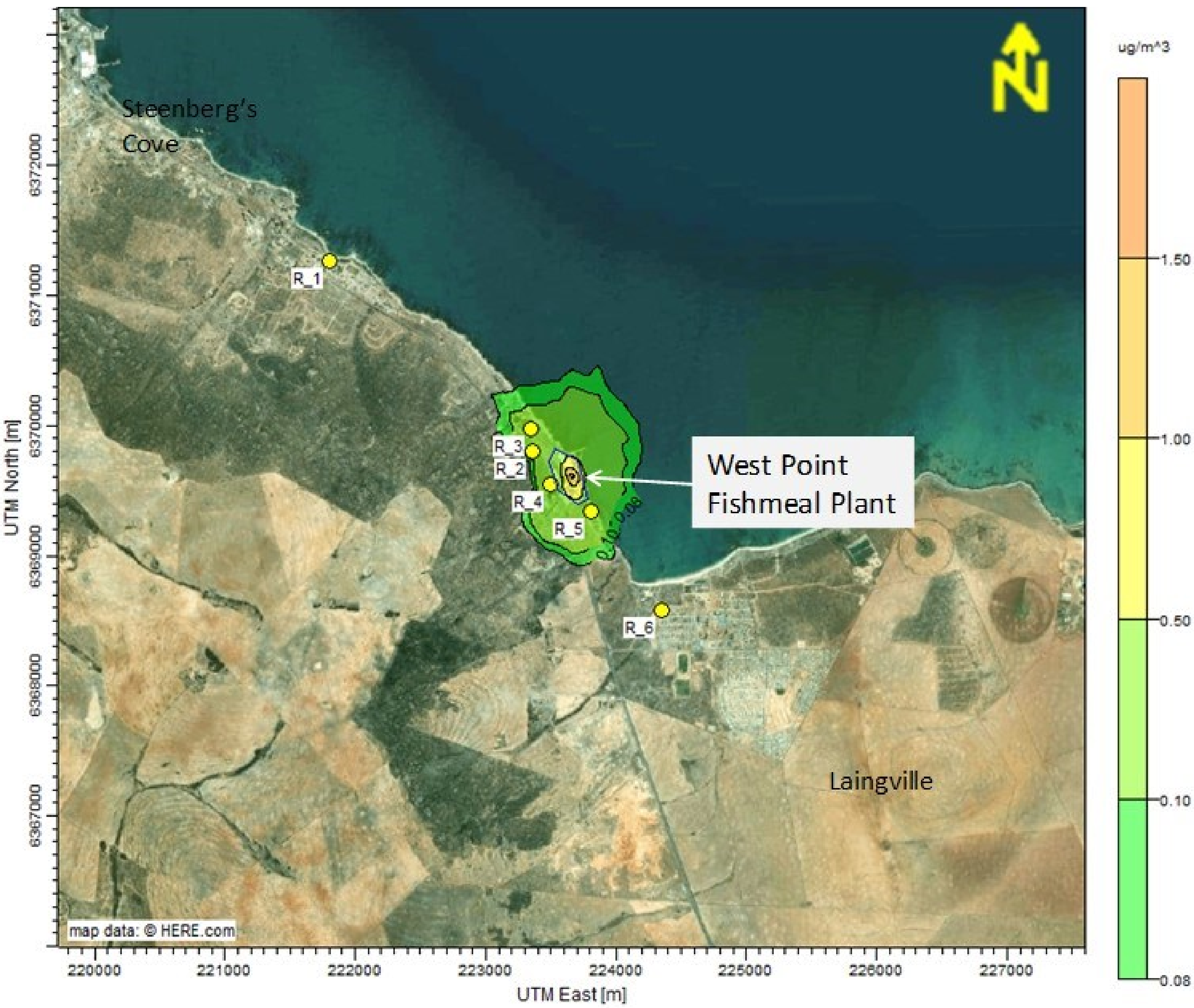

Figure 7-7. Maximum 24-hour H_2S Concentrations 99th Percentile (Guideline: 150 µg/m^3 (WHO))

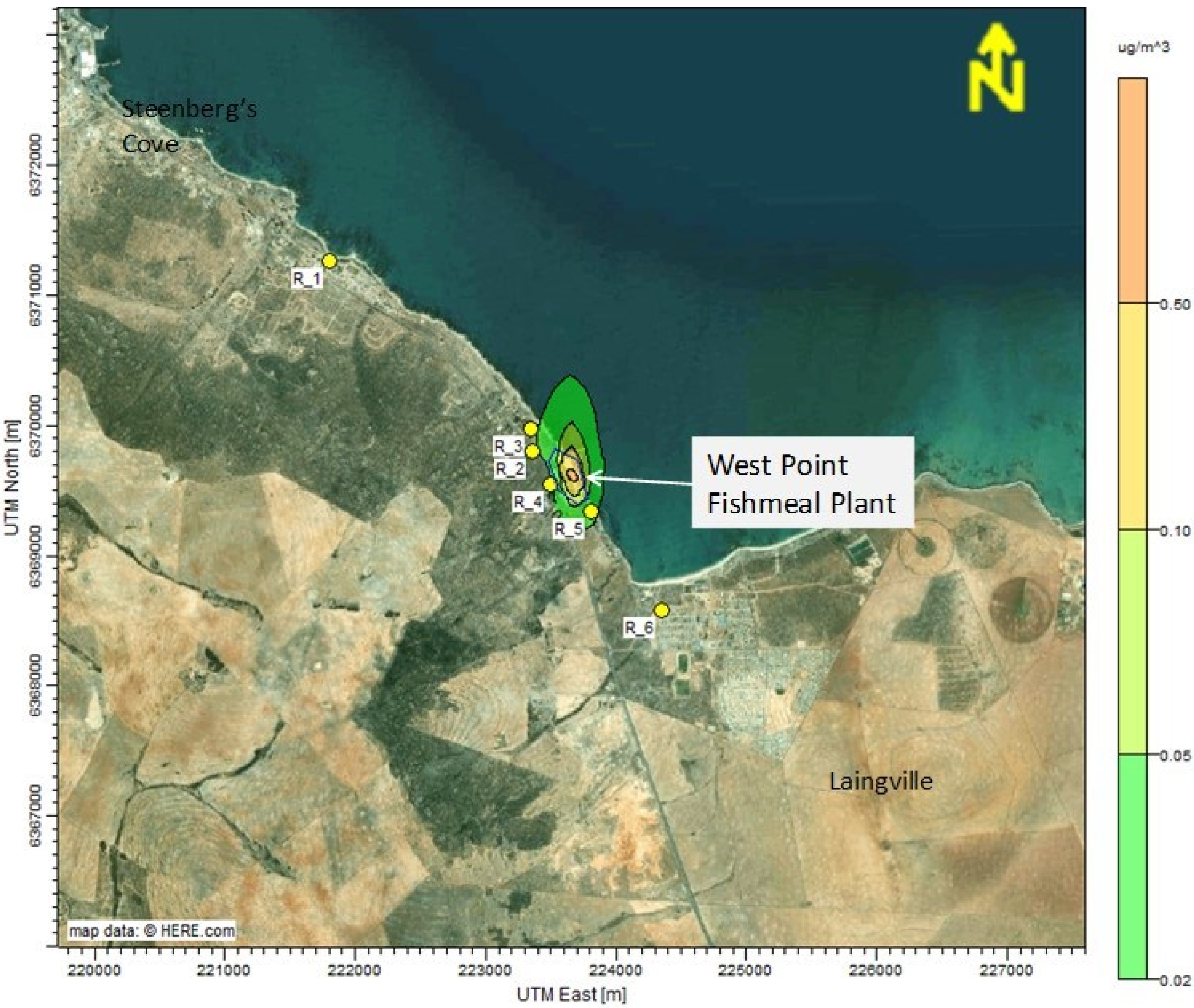

Figure 7-8. Maximum Annual H_2S Concentrations (Guideline: 10 µg/m^3 (California OEHHA))

7.2.3.2 Carbon Monoxide

Figure 7-9 below shows the modelled maximum 1-hour CO concentrations (99th percentile). The modelled CO concentrations were very low and well below the South African Air Quality Standard of 30,000 µg/m³.

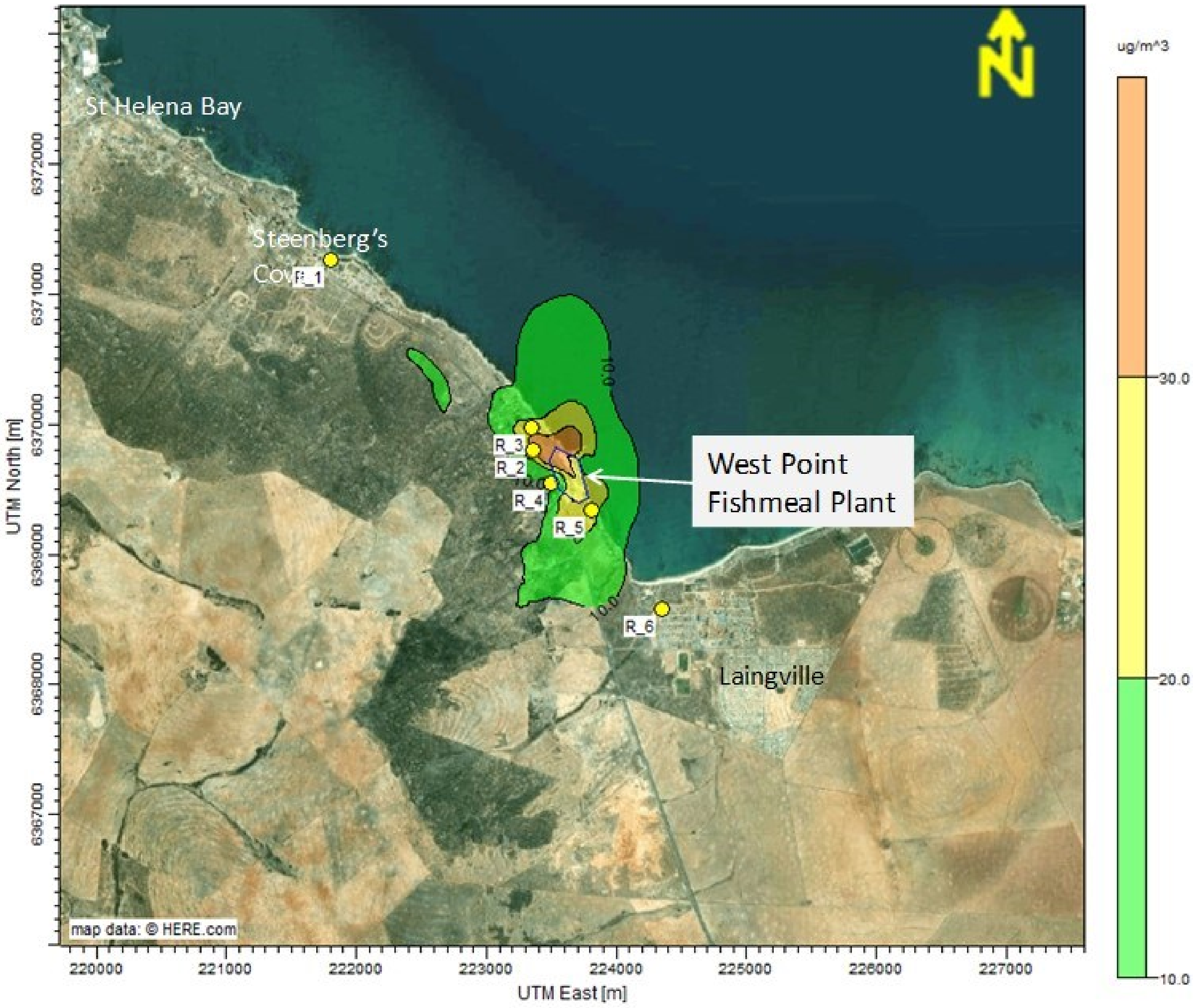

Figure 7-9. Maximum 1-hour CO Concentrations 99th percentile (Standard: 30,000 µg/m³)

7.2.3.3 Nitrogen Dioxide

The modelled maximum 1-hour (99th percentile) and annual NO_2 concentrations are shown in Figure 7-10 and Figure 7-11 respectively. For the modelling of NO_2, the Ambient Ratio Method 2 for conversion of NOx to NO_2 was utilised. The default minimum and maximum NO_2/NOx ratios of 0.5 (50%) and 0.9 (90%) were used.

The maximum 1-hour NO_2 concentrations (99th percentile) were below the air quality standard of 200 µg/m^3. The maximum concentration reached approximately 100 µg/m^3 just outside of the site boundaries and reached less than 30 µg/m^3 at Laingville.

The maximum annual NO_2 concentrations reached the annual standard of 40 µg/m^3 at the plant. However, the NO_2 concentrations were reduced to 30 µg/m^3 and lower at the plant boundaries. The annual NO_2 concentrations at Laingville were less than 5 µg/m^3.

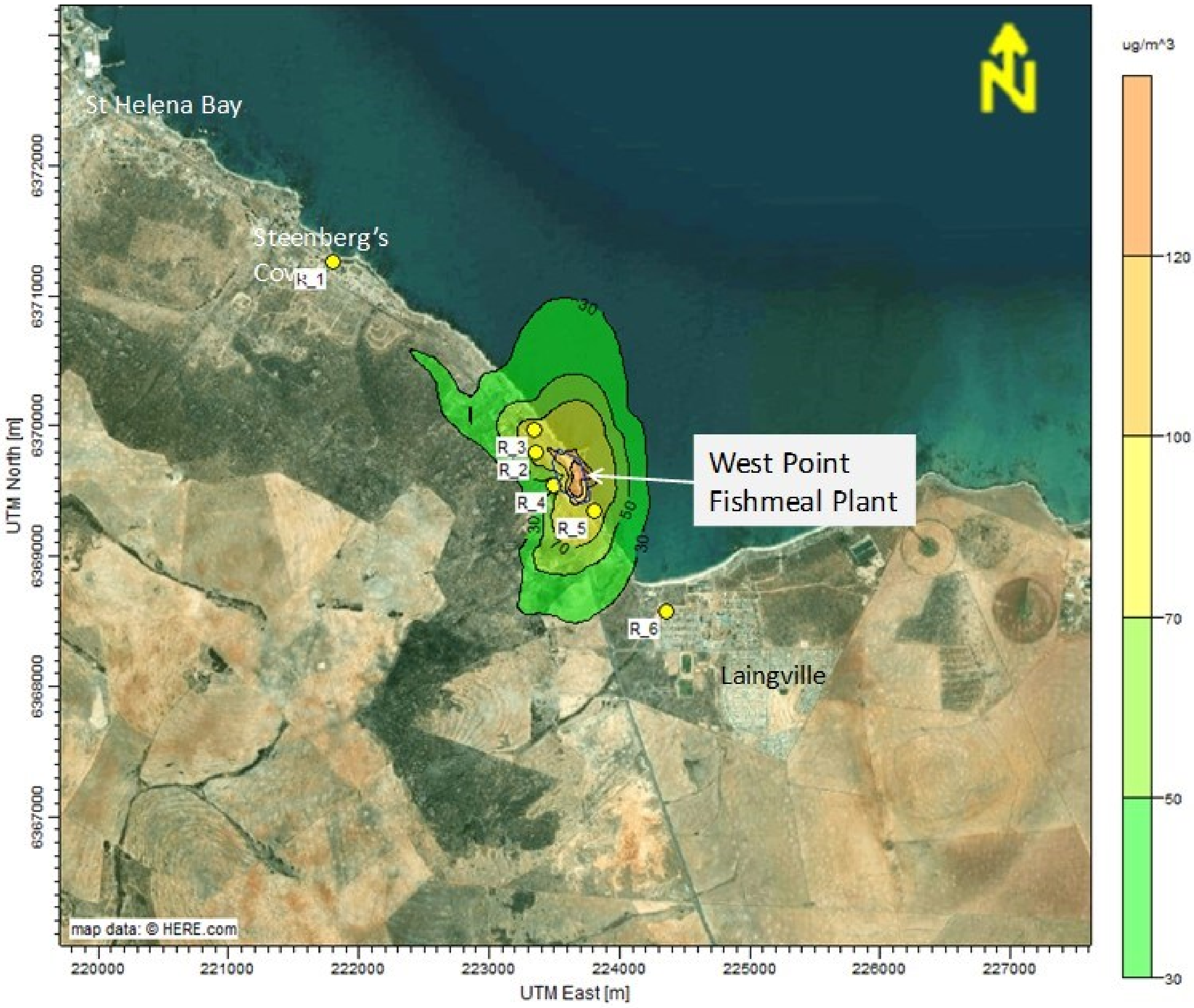

Figure 7-10. Maximum 1-hour NO_2 Concentrations 99th Percentile (Standard: 200 µg/m^3)

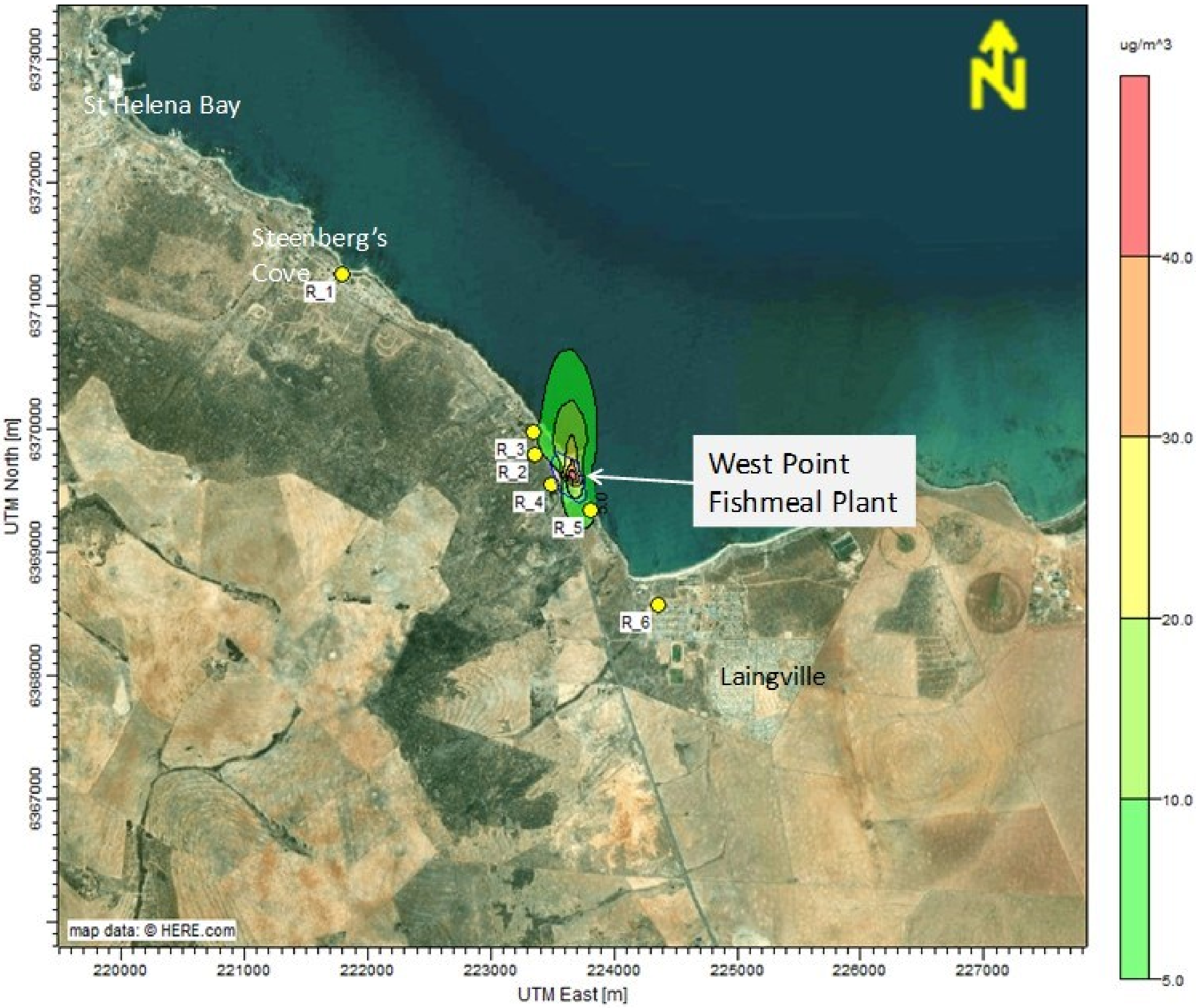

Figure 7-11. Maximum Annual NO_2 Concentrations (Standard: 40 µg/m^3)

7.2.3.4 Particulate Matter (PM_{10})

The modelled maximum 24-hour (99th percentile) and annual PM_{10} concentrations are shown in Figure 7-12 and Figure 7-13 below. The PM_{10} concentrations were low and well below the 24-hour standard of 75µg/m^3, as well as the annual PM_{10} standard of 40 µg/m^3.

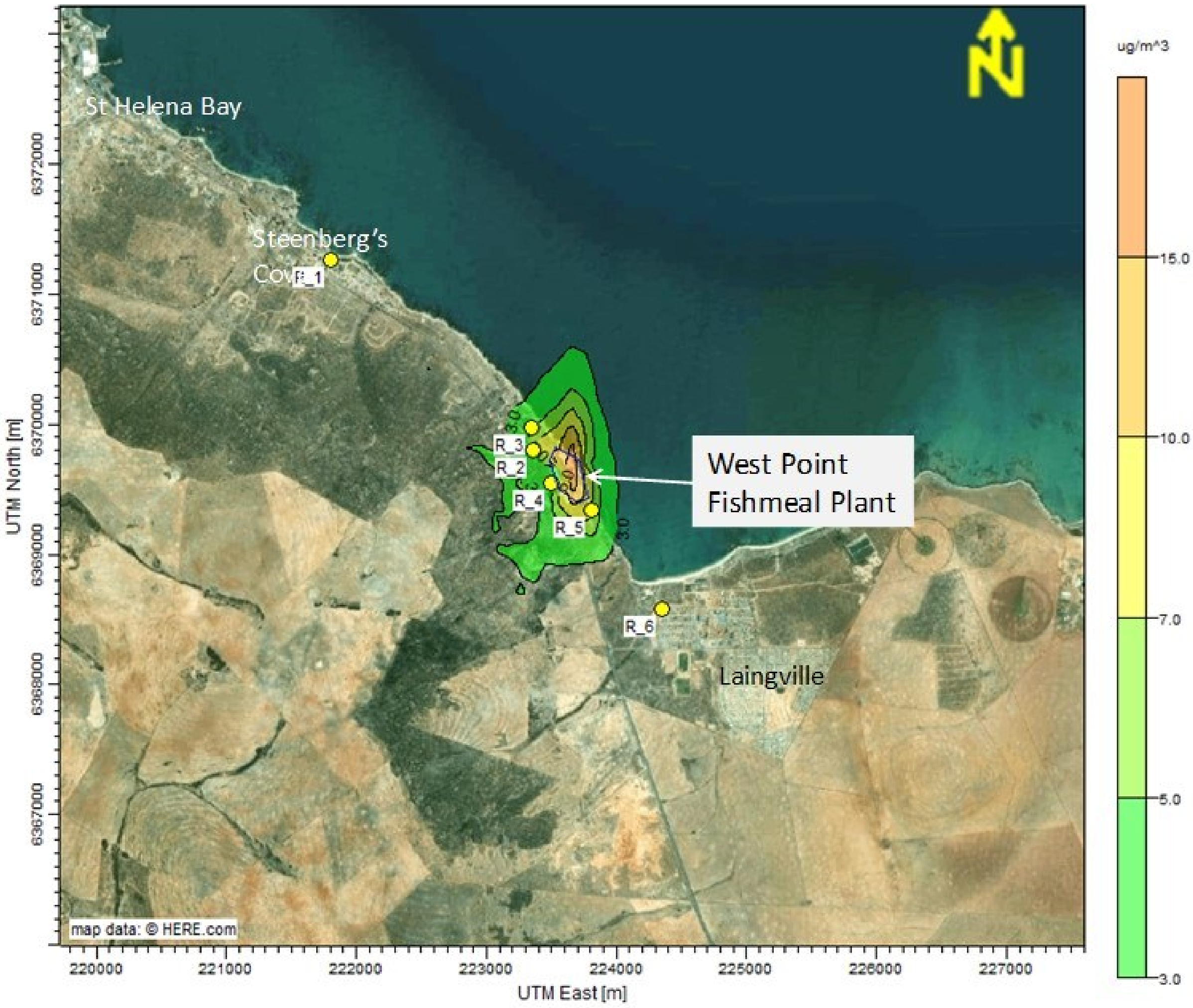

Figure 7-12. Maximum 24-hour PM_{10} Concentrations 99th Percentile (Standard: 75 µg/m^3)

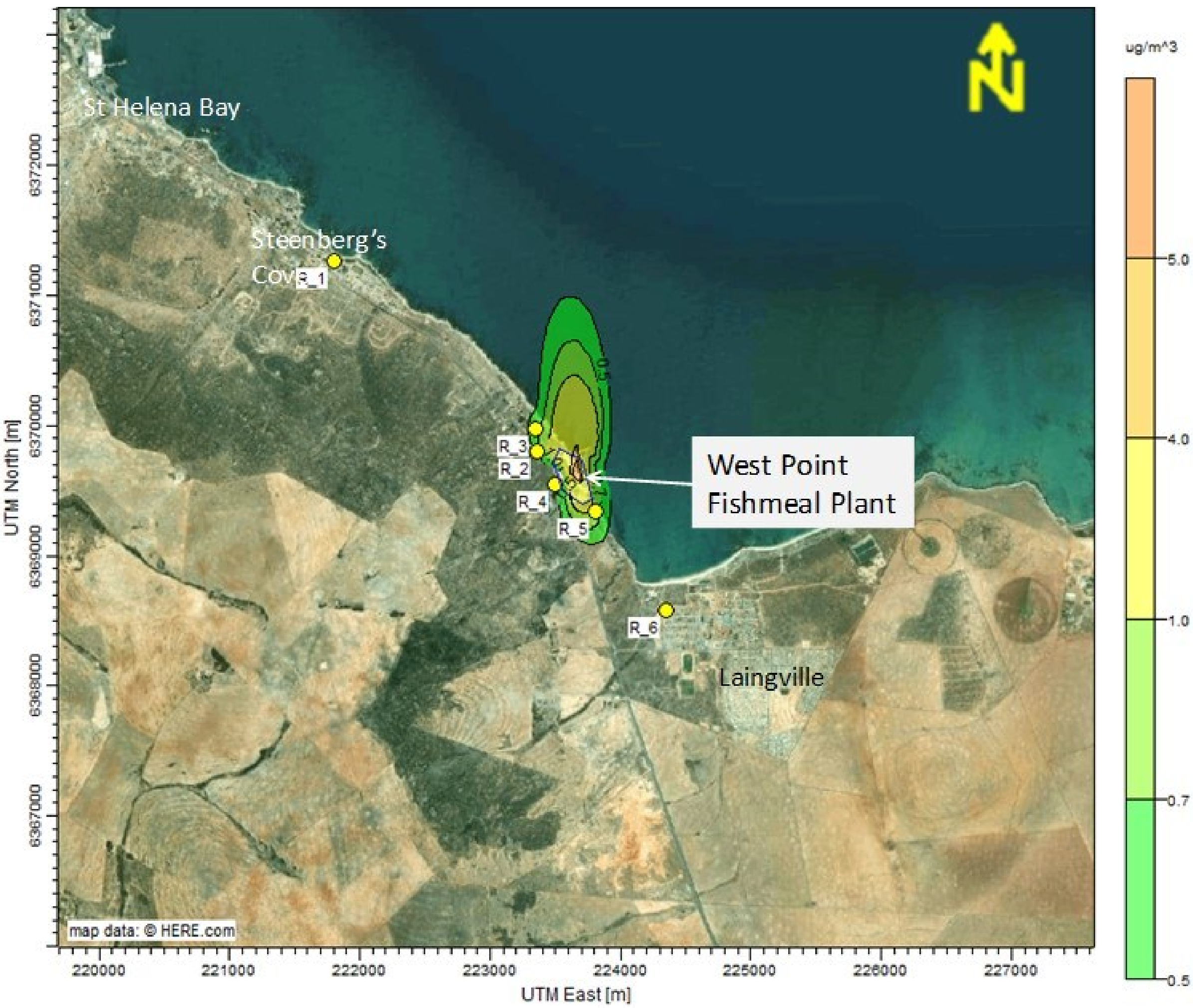

Figure 7-13. Maximum Annual PM_{10} Concentrations (Standard: 40 µg/m^3)

7.2.3.5 Sulphur Dioxide

The modelled maximum 1-hour concentrations (99th percentile), 24-hour concentrations (99th percentile) and annual concentrations for SO_2 are shown in Figure 7-14 to Figure 7-16 below.

The modelled 1-hour SO_2 concentrations (99th percentile) exceeded the standard of 350 µg/m³ around the plant. The exceedances reached approximately 200-300m away from the plant boundaries. At Laingville and Steenberg's Cove, the 1-hour SO_2 concentrations were within the standard and less than 100 µg/m³ and 60 µg/m³ respectively.

The 24-hour SO_2 concentrations (99th percentile) exceeded the 24-hour standard of 125 µg/m³ around the plant boundaries. The 24-hour SO_2 concentrations at Laingville were within the standard reaching below 40 µg/m³.

The annual SO_2 concentrations exceeded the standard of 50 µg/m³ at the plant and a very small area north of the plant. The annual concentrations at the nearby residences were low and within the annual standard.

Since exceedances were found outside the WPP site boundaries, additional mitigation scenarios were considered and outlined in the following section further below.

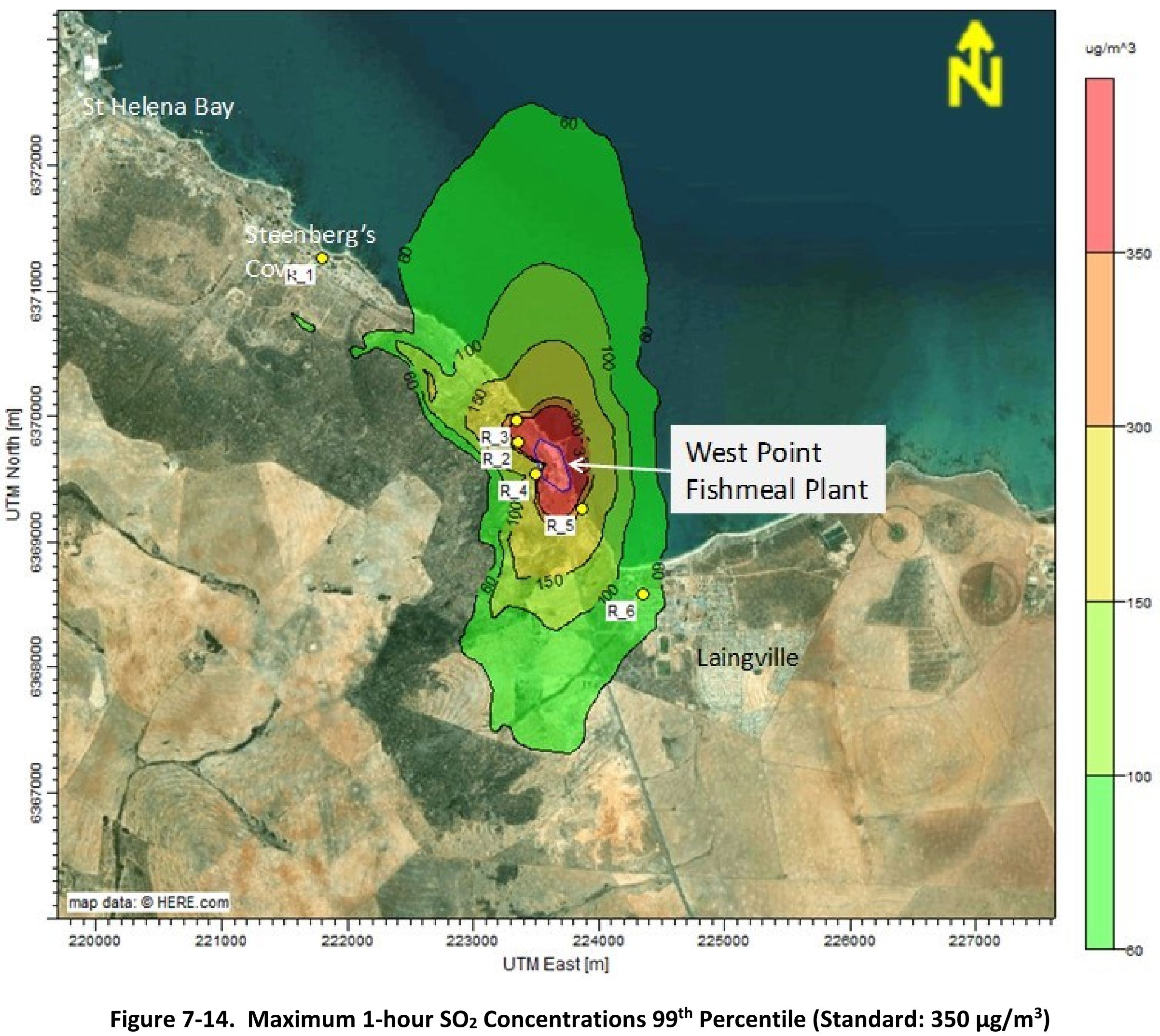

Figure 7-14. Maximum 1-hour SO_2 Concentrations 99th Percentile (Standard: 350 µg/m³)

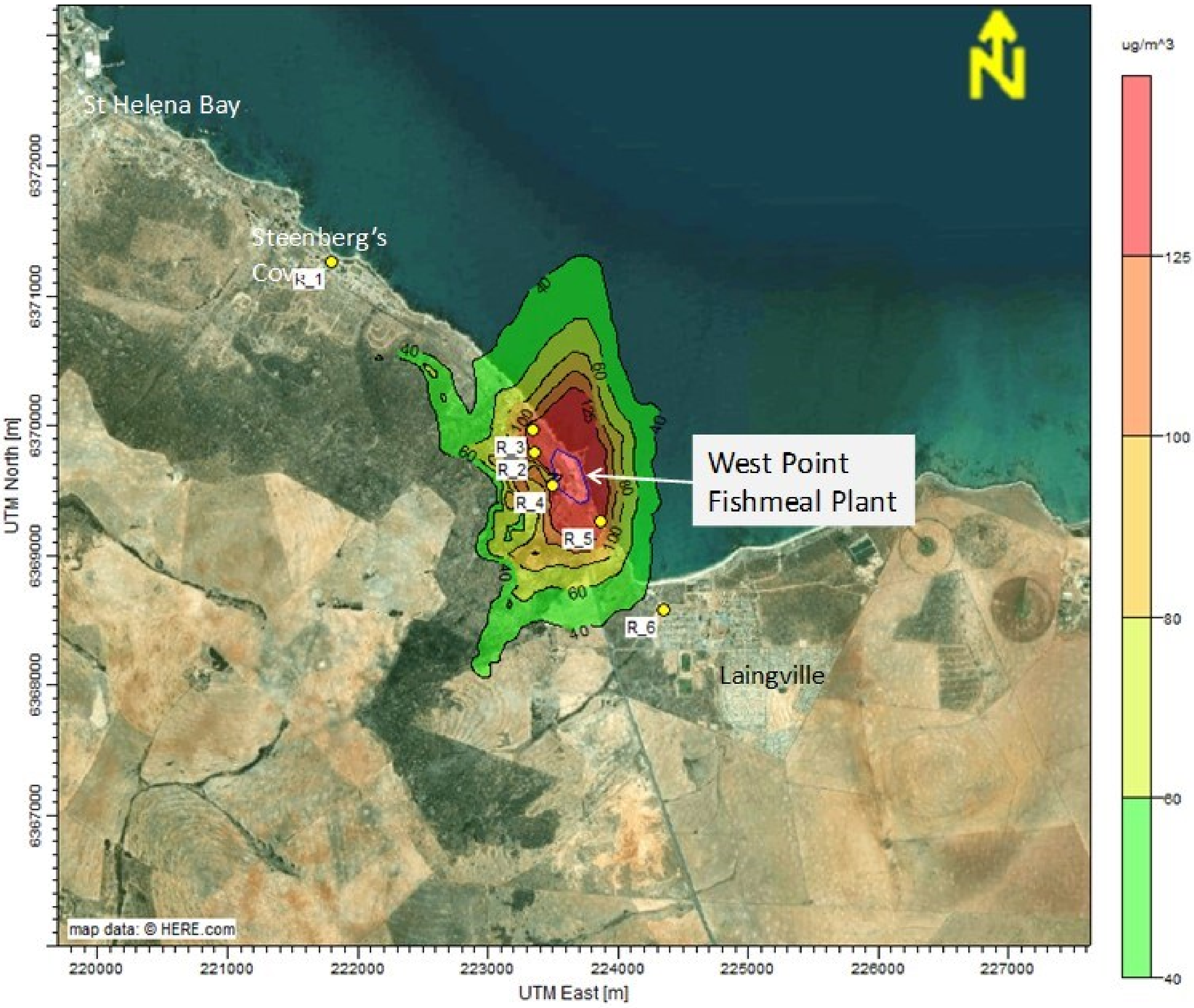

Figure 7-15. Maximum 24-hour SO_2 Concentrations 99th Percentile (Standard: 125 µg/m³)

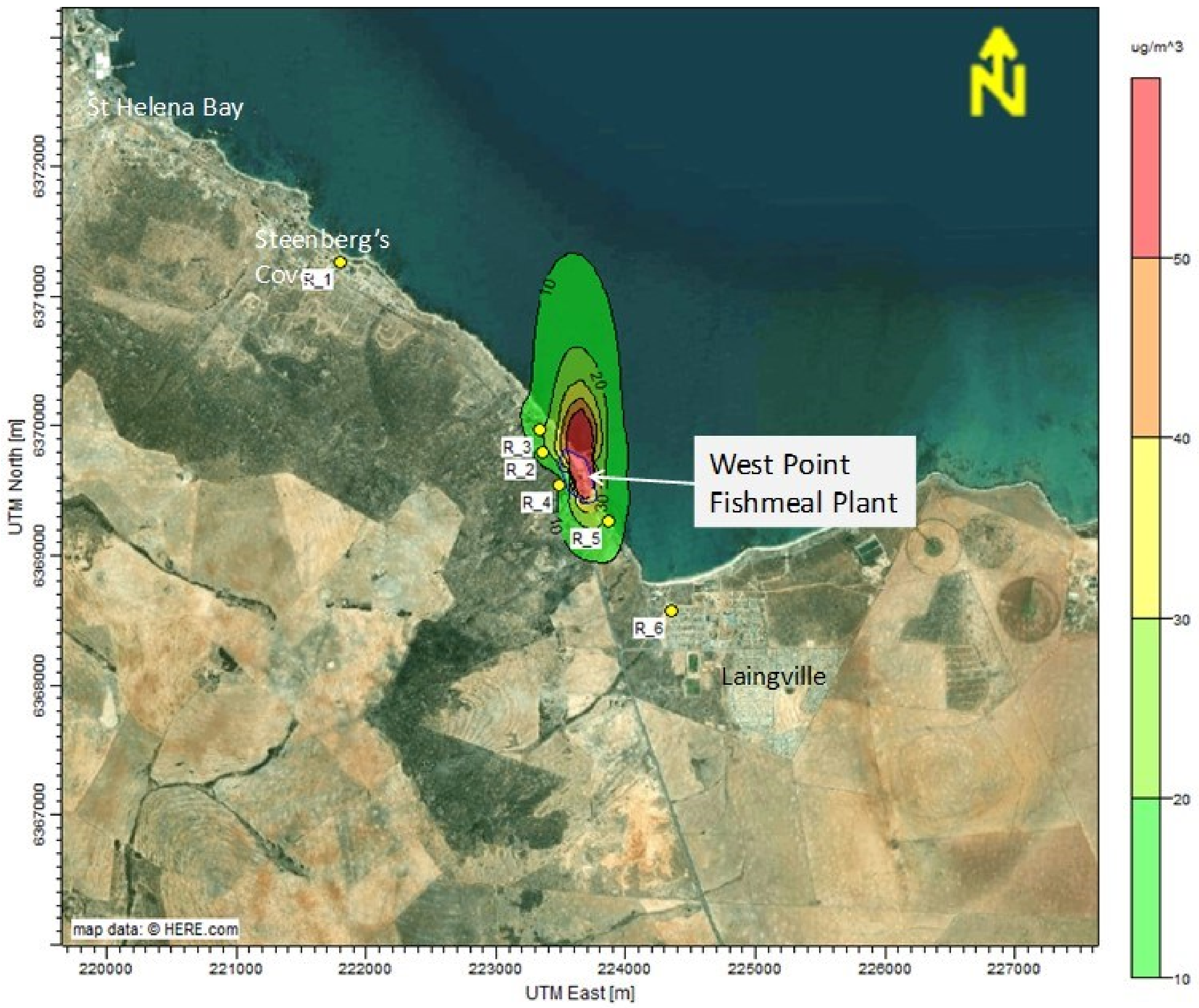

Figure 7-16. Maximum Annual SO_2 Concentrations (Standard: 50 µg/m³)

7.2.3.6 Sulphur Dioxide: Mitigated Scenario

As indicated above, since the modelled maximum hourly, 24-hour and annual SO_2 concentrations exceeded the air quality standards, an additional mitigated scenario was considered and modelled. The mitigated scenario entailed two recommendations:

- Increase of the 16-ton Coal Boiler (PS6) stack height from 24 m to 30 m.
- Increase of the 11-ton HFO boiler (PS2) stack height from 16 m to 30 m.

For the above-mentioned mitigated scenario, the modelled maximum 1-hour, 24-hour and annual SO_2 concentrations (99th percentile) are presented in Figure 7-17 to Figure 7-21 respectively.

The hourly SO_2 concentrations reached the standard of 350 µg/m³ just north of the plant. At the nearby residences, the 1-hour SO_2 concentrations were within the standard, exept for R02, which reached the guideline level. However, the number of exceedances at R02 were within the allowed number of exceedances of 88 times for the hourly maxima (87).

At the closed residential area, Laingville, the 1-hour SO_2 concentrations were below 60 µg/m³.

The 24-hour SO_2 concentrations (99th percentile) exceeded the 24-hour standard of 125 µg/m^3 within small areas to the north and the south of the plant. The 24-hour SO_2 concentrations at the nearby residences were below the standard (see Figure 7-19 and Figure 7-20).

The 24-hour SO_2 concentrations at Laingville were less than 30 µg/m^3 and well below the standard.

The annual SO_2 concentrations were below the standard of 50 µg/m^3 around the plant and at the residential communities. The annual SO_2 concentrations at the nearby residences were less than 15 µg/m^3.

The annual SO_2 concentrations exceeded the standard only within a small area towards the sea, north of the plant.

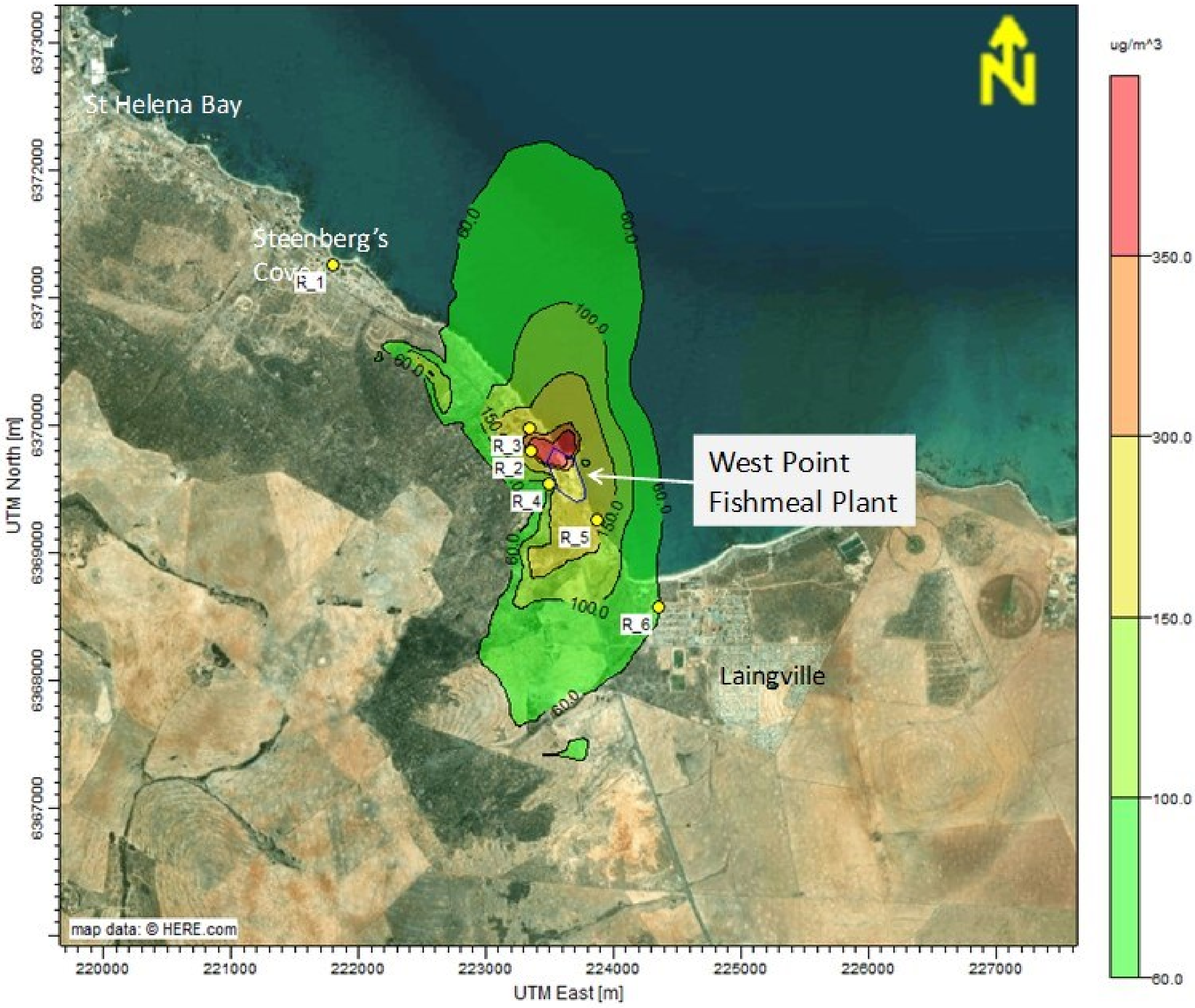

Figure 7-17. Maximum 1-hour SO_2 Concentrations 99th Percentile (Standard: 350 µg/m^3): Mitigated Scenario

Figure 7-18. Maximum 1-hour SO_2 Number of Exceedances (Standard: 88): Mitigated Scenario

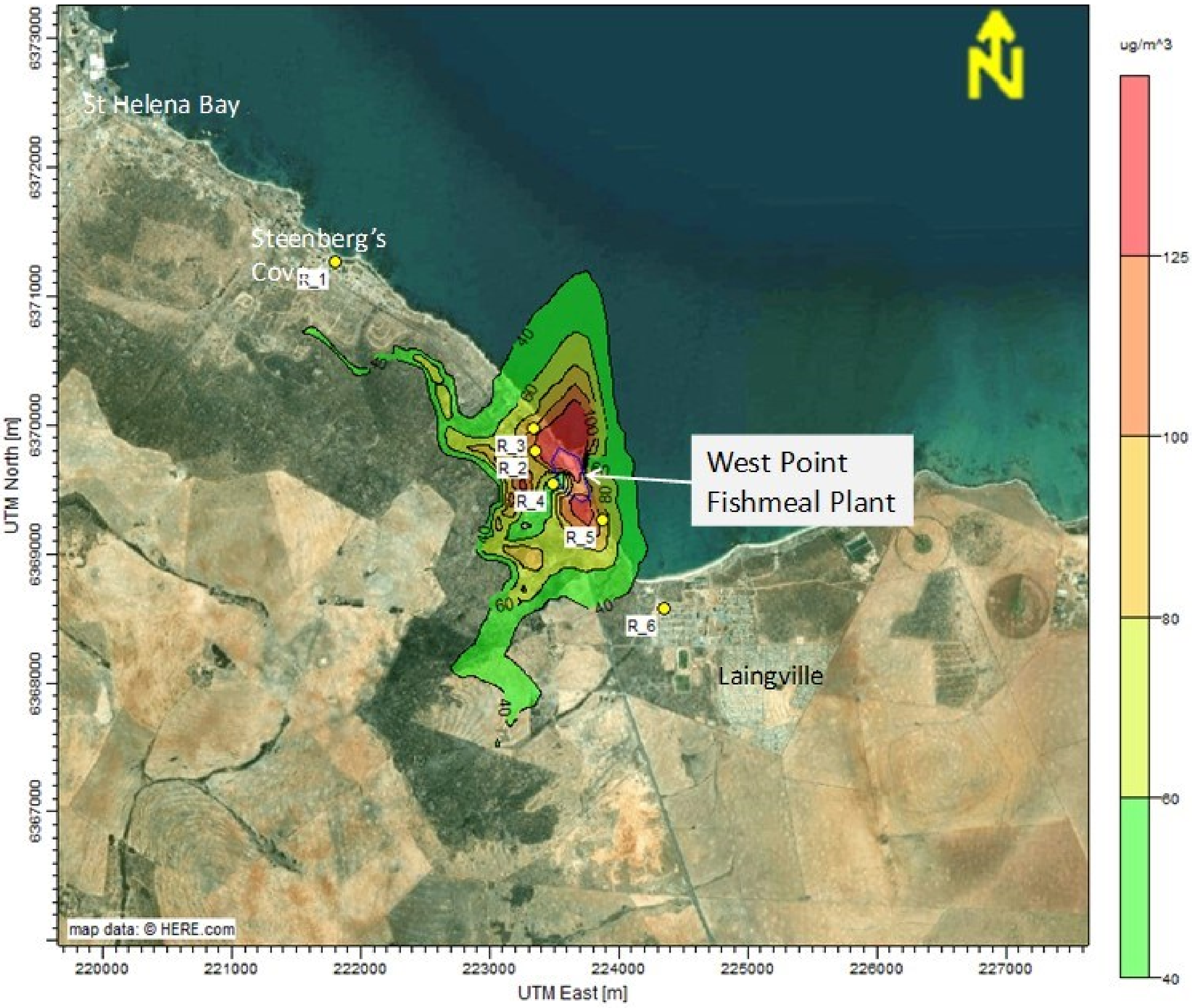

Figure 7-19. Maximum 24-hour SO_2 Concentrations 99th Percentile (Standard: 125 µg/m³): Mitigated Scenario

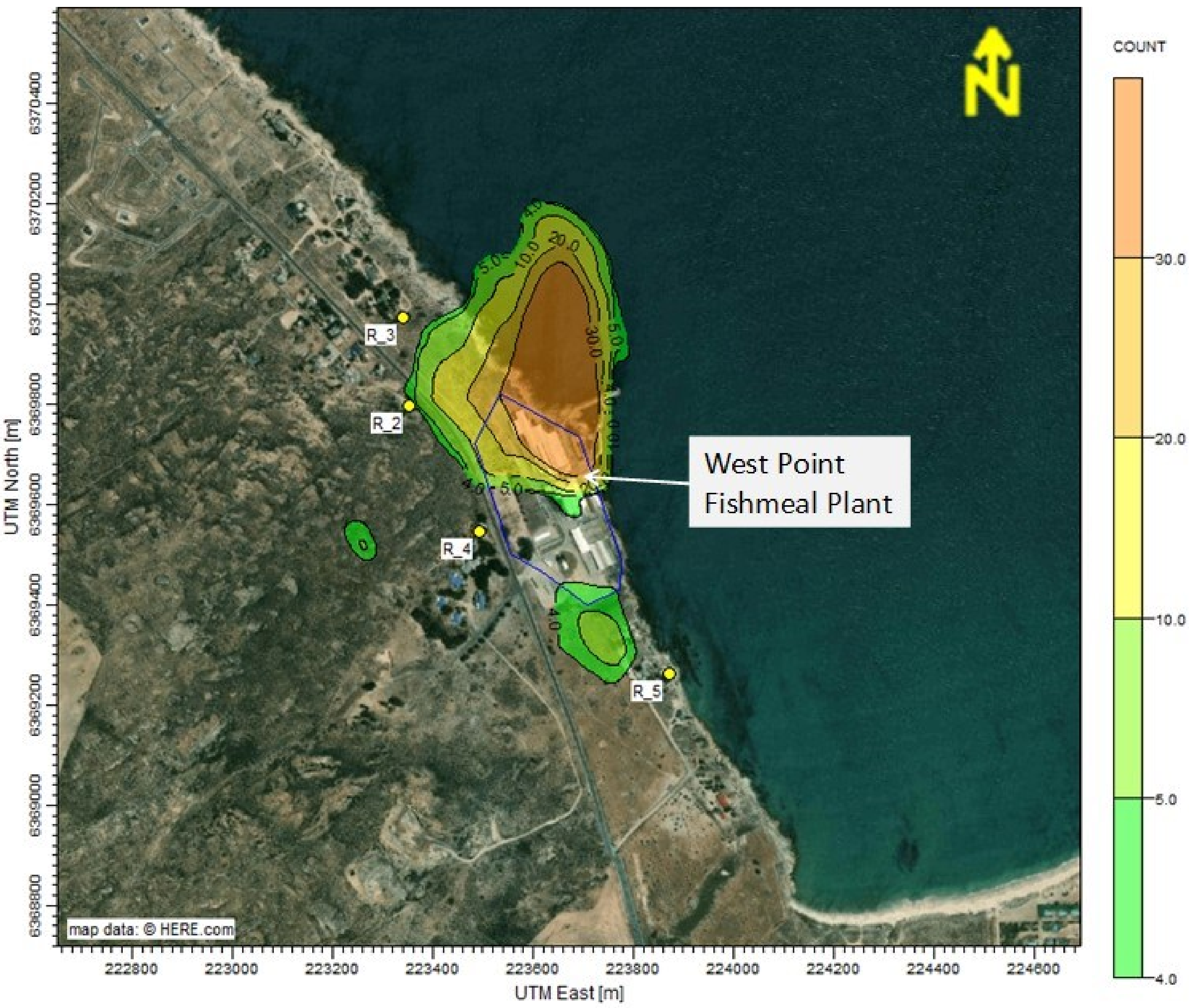

Figure 7-20. Maximum 24-hour SO_2 Number of Exceedances (Standard: 4): Mitigated Scenario

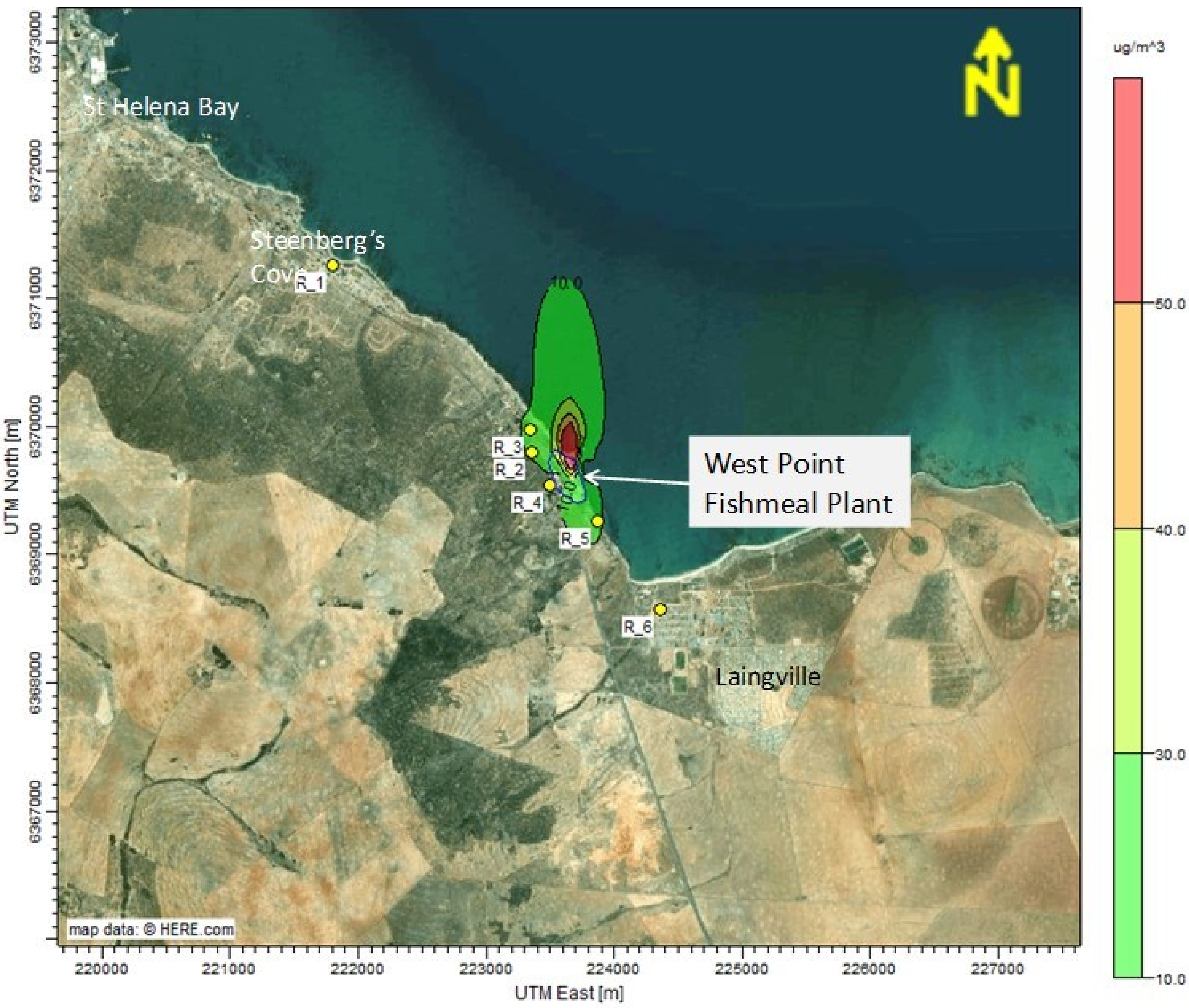

Figure 7-21. Maximum Annual SO_2 Concentrations (Standard: 50 µg/m³): Mitigated Scenario

7.2.4 Modelled Concentrations at Discrete Receptors

Table 7-2 below shows the ground-level concentrations at the discrete receptors. As can be seen, the modelled concentrations at these receptors were within the respective guidelines for CO, NO_2, PM_{10} and H_2S.

With the mitigated scenario, the modelled SO_2 concentrations were within the standards, since even though the maximum 1-hour SO_2 concentration at R02 marginally exceeded the standard, the number of exceedances was within the allowable 88 times a year.

Table 7-2. Modelled Concentrations at Discrete Receptors

Receptors	Concentrations (µg/m³)													
	Scenario: Phase 3											Mitigated Scenario		
	CO	NO_2		PM_{10}		SO_2			H_2S			SO_2		
	1-hour (99th)	1-hour (99th)	Annual	24-hour (99th)	Annual	1-hour (99th)	24-hour (99th)	Annual	1-hour (99th)	24-hour (99th)	Annual	1-hour (99th)	24-hour (99th)	Annual
R01	2.3	6.6	0.2	0.40	0.04	27	11	1	0.03	0.02	0.001	25	10	1
R02	30.8	82.0	3.0	5.05	0.50	395	141	14	0.26	0.14	0.013	352	121	12
R03	26.3	82.0	4.4	5.37	0.64	366	152	18	0.45	0.14	0.017	274	108	14
R04	9.7	46.9	2.1	2.92	0.29	177	117	9	0.27	0.18	0.015	100	43	5
R05	23.0	82.1	6.1	6.66	0.83	276	143	17	0.49	0.21	0.027	172	93	11
R06	6.2	18.6	0.9	1.18	0.13	73	30	3	0.05	0.03	0.003	61	28	3
Standard	**30,000**	**200**	**40**	**75**	**40**	**350**	**125**	**50**	**350**	**125**	**50**	**350**	**125**	**50**

7.3 Impact Assessment

An atmospheric impact Assessment for the West Point Processors Fish Meal Plant was carried out to determine the atmospheric impact due to its operations. The plant is in the process of a series of upgrades, which are required to optimally accommodate the fish availability in the main fishing season and ensure that the allocated quotas are caught and processed. The current capacity of the plant is the processing of 65 tph of raw fish. This capacity will increase to 82 tph in the next phase of its upgrade (Phase 3).

Phase 3 entails the utilisation of the existing boilers, which include three coal boilers and two HFO boilers, one of which will only be on standby.

The vapours collected from the various plant sections and the production operations are treated in a Seawater Scrubber and a Chemical Scrubber, before being released into the atmosphere via the scrubber stack.

The emissions from all of the above-mentioned point sources were considered, and air pollution dispersion modelling was carried out, in order to calculate the resulting air pollution and odour ground-level concentrations. For the modelling, three years (2021-2023) of hourly meteorological data was obtained for the St Helena Bay area and was utilised as input into the model.

The modelling was performed for PM_{10}, SO_2, NO_2, CO for the boiler stacks and H_2S for the chemical scrubber stack. Based on the dispersion modelling results, the main findings were:

- The modelled maximum ground-level 24-hour (99th percentile) and annual PM_{10} concentrations were low and well below the 24-hour standard of 75 µg/m^3 and the annual PM_{10} standard of 40 µg/m^3.
- The modelled maximum hourly CO concentrations (99th percentile) reached approximately 20 µg/m^3 and were well below the South African Air Quality Standard of 30,000 µg/m^3.
- The maximum 1-hour NO_2 concentrations (99th percentile) were below the air quality standard of 200 µg/m^3. The maximum concentration reached approximately 80 µg/m^3 just outside of the plant and was reduced to less than 30 µg/m^3 at Laingville.
- The maximum annual NO_2 concentrations were also below the annual standard of 40 µg/m^3. The maximum concentration reached approximately 15 µg/m^3 to the north of the plant. The annual NO_2 concentrations at Laingville were less than 5 µg/m^3.
- The modelled maximum 1-hour and 24-hour SO_2 concentrations (99th percentile) exceeded the standards around the plant boundaries. The exceedances reached approximately 200-300m away from the plant boundaries.
- The annual SO_2 concentrations exceeded the standard of 50 µg/m^3 at the plant and a small area north of the plant.

Since exceedances were found outside the WPP site boundaries for SO_2, an additional mitigation scenario was modelled. This scenario entailed recommendations for stack height increase for PS2 and PS6 to 30 m. With the mitigation measures, the main findings were:

- The maximum hourly SO_2 concentrations reached the standard of 350 µg/m^3 immediately north of the plant. At the nearby residences, the 1-hour SO_2 concentrations were within the standard, since the small exceedances at R02 were within the allowed number of 88 times for the hourly maxima. At the Laingville residential area the maximum 1-hour SO_2 concentrations were below 60 µg/m^3.

- The 24-hour SO_2 concentrations (99th percentile) exceeded the 24-hour standard of 125 µg/m^3 within very small areas to the north and the south of the plant. The 24-hour SO_2 concentrations at the nearby residences were below the standard and at the Laingville residential area they reached less than 30 µg/m^3.
- The annual SO_2 concentrations were found to be below the standard of 50 µg/m^3 at the residential receptors, reaching less than 15 µg/m^3 nearby residences. The annual SO_2 concentrations exceeded the standard only within a small area towards the sea, north of the plant.

7.3.1 Recommendations

Based on the modelling findings, the following are recommended:

- Increase of the 16-ton Coal Boiler (PS6) stack height from 24 m to 30 m.
- Increase of the 11-ton HFO boiler (PS2) stack height from 16 m to 30 m.
- Establish biannually the ambient H_2S, SO_2 and NO_x concentrations at four locations along the WPP site perimeter via passive sampling, ensuring during the measurements that the plant is under full or close to full production capacity.

8 ASSUMPTIONS AND LIMITATIONS

The assumptions and limitations associated with this study are:

- The atmospheric impact report is prepared based on the current operation of the fish meal plant.
- As a worst-case scenario, the impact is assessed based on the assumption that the plant is fully operational 24 hours a day, 7 days a week. The actual maximum operational days of the plant in a year are expected to be less than 200[a].
- During the holiday period from the 15th of December to the 15th of January next year, when the plant is not operational, the emissions were set as zero.
- The stack emission rates were obtained from the 2023 stack emissions reports. For the point sources, where emission data was not available, the emission rates from a similar boiler with comparable capacity were utilised.
- With regard to the emissions from the chemical scrubber stacks, the emission limit of 5 mg/Nm^3 for hydrogen sulphide (H_2S) was used as the worst-case scenario.
- Potential fugitive emissions from the plant are captured and directed to the scrubber units. As such, they are considered of low significance and were not included in the air dispersion modelling.

[a] Based on the 2020 plant data, which was an extremely good year, the plant was operational a total of 198 days, from which +- 30 days were at full capacity.

9 COMPLAINTS

There were no complaints received or incidents in 2022 and 2023.

10 COMPLIANCE AND ENFORCEMENT HISTORY

There is no compliance and enforcement history available at this stage.

11 FORMAL DECLARATIONS

Declaration of the accuracy of the information-Applicant

Name of Enterprise: __West Point Processors (Pty) Ltd

Declaration of the accuracy of the information provided:

Atmospheric Impact Report in terms of section 30 of the Act.

I, ______________________________[duly authorised], declare that the information provided in this atmospheric impact report is, to the best of my knowledge, in all respects factually true and correct. I am aware that the supply of false or misleading information to an air quality officer is a criminal offence in terms of section 21(1)(g) of this Act.

Signed at ______________________ on this _______ day of _____________________

____

SIGNATURE

_________ ______________________________

CAPACITY OF SIGNATORY

12 REFERENCES

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13 APPENDIX A BOILER UTILISATION IN EACH PHASE OF THE EXPANSION

Table 13-1. Boiler Utilisation for Phase 2 to Phase 4

	Plant steam in Phase 2					Burning 1 HFO boiler					
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H
Ton Steam /H	16	20	11	10	20	20					
Efficietcy	85%	85%	90%	90%	85%	85%					
Boiler in Use	1	1	1	0	0	0					
Steam Availibl	13.6	17.0	9.9	0.0	0.0	0.0	40.5	0.7	**58**	6	**49**

	Plant steam in Phase 2A					Burning LSO (Low sulpher oil) in 2 HFO boilers						
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H	Recommended phase 2
Ton Steam /H	16	20	11	10	20	20						
Efficietcy	85%	85%	90%	90%	85%	85%						
Boiler in Use	1	1	1	1	0	0						
Steam Availibl	13.6	17.0	9.9	9.0	0.0	0.0	49.5	0.7	**71**	6	**62**	

	Plant steam in Phase 2B					Coal only with additional 20t coal boiler					
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H
Ton Steam /H	16	20	11	10	20	20					
Efficietcy	85%	85%	90%	90%	85%	85%					
Boiler in Use	1	1	0	0	1	0					
Steam Availibl	13.6	17.0	0.0	0.0	17.0	0.0	47.6	0.7	**68**	6	**59**

	Plant steam in Phase 3					Running 1HFO and 1 new 20t Coal boiler						
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H	Recommended phase 3
Ton Steam /H	16	20	11	10	20	20						
Efficietcy	85%	85%	90%	90%	85%	85%						
Boiler in Use	1	1	1	0	1	0						
Steam Availibl	13.6	17.0	9.9	0.0	17.0	0.0	57.5	0.7	**82**	6	**74**	

	Plant steam in Phase 4					Running 1 HFO and 2 new 20t coal boilers						
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H	Recommended phase 4
Ton Steam /H	16	20	11	1	20	20						
Efficietcy	85%	85%	90%	90%	85%	85%						
Boiler in Use	1	1	1	0	1	1						
Steam Availibl	13.6	17.0	9.9	0.0	17.0	17.0	74.5	0.7	**106**	6	**98**	

14 APPENDIX B CHECKLIST OF SPECIALIST REPORT

Requirements as per the 2014 EIA Regulations

Table 14-1. Checklist of Specialist Report

EIA REGULATIONS 2014 GNR 982 Appendix 6 CONTENT OF THE SPECIALIST REPORTS	Required at Scoping/Desk-top Phase	Required at BA/EIA Phase	Cross-reference in this report
(a) details of— the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a curriculum vitae;	X	X	Cover page, Introduction, Section 15 for CV
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	X	X	Page ii
(c) an indication of the scope of, and the purpose for which, the report was prepared	X	X	Introduction
(d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	X	X	DDA has visited the plant multiple times. The seasons are not relevant to the plant emissions. The seasons were taken into consideration in the dispersion modelling, via the hourly meteorological input.
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process;	X	X	Section 1.2
(f) the specific identified sensitivity of the site related to the activity and its associated structures and infrastructure;	X	X	Section 7.1.1
(g) an identification of any areas to be avoided, including buffers;	X	X	N/A
(h) a map superimposing the activity including the associated structures and infrastructure on the	X	X	Figure 1-1

EIA REGULATIONS 2014 GNR 982 Appendix 6 **CONTENT OF THE SPECIALIST REPORTS**	**Required at Scoping/Desk-top Phase**	**Required at BA/EIA Phase**	**Cross-reference in this report**
environmental sensitivities of the site including areas to be avoided, including buffers			
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	**X**	**X**	Section 8
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment;	**X**	**X**	Section 7.3
(k) any mitigation measures for inclusion in the EMPr		**X**	Section 7.3.1
(l) any conditions for inclusion in the environmental authorisation;		**X**	N/A
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;		**X**	Section 7.3.1
(n) a reasoned opinion— i. as to whether the proposed activity or portions thereof should be authorised; and ii. if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;		**X**	Section 7.3
(o) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	**X**	**X**	N/A
(p) any other information requested by the competent authority	**X**	**X**	N/A

15 APPENDIX C CV OF THE SPECIALIST