

MIGHTY RIVER POWER

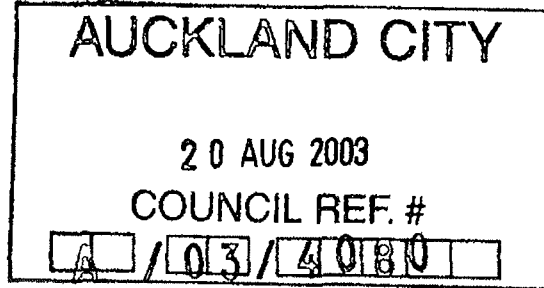
Ref: S06-03-01

20 August 2003

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Team Coordinator for Customer Advice and Consents
 Auckland City Council
 Private Bag 92 516
 AUCKLAND 1030

Attention: Fiona Blight



Dear Fiona

Re: Additional Gas Turbine Generator at Southdown Power Station – Application for Land Use Consent

Southdown Cogeneration Limited, a wholly owned subsidiary of Mighty River Power Limited, is seeking a land use consent to be processed on a non-notified basis for the addition of a single gas turbine generator to the existing Southdown power station. Please find attached an application and accompanying Assessment of Environmental Effects.

This application relates to the following activities:

- The construction, maintenance and operation of one additional gas turbine generator fuelled on diesel or gas and associated buildings, pipe work and other infrastructure.
- The storage and/or use of gas, diesel and other hazardous substances associated with the additional gas turbine generator.
- Earthworks associated with foundations for buildings, structures and associated facilities.
- The location of one additional gas turbine generator fuelled on diesel or gas and associated buildings, pipe work and infrastructure on a contaminated site or potentially contaminated site.

The AEE has been prepared for the all the resource consents required, including two discharge permits from the Auckland Regional Council. However, the matters related to the applications to the ACC, are clearly noted in the document.

If you would like to discuss anything in the application or AEE, please don't hesitate to call me on 07 857 0258 or email lucy.foden@mightyriver.co.nz.

Yours sincerely

Lucy Foden
 ENVIRONMENTAL ADVISOR
 Encl.

MIGHTY RIVER POWER

- Discharge of contaminants to air from an additional gas turbine generator and ancillary plant fuelled on gas or diesel.
- Discharge of treated stormwater from the proposed fuel storage area.

I attach, in accordance with the Fourth Schedule of the Resource Management Act 1991, an assessment of environmental effects in the detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment.



Stuart Lush
Authorised Signatory
Southdown Cogeneration Limited

Date: 20/8/03

Address for service for the applicant:

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NAPIER

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PART B

ASSESSMENT OF ENVIRONMENTAL EFFECTS

AUCKLAND CITY

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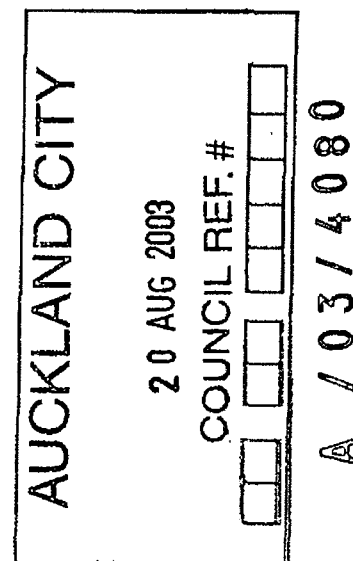
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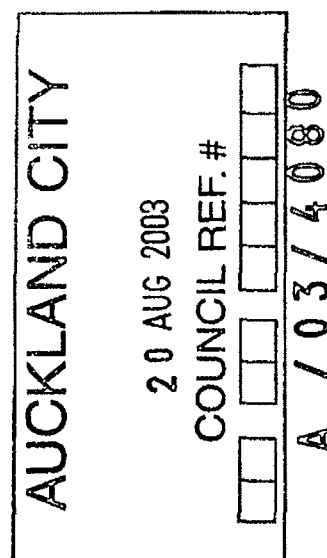
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CONTENTS

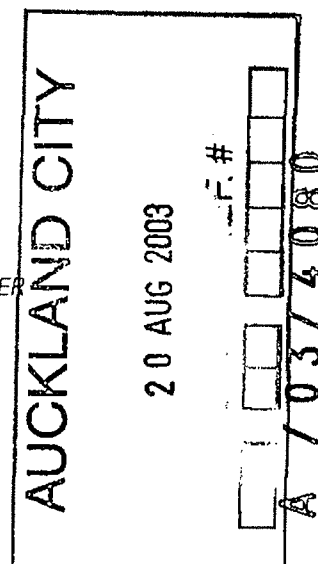
Executive Summary	1
1. Introduction	3
1.1 THE PURPOSE AND SCOPE OF THIS DOCUMENT	3
1.2 CONTENT AND STRUCTURE OF THE ASSESSMENT OF ENVIRONMENTAL EFFECTS	3
1.3 MIGHTY RIVER POWER LTD AND SOUTHDOWN COGENERATION LTD	4
2. Existing Site And Plant Description	5
2.1 SITE LOCATION	5
2.2 OVERVIEW OF THE EXISTING POWER STATION	6
2.3 EXISTING RESOURCE CONSENTS	7
3. The Project	7
3.1 ELECTRICITY DEMAND	7
3.2 OVERALL SITE DEVELOPMENT FRAMEWORK	8
3.3 PROPOSED PLANT AND PROCESS DESCRIPTION	8
3.4 FUEL STORAGE	8
3.5 PLANT OPERATION	9
3.6 CONSTRUCTION AND COMMISSIONING	9
3.7 ALTERNATIVES	13
4. Description Of The Existing Environment	14
4.1 INTRODUCTION	14
4.2 PHYSICAL ENVIRONMENT	14
4.3 LAND USES	14
4.4 ECOLOGY AND VEGETATION	15
4.5 AIR QUALITY	16
4.6 NOISE	16
4.7 SITE CONTAMINATION	16



4.8	SOCIAL AND ECONOMIC ENVIRONMENT	16
5.	<i>Project Resource Management Act (RMA) Framework</i>	17
5.1	INTRODUCTION	17
5.2	RELEVANT RESOURCE MANAGEMENT PLANS	17
5.3	LAND USE ACTIVITIES	18
5.4	STORAGE AND USE OF HAZARDOUS SUBSTANCES	21
5.5	DISCHARGE OF CONTAMINANTS TO AIR	22
5.6	STORMWATER	23
5.7	ACTIVITIES REQUIRING RESOURCE CONSENT	24
6.	Consultation	25
6.1	CONSULTATION APPROACH	25
6.2	CONSULTATION WITH NEIGHBOURS	26
6.3	CONSULTATION WITH OTHER PARTIES	27
7.	Assessment Of Effects	30
7.1	INTRODUCTION	30
7.2	AIR DISCHARGE EFFECTS	30
7.2.1	Introduction	30
7.2.2	Air Dispersion Modelling	31
7.2.3	Effects on Regional Air Quality	33
7.2.4	Existing Air Quality and Cumulative Effects	36
7.2.5	Updraft Effects	37
7.2.6	Conclusions	38
7.3	NOISE EFFECTS	39
7.3.1	Introduction	39
7.3.2	Existing Noise Levels	39
7.3.3	Predictions of Future Noise	39
7.3.4	Noise Assessment	40
7.3.5	Conclusion	40
7.4	STORAGE AND USE OF HAZARDOUS SUBSTANCES	42
7.4.1	Existing Hazardous Substances	42
7.4.2	Proposed Hazardous Substances	42
7.4.3	Risk Assessment	43
7.4.4	Environmental Plan	44
7.4.5	Conclusions	45
7.5	VISUAL AND LANDSCAPE EFFECTS	45
7.5.1	Introduction	45
7.5.2	Existing Landscape Character	45
7.5.3	The Visual Catchment Area	46
7.5.4	Wider Catchment Analysis	46



7.5.5	Inner Catchment Analysis	48
7.5.6	Mitigation	49
7.5.7	Conclusions	49
7.6	STORMWATER DISCHARGES	50
7.6.1	Existing Site Drainage Systems	50
7.6.2	Effects of the Proposal	51
7.6.3	Conclusions	52
7.7	PREVIOUSLY CONTAMINATED LAND	52
7.8	TRAFFIC	53
7.9	POSITIVE ECONOMIC AND COMMUNITY EFFECTS	54
7.10	CONCLUSION AND SUMMARY OF MITIGATION	55
8.	Notification Assessment	55
9.	Policy Assessment	58
9.1	AUCKLAND REGIONAL POLICY STATEMENT	58
9.2	PROPOSED AUCKLAND REGIONAL PLAN: AIR, LAND AND WATER	61
9.2.1	Air Quality	61
9.2.2	Stormwater	62
9.2.3	Contaminated Land	62
9.3	AUCKLAND TRANSITIONAL REGIONAL PLAN	63
9.4	CITY OF AUCKLAND DISTRICT PLAN – ISTHMUS SECTION	63
9.5	PROPOSED AUCKLAND REGIONAL COASTAL PLAN	64



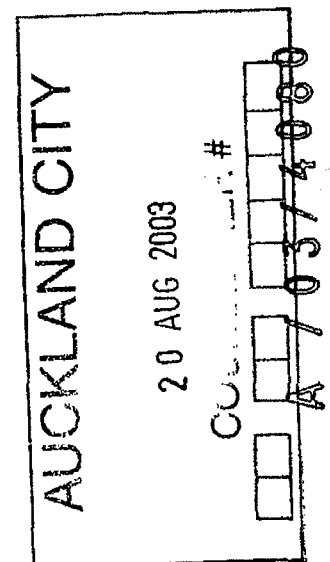
APPENDICES

1. Air Discharge Assessment for One Additional Gas Turbine Generator at Southdown Power Station: NIWA.
2. Southdown Cogeneration Power Plant; Addition of One Gas Turbine Generator; Assessment of Noise Effects: Malcolm Hunt Associates.
3. Southdown Cogeneration Plant Expansion; Addition of One Gas Turbine Generator; Consent Issues for Stormwater, Site Contamination, Hazardous Substances and Plant Foundation: Opus International Consultants.
 - 3.1 HFSP Calculator.
 - 3.2 Risk Assessment.
 - 3.3 Environmental Management Plan.
 - 3.4 Spill Handling Procedure.
 - 3.5 Pattle Delamore Report.

4. Southdown Power Station Expansion Project: Landscape Visual Impact Assessment: Single Gas Turbine Proposal: King Consultants Ltd.
5. Southdown Power Station Certificate of Title.
6. Consultation Document: Southdown Power Station - Outline of Proposed Expansion.
7. Letter to Auckland Regional Council Regarding Greenhouse Gas Emissions.

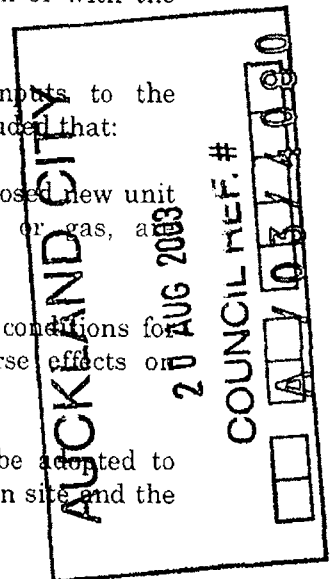
LIST OF FIGURES

1. Location of Southdown Power Station
2. Existing Southdown Power Station
3. Site Layout
4. Architectural Elevations
5. Site Layout Plan
6. Neighbouring Land Owners
7. Peak NO_x Bands Around The Source
8. Peak NO₂ Bands Around The Source
9. Additional NO₂ due to proposed activity in Winter
10. Additional NO₂ due to proposed activity in Summer
11. Local Cumulative Effects (1 hour average NO₂ concentrations)
12. Noise Site Locations
13. Visual Catchment Areas

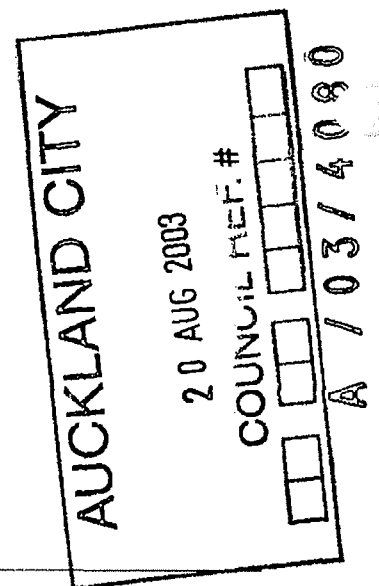


Executive Summary

1. *Southdown Cogeneration Ltd, (SCL), a wholly owned subsidiary of Mighty River Power Ltd, proposes to install an additional gas turbine generator on the site it currently operates at Southdown. In order to authorise the additional gas turbine generator, resource consents are required in relation to:*
 - Construction and operation of an additional gas turbine generator, fuel storage and ancillary activities including an exhaust stack of 28 metres.
 - Storage and use of hazardous substances
 - Location of buildings, structures and infrastructure on a previously contaminated site.
 - Earthworks for foundations
 - Discharge of contaminants to air
2. Additional generation capacity is required in the Auckland Region to meet demand and, in particular, to supply electricity during shortages and when other generating plant is not available.
3. The initial expansion proposed for the Southdown site is for one open cycle gas turbine generator fuelled on either diesel or gas. It is intended that this turbine be operational for winter 2004. The plant proposed is an open cycle gas turbine generator, which will produce about 45-50 MW of electricity and can be fuelled on either diesel or gas. This is to be accommodated on the existing site along with diesel fuel storage.
4. The existing power station is located in an extensive industrial area in the apex of two railway lines and close to the Mangere Inlet.
5. Consultation has been undertaken with neighbours. None of those visited had any issues or concerns with the current plant and its operation or with the proposed expansion.
6. Specific technical assessments have been undertaken as inputs to the Assessment of Environmental Effects (AEE). The AEE has concluded that:
 - The effects of discharges to air from the addition on the proposed new unit at the Southdown power station, fired on either diesel or gas, are insignificant.
 - Noise emissions comply with the District Plan and consent conditions for the existing site operations and will not have any adverse effects on neighbouring activities.
 - Appropriate site design and management procedures will be adopted to cater for the additional volumes of oil and chemicals stored on site and the introduction of a large volume of diesel storage.



- The visual effects of the proposal will be minor or less than minor because views of the site have a low sensitivity to change, and a high visual absorption capacity (VAC). Factors that mitigate the visual effects of the power station structures are the clustering of the structures, and the use of dull greys and muted tones.
 - Existing site stormwater management facilities are adequate to manage the modified stormwater discharges resulting from the proposed development.
 - There is a small risk of encountering residual contamination during foundation earthworks. Appropriate measures will be taken to manage this risk.
 - The proposal is not expected to have any adverse impacts on traffic conditions.
 - The economic and community benefits of the proposal will be significant.
7. An assessment of whether the applications are required to be publicly notified has been undertaken in accordance with section 93 and 94 of the RMA. The assessment has had regard to effects permitted by existing resource management plans. It has concluded, for both the land use consent and discharge permits, that:
- the effects on the environment are minor or less than minor.
 - there are no neighbours or other parties that are affected.
 - there are no special circumstances warranting public notification
8. Mighty River Power consequently considers that the applications should be processed on a non notified basis.
9. Relevant objectives and policies of operative and proposed resource management plans have been identified and considered. The applications are consistent with these policies and objectives.



1. Introduction

1.1 THE PURPOSE AND SCOPE OF THIS DOCUMENT

Southdown Cogeneration Limited (SCL) proposes to install an additional gas turbine generator on the site it currently operates at Southdown in Auckland City.

The existing power station was authorised by resource consents granted in 1995 and was commissioned in 1996. In order to authorise the additional gas turbine generator resource consents are required in relation to:

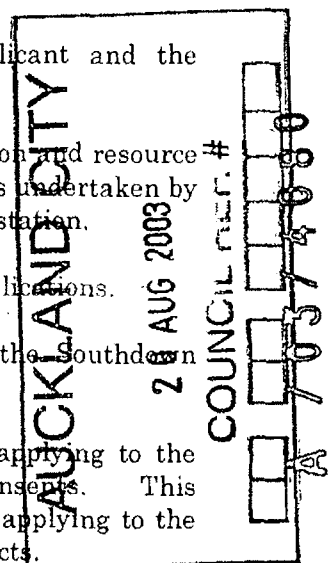
- Construction and operation of an additional gas turbine generator, fuel storage and ancillary activities including an exhaust stack of 28 metres.
- Storage and use of hazardous substances
- Location of buildings, structures and infrastructure on a previously contaminated site.
- Earthworks for foundations
- Discharge of contaminants to air
- Discharge of stormwater from the fuel storage area.

This Assessment of Environmental Effects (AEE) describes the proposed plant expansion and assesses the environmental effects of the project in accordance with the Fourth Schedule of the Resource Management Act. A 35 year term is sought for each of the discharge permits.

1.2 CONTENT AND STRUCTURE OF THE ASSESSMENT OF ENVIRONMENTAL EFFECTS

The AEE provides an integrated approach to the resource management issues associated with the proposal. However, the structure allows aspects relevant to each consent to be considered by the separate consent authorities and departments.

Chapter 1	Provides background information on the applicant and the structure of the AEE.
Chapter 2	Describes an overview of the existing power station and resource consents and outlines the environmental practices undertaken by SCL in relation to the existing Southdown power station.
Chapter 3	Describes the project that is the subject of the applications.
Chapter 4	Provides a description of the environment of the Southdown power station.
Chapter 5	Sets out the resource management framework applying to the project and the aspects requiring resource consents. This includes consideration of the permitted baseline applying to the site as a reference point for the assessment of effects.



- Chapter 6 Identifies the consultation that has been undertaken and the results of the consultation.
- Chapter 7 Provides an assessment of the actual and potential effects on the environment of the proposed expansion of the Southdown power station including the positive economic and community effects of the project.
- Chapter 8 Provides an analysis of the requirements of section 94 of the RMA to assist the consent authorities with determination of notification of the consents.
- Chapter 9 Provides an analysis of the relevant policies of resource management plans as they relate to the project and its environment effects.

AEE Appendices

- Technical Reports: The CD-ROM contained in the back pocket of the document contains studies commissioned to provide technical data in support of this application. These technical reports form a part of the overall AEE and are drawn on extensively in Chapter 7 of the AEE.
- Other Appendices: These include the certificate of title and copy of the consultation document.

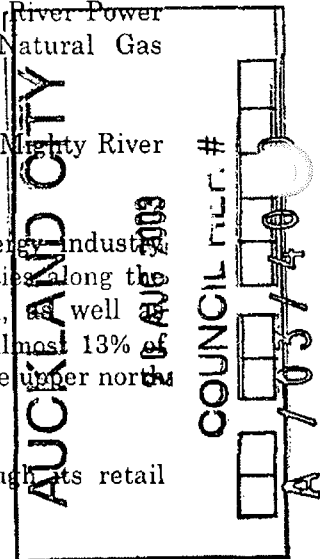
1.3 MIGHTY RIVER POWER LTD AND SOUTHDOWN COGENERATION LTD

Mighty River Power Ltd (Mighty River Power) is a state owned enterprise, governed by the State Owned Enterprises Act 1986. Prior to 2002 Mighty River Power was a 50% shareholder in Southdown Cogeneration Ltd. In late 2002 Mighty River Power purchased the other 50% of Southdown Cogeneration Ltd from Natural Gas Corporation Ltd.

Southdown Cogeneration Ltd is therefore a wholly owned subsidiary of Mighty River Power.

Mighty River Power is a major participant in the New Zealand energy industry through ownership of hydro electric power electricity generation facilities along the Waikato River, thermal power stations at Marsden and Southdown, as well as geothermal and landfill methane gas plants. The company produces almost 13% of New Zealand electricity requirements and 25% of the peak demand of the upper north island.

Mighty River Power also sells electricity to 300,000 customers through its retail business Mercury Energy.



2. Existing Site And Plant Description

2.1 SITE LOCATION

The Southdown power station is located on the western side of the Auckland isthmus close to the north-eastern corner of the Mangere Inlet. The power station is at the southern end of Hugo Johnston Drive adjacent to the North Island Main Trunk railway and north of the siding to the Southdown Railfreight Terminal. The power station location is shown on Figure 2.1 below.

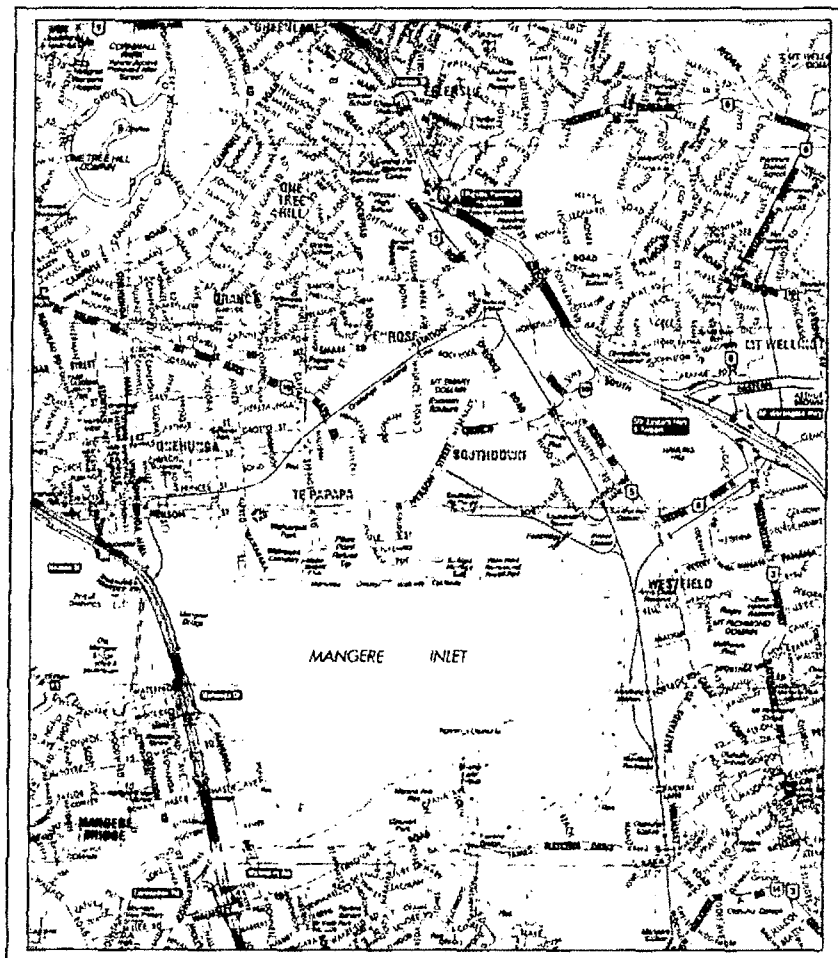


Figure 1: Location of Southdown Power Station

The site is zoned Business 6 in the City of Auckland District Plan - Isthmus Section.

AUCKLAND CITY

20 AUG 2003

COUNCIL REF. #

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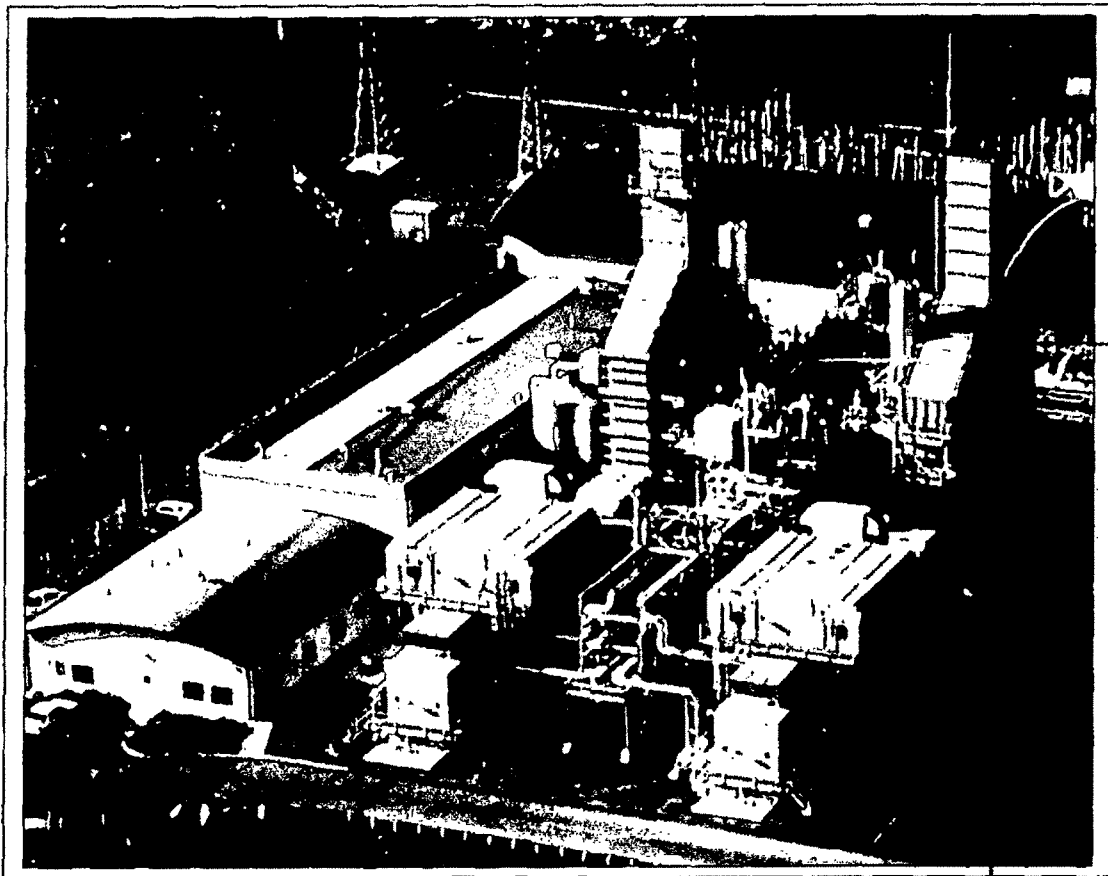
2.2 OVERVIEW OF THE EXISTING POWER STATION

The existing power station comprises two gas turbine generator sets fuelled by natural gas to produce electricity. The hot gasses from each turbine flow through a dedicated once through steam generator (OTSG). These use the heat energy to convert water into steam. The steam flows through a condensing steam turbine generator set to produce additional electricity. Low pressure steam leaving the steam turbine is condensed in a wet surface air cooled condenser and returned to the OTSG for reuse.

The Southdown power station produces about 125MW of electricity, which is fed into the national electricity transmission grid.

The station runs 24 hours a day, seven days a week except for brief periods during routine maintenance.

The power station operates under resource consents outlined in section 2.3. Operating procedures are in place to ensure that the conditions of the resource consents are complied with. In addition staff receive training in the Resource Management Act, resource consents and conditions of consents applicable to the station. There have been no public complaints in recent years regarding the existing site operations.



20 AUG 2003

COUNCIL REF: 74080

Figure 2: Existing Southdown Power Station

A discretionary activity consent is required for "Any activity that proposes to locate on a contaminated or potentially contaminated site identified in Annexure 8."

In summary a land use consent is required for the turbine generator when fired on diesel, the exhaust stack which exceeds the height limit by 2 metres, foundation earthworks, and works on a site listed as a contaminated site.

In terms of the permitted baseline the relevant effects are those which exceed those that can occur as of right. The only difference between diesel and gas firing of the gas turbine generator is the consequent need for on site fuel storage. That activity requires resource consent in its own right. There is no other difference in terms of the land use of a gas fired generator compared to a diesel fired generator. The same machine can (and likely will) be run on both fuels. With permitted development to 20 metres on most parts of the site the permitted baseline in terms of bulk of structures far exceeds that proposed, with the exception of the top two metres of chimney height.

5.4 STORAGE AND USE OF HAZARDOUS SUBSTANCES

The District Plan adopts the assessment method of the Hazardous Facilities Screening Procedure (HFSP) for assessment of risk from hazardous facilities.

The HFSP provides for the calculation of Effects Ratios for each of the following effects groups, fire/explosion, human health, and environmental.

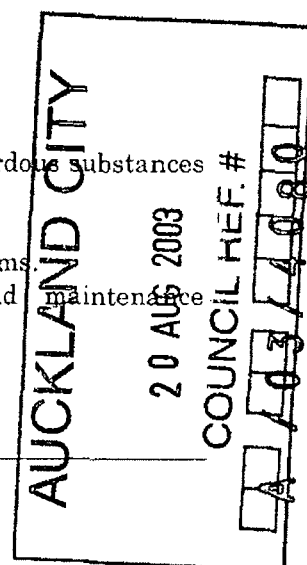
In the Business 6 zone the effects ratio consent thresholds are:

Permitted activity	Equal to or less than 1
Controlled	1-2
Discretionary	Greater than 2

The HFSP assessment recorded in section 7.4 shows that this aspect requires consents as a discretionary activity. A Risk Assessment as required has been undertaken and is included in 7.4.4.

The District Plan identifies the assessment criteria for considering this application which include:

- Separation distance to people sensitive activities.
- Location in relation to nearest aquifer, stream or the coast.
- Nature of sub soil and site geology.
- Distance to sensitive habitats.
- Cumulative and synergistic effects, and bio accumulation of hazardous substances used or stored.
- Fire safety and fire water management.
- Adherence to health, safety and environmental management systems.
- Spill contingency and emergency planning, monitoring and maintenance schedules.
- Site drainage and off site infrastructure.
- The transportation of hazardous substances.



In this case, specific consideration also needs to be given to the risk to regionally significant infrastructure.

5.5 DISCHARGE OF CONTAMINANTS TO AIR

The operative regional plan in relation to discharge to air is the Transitional Regional Plan which links to the now repealed Clean Air Act 1972. Consent is required under these provisions but in terms of air quality management greater weight is to be given to the Proposed Auckland Regional Plan: Air, Land and Water (Proposed Regional Plan).

In the Proposed Regional Plan the site is located within the Industrial Air Quality Management Area. This includes all the District Plan Business 6 zones and most of the Business 5 zones. The areas are Penrose, Otahuhu, Onehunga and Avondale. The aim of the Air Quality Management Areas is to integrate land use planning with air quality management. To encourage industrial activities to locate in these areas there is a less stringent air discharge regime. The approach also seeks to avoid reverse sensitivity and conflicts between incompatible and competing land uses.

On a wider regional scale the Proposed Regional Plan specifies Auckland Regional Air Quality targets for key ambient air contaminants that have been selected as indicators of air pollution and enable the determination of reduction targets for emissions from each of the major air pollution sources. The targets are based on Ministry for the Environment Ambient Air Quality Guidelines.

The targets are defined for remote, residential and peak monitoring sites. The targets with regard to industrial areas are to ensure there are no breaches of guidelines at peak sites by 2010.

With regard to the key contaminants involved in the project the Peak Air Quality Targets are:

NO ₂	200µg/m ³
SO ₂	40µg/m ³
PM ₁₀	50µg/m ³

Year 2000 levels suggest that Auckland is in good shape overall with regard to SO₂ but is getting close to limit levels of NO₂.

The Proposed Regional Plan acknowledges that its focus for industrial and trade premises is managing the actual and potential effects of activities on their immediate environment and that these are often best managed by appropriate location and by adopting the best practicable option.

In terms of rules in the Proposed Regional Plan the combustion of diesel is a Permitted Activity where the on site capacity is 20 MW or less. (Refer rule 4.5.29)

As the capacity of the diesel fired generator is expected to be 45 to 50 MW, it exceeds the limit of this rule and consequently the discharge to air requires consent as a

Southdown Power Station Addition of One Gas Turbine Generator

AUCKLAND CITY

20 AUG 2003

COUNCIL REF. #

A 103/4080

discretionary activity pursuant to rule 4.5.34. The air quality effects of a 20 MW diesel fired generator represent the permitted baseline for this consent.

5.6 STORMWATER

The existing power station has a comprehensive stormwater treatment system. It comprises a settling pond to remove suspended solids, a rock filtration overflow weir and surface flow wetland, discharging to a culvert via a wetland swale. The pond is a permanent landscape feature and has been planted with appropriate vegetation. In addition, areas with hazardous substances such as the existing gas turbine structures are bunded.

The proposal includes an additional gas turbine generator and two fuel storage tanks. These areas will also be bunded.

Schedule 3 of the Proposed Regional Plan lists industrial and trade processes and classifies them as moderate risk sites or high risk sites. Discharges of stormwater from moderate risk sites are a permitted activity, while discharges from high risk sites are a discretionary activity. Gas, coal or petrochemical power generation where bulk hydrocarbons are involved on a site of more than 5,000 m², such as Southdown power station, is classified as high risk

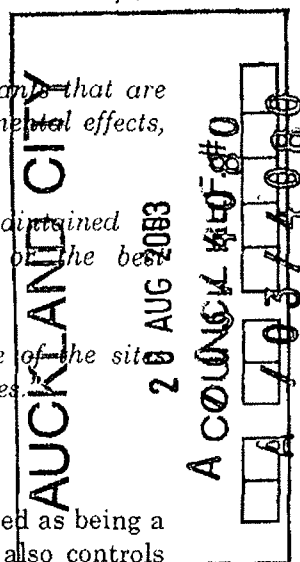
Rule 5.5.20 states that such sites require a discretionary activity consent subject to the following standards and terms:

- (a) *"An Environmental Plan which:*
 - (i) *has regard to all appropriate matters listed as conditions in rules 5.5.16 and 5.5.17.*
 - (ii) *identifies the specific contaminants associated with the industrial or trade process on the site;*
 - (iii) *sets out the methods to be used to ensure the contaminants identified avoid contacting stormwater runoff; and*
 - (iv) *identifies appropriate auditing requirements to ensure performance of all components of the Environmental Management Plan.*
- (b) *Stormwater treatment shall be implemented to reduce contaminants that are entrained in the stormwater runoff to minimise adverse environmental effects, including cumulative effects, to acceptable levels.*
- (c) *Any stormwater treatment devices shall be installed and maintained accordance with either the manufacturer's recommendations or the best practicable option.*
- (d) *Stormwater monitoring requirements to ensure the performance of the site Environmental Management Plan and stormwater treatment devices*

These requirements are addressed in section 7.4.

It is recognised that the site was previously contaminated and is still listed as being a contaminated site in the District Plan. The Proposed Regional Plan also controls

Southdown Power Station Addition of One Gas Turbine Generator



stormwater from sites during and after remediation. This, however, is classed as a permitted activity subject to compliance with conditions as follows:

"The discharge of groundwater or surface water from contaminated land during the process of remediation or after the remediation process is completed subject to the following conditions:

- (a) *Following remediation the concentrations of contaminants in groundwater shall not exceed background levels for any contaminant as specified in ARC Technical Publication 'Long Term Baseline Groundwater Quality, 2001'.*
- (b) *The remaining soil and other materials shall not exceed the background levels for the range of contaminants found, as specified in ARC Working Report Number 76 'Trace Element Concentrations in Soils and Soil Amendments from the Auckland Region', August 1999, as amended October 2001, or the Tier 1 soil acceptance criteria for the protection of public health and groundwater quality specified in 'Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand', Ministry for the Environment, August 1999;*
- (c) *Contaminated soil is disposed of to an appropriately authorised facility or site and evidence of this is provided to ARC.*
- (d) *No contaminated stormwater shall be discharged from the area being remediated.*
- (e) *Within three months of completion of remediation the ARC shall be provided with site validation report, that shall be prepared in accordance with 'Guidelines for Reporting on Contaminated Sites', (MfE June 2001)."*

In addition, regard must be had to the Transitional Regional Plan as this remains the operative plan in relation to discharges to water. There are a number of General Authorisations under this Plan that permit the diversion and discharge of stormwater. These authorisations are subject to several conditions, including a requirement that they may not authorise this activity where significant quantities of environmentally hazardous substances are liable to enter the stormwater following use or spillage of such substances. However, the present and proposed bunding of chemical and fuel storage areas at the station, in combination with the existing comprehensive stormwater treatment system and site management, greatly reduce the likelihood and quantity of hazardous substances that may contaminate stormwater.

It appears therefore that General Authorisation 11 applies as follows:

"To divert and discharge stormwater from an area of development or re-development via an existing stormwater reticulation system, provided that any increase in discharge from the reticulation system generated from such development shall not cause flooding or erosion or adversely affect any land owned or occupied by another person without that person's prior consent."

5.7 ACTIVITIES REQUIRING RESOURCE CONSENT

In summary the resource consents sought are as follows:

Land use consent for:

Southdown Power Station Addition of One Gas Turbine Generator

AUCKLAND CITY	20 AUG 2003	COUNCIL REF #
		74080

- Construction, maintenance and operation of one additional gas turbine generator fuelled on diesel or gas and associated buildings, pipe work and other infrastructure, including an exhaust stack height of 28 metres..
- The storage and use of diesel, use of gas, and storage and use of other hazardous substances associated with the additional gas turbine generator.
- Earthworks associated with foundations for buildings, structures and associated facilities.
- Location of one additional gas turbine generator fuelled on diesel or gas and associated buildings, pipe work and infrastructure on a contaminated site or potentially contaminated site.

Discharge of contaminants to air through a single flue from an additional gas turbine generator fuelled on gas or diesel.

Discharge of treated stormwater from the proposed fuel storage area.

A 35 year resource consent term is sought for each of the discharge permits.

6. Consultation

6.1 CONSULTATION APPROACH

The project team has undertaken consultation as part of the process of applying for the resource consents. The consultation approach has been determined by the results of the technical assessments undertaken for this project. The expert assessments show that the effects of the proposal do not adversely affect neighbouring properties. However, it has been recognised the neighbouring landowners and occupiers may be interested in the proposed activity. The consultation approach, therefore, has been to visit these parties to inform them of the proposal and discuss any issues arising.

The project team has liaised with key staff at both Auckland Regional Council (ARC) and Auckland City Council (ACC).

Preliminary meetings were held with ARC staff to outline the proposed expansion and discuss the preliminary results of air quality assessment work. These meetings were followed up with an on-site meeting to familiarise staff with the site and plant operation. The site visit included a discussion with NIWA on air effects and the results of further air quality assessment work.

An initial meeting was held with the ACC to outline the proposed expansion and discuss studies being undertaken. The initial meeting was followed up with two on site meetings to familiarise staff with the site and plant operation and to discuss the preliminary results of technical work.

ACC owns land immediately to the south of the site and therefore was also consulted as an adjoining landowner. Iwi are not considered to be affected parties in this case.

Southdown Power Station Addition of One Gas Turbine Generator

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6.2 CONSULTATION WITH NEIGHBOURS

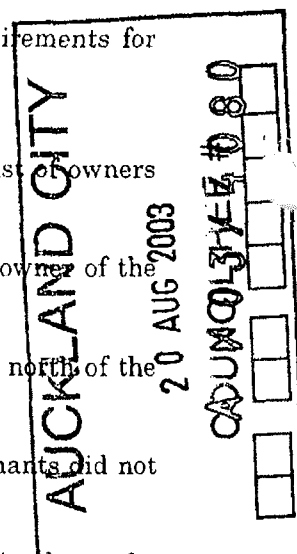
Owners of neighbouring properties were identified and a document outlining the project and summarising technical studies was distributed. This is included as Appendix 6.

The summary included the following key points:

- **Air Quality**
Ground level concentrations of contaminants discharged to air are all within the Auckland Regional Air Quality Targets. There will be no odour created at the plant and no additional visible steam emissions.
- **Noise**
The addition of a single gas turbine generator will meet the ACC's noise standards at the site boundary. Noise from construction activities will meet New Zealand standards.
- **Hazardous Substances**
Diesel tanks will be fully bunded in accordance with the ACC's requirements. A site management plan will be developed to ensure the delivery and use of diesel meets ACC standards.
- **Visual and Landscape**
The additional gas turbine generator will be located alongside the existing gas turbines to the south of the site, and will look very similar. There will be no boiler structure as for the existing units, but a simple exhaust stack of the same height (28m).
- **Stormwater discharges**
Stormwater discharges will be managed to comply with ARC's requirements for stormwater discharges.

Although the dominant landowner in the vicinity is Mr John Sax the list of owners and tenants visited was as follows:

- Mr John Sax of Lendrum Systems Ltd and Kensai Corporation Ltd, owner of the properties to the north and south of the site.
- Lynn Garrett (Garrett Meats International Ltd) lessee of land to the north of the site.
- Tenants of two small houses on Kensai Corporation Ltd site. The tenants did not give their names.
- White International NZ Ltd, the occupier of the warehouse immediately to the North on Hugh Johnston Drive. Property owned by Kensai Corporation Ltd.



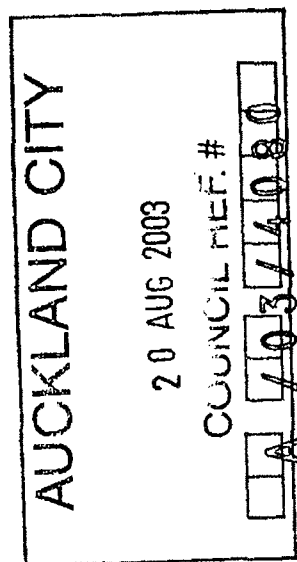
The location of these properties are shown on Figure 7.

None of those visited had any issues or concerns with the current plant and its operation or with the proposed expansion.

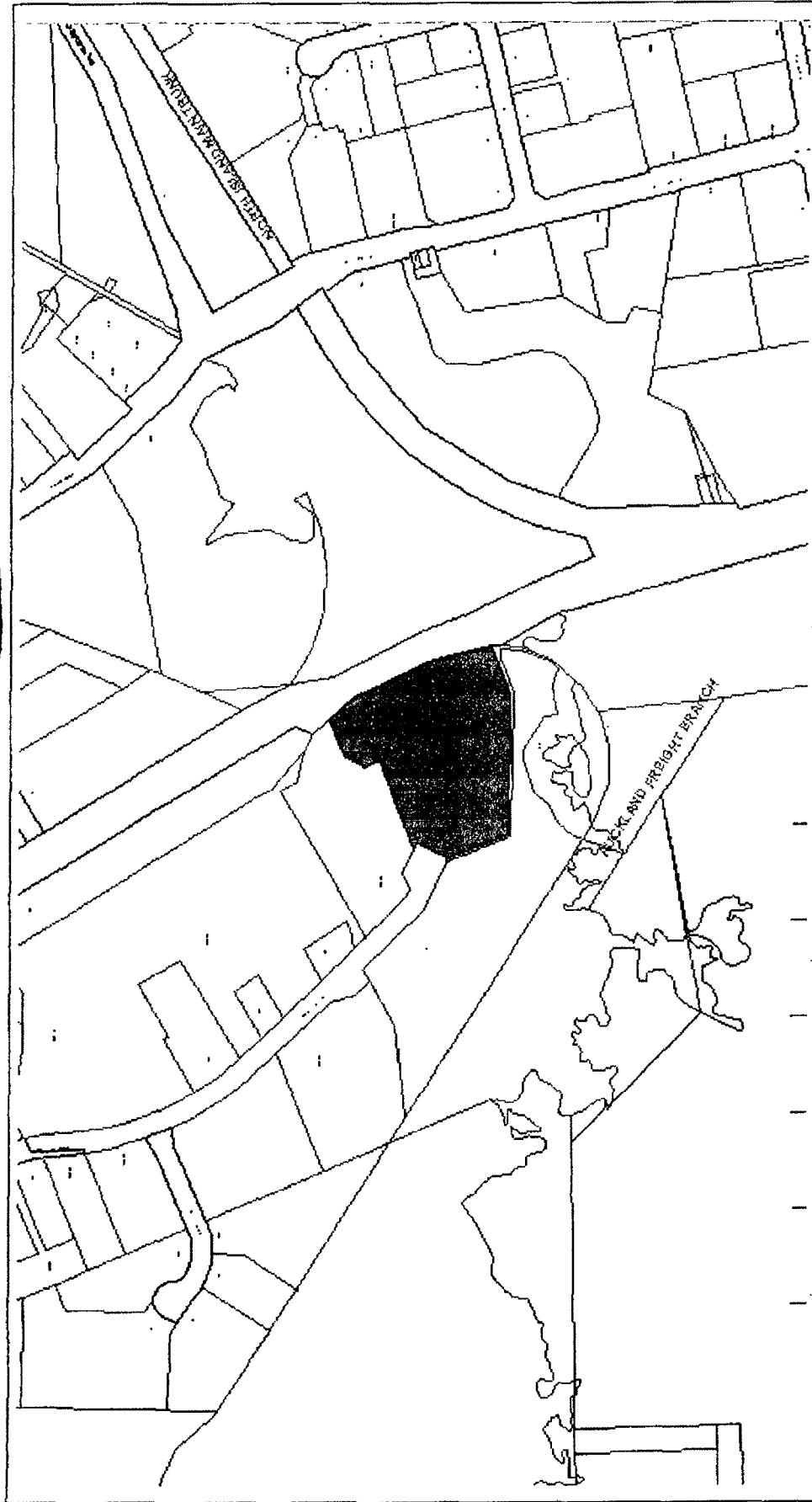
In addition a letter was sent to TranzRail as owner of the railway land to the east of the site. There has been no response to this letter at the time of preparation of this AEE.

6.3 CONSULTATION WITH OTHER PARTIES

Discussions have also been held with the Civil Aviation Authority (CAA) regarding the potential effects of updraught on aviation in the vicinity of the power station. CAA has advised that the proposal is satisfactory because it will not affect aircraft above 1500 feet. The air discharge modelling has predicted that the velocity drops to acceptable levels at 814 feet above sea level. This is considered acceptable to CAA.



MIGHTY RIVER POWER



AUCKLAND CITY Neighbouring Land Owners

Southdown Power Station Addition of One Gas Turbine Generator

20 AUG 2003

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Ref No	Owner	Address	CT	Legal Description
1	Railway Purposes	Not Available		Pt Allot 6A Sec 17 Suburbs of Auckland
2	The Auckland City Council - Accessway	211 Hugo Johnson Drive	40711	Lot 19 DP 129768
3	Department of Conservation	213 Hugo Johnson Drive		Lot 18 DP 129768
4	The Auckland City Council - Esplanade Reserve	213 Hugo Johnson Drive		Lot 17 DP 129768
5	Lendrum Systems Limited	141 Hugo Johnson Drive	76A/550	Lot 4 DP 129768
6	Railway Purposes	Not Available		Pt Allot 45 Sec 17 Suburbs of Auckland
7	Kensai Corporation Limited	138 Hugo Johnson Drive	139A/952	Lot 3 DP 211053
8	Mighty River Power Limited	142-162 Hugo Johnson Drive	109D/644	Lot 2 DP 178192 DP 178192
9	Railway Purposes	Not Available		Pt Allot 6A Sec 17 Suburbs of Auckland
10	UltraLiner Investments Limited	777 Great South Road	58D/182	Pt Allot 6A Sec 17 Suburbs of Auckland
11	Hastings, Andrew Vincent and Irmgard Grete	791 Great South Road	125B/43	Sec 1 SO 69440
12	The Auckland City Council - Recreation Reserve	127-139 Hugo Johnson Drive	129A/228	Lot 3 DP 101529
13	Kensai Corporation Limited	106 Hugo Johnson Drive	128B/282	Lot 3 DP 199789
14	The Dilworth Trust Board	12 Southdown Lane	45B/1045	Lot 2 DP 87616
15	Market Fresh Wholesale Limited	801 Great South Road	99D/778	Lot 1 DP 165508
16	Kensai Corporation Limited	128-136 Hugo Johnson Drive	139A/950	Lot 1 DP 211053
17	Kensai Corporation Limited	126 Hugo Johnson Drive	139A/951	Lot 2 DP 211053

Schedule of Landowners

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20 AUG 2003

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7. Assessment Of Effects

7.1 INTRODUCTION

This section sets out the assessment of effects on the environment of the proposed gas turbine generator, fuel storage and ancillary buildings. It has been structured so that consent authorities and different departments can focus on particular sections that relate to their responsibilities.

All relevant issues have been considered including assessments to demonstrate compliance as well as areas where specific consents are required.

The assessment results outlined in each of the assessment sections are in some cases drawn from the findings of the technical reports prepared for this AEE. These reports are included as Appendices to the AEE and are as follows:

- Air Discharge Assessment for One Additional Gas Turbine Generator at Southdown Power Station: NIWA.
- Southdown Cogeneration Power Plant; Addition of One Gas Turbine Generator; Assessment of Noise Effects: Malcolm Hunt Associates.
- Southdown Cogeneration Plant Expansion; Addition of One Gas Turbine Generator; Consent Issues for Stormwater, Site Contamination, Hazardous Substances and Plant Foundation: Opus International Consultants.
- Southdown Power Station Expansion Project: Landscape Visual Impact Assessment: Single Gas Turbine Proposal: King Consultants Ltd.

For more detail on the various assessment areas please refer directly to each of the specific reports. The technical reports form part of the AEE and are included as Appendices 1-4.

7.2 AIR DISCHARGE EFFECTS

7.2.1 Introduction

An assessment of the effects of air discharges on the environment has been undertaken by NIWA, and is included as Appendix 1.

The assessment has been undertaken in accordance with the requirements of the following documents:

- Auckland Regional Council's Draft Assessment Guideline TP152.
- Proposed Auckland Regional Plan: Air, Land and Water.

Southdown Power Station Addition of One Gas Turbine Generator

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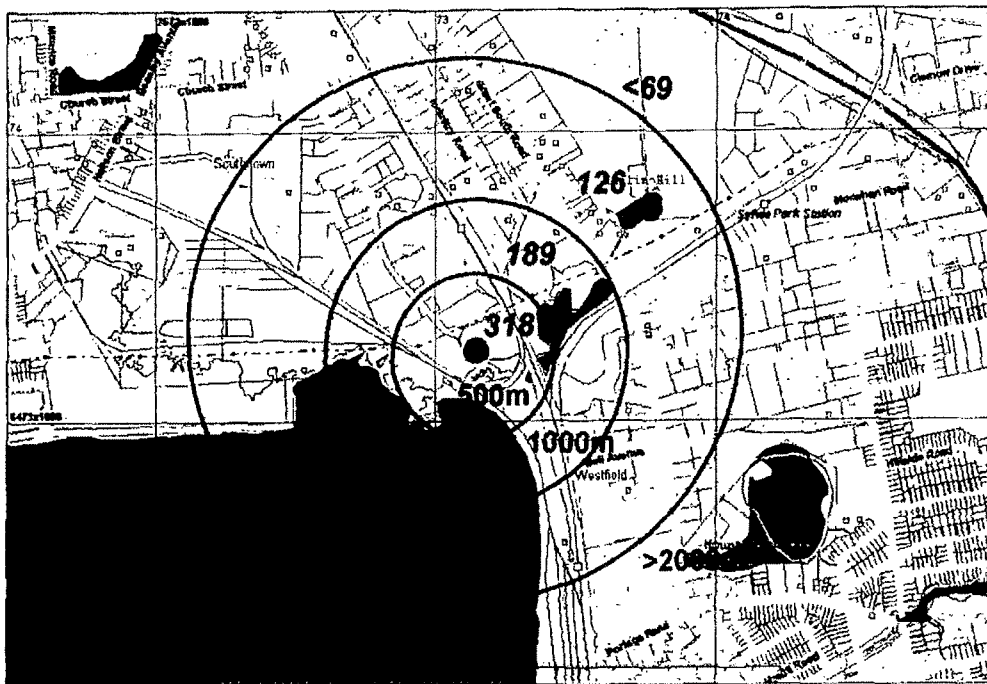


Figure 7: Peak NO_x Bands Around The Source.

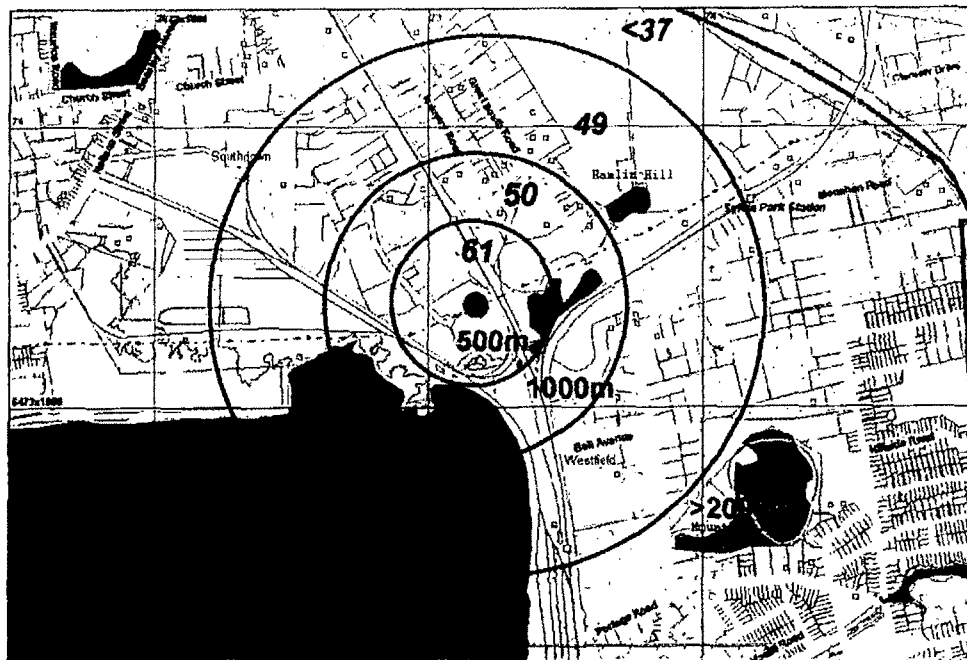


Figure 8: Peak NO₂ Bands Around The Source.

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20 AUG 2003

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Effects of sulphur dioxide, particulate matter and carbon monoxide discharges have also been modelled. The discharge rates are very low (both in absolute terms and as a ratio to NO_x) and thus do not have any significant effect. Detailed results are shown in Table 1.

Table 1: Modelling results of maximum SO₂, PM₁₀ and CO concentrations (all units: µg m⁻³).

Contaminant	Averaging time	Maximum anywhere	MfE Guideline	ARC Target
SO ₂	1-hour	7	350	233
SO ₂	24-hour	2	120	80
PM ₁₀	24-hour	1	50	33
CO	1-hour	2.5	30,000	20,000
CO	8-hour	<1	10,000	6,666

7.2.3 Effects on Regional Air Quality

Assessment of effects on regional air quality has included the following:

- Regional scale modelling of NO₂.
- Regional scale modelling of secondary particulate matter

Regional Scale Modelling of NO₂

Modelling of NO₂ at the regional scale needs to take into account the presence of other sources of contaminants in the region as well as the potential for chemical interactions between emitted plumes and contaminants emitted from motor vehicles.

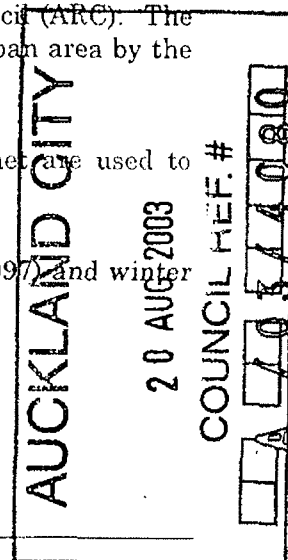
To address these issues a set of urban airshed model case studies has been carried out. These predict the atmospheric chemistry of Auckland's urban atmosphere using the full inventory of existing sources supplied by Auckland Regional Council (ARC). The model predicts the 'excess' NO₂ that would be produced around the urban area by the addition of a gas turbine generator at Southdown.

The airshed model Calgrid and its meteorological preprocessor Calmet are used to simulate the atmospheric chemistry of Auckland.

Two case study time periods were run; summer (January-February 1997) and winter (June-July 1997).

Four numerical case studies were modelled:

Summer-1: The existing situation run for January-February 1997.



Summer-2: Existing plus the proposed additional gas turbine generator, January-February 1997.

Winter-1: The existing situation run for June-July 1997.

Winter-2: Existing plus the proposed additional gas turbine generator for June-July 1997.

The modelling of the existing situation was validated against data from air quality monitoring sites at Musick Point and Mount Eden.

Maps of the ground level concentrations of excess NO_2 due to the proposed activity are shown in Figures 9 and 10. In each plot, the maximum occurs about 5 km to the northeast of Southdown, and the main NO_2 patterns are distributed to the northeast and to some extent to the southwest of the urban area, indicative of the prevailing wind directions. The maximum NO_2 level for summer was found to be $3.5 \mu\text{g m}^{-3}$, increasing to $5.3 \mu\text{g m}^{-3}$ in winter.

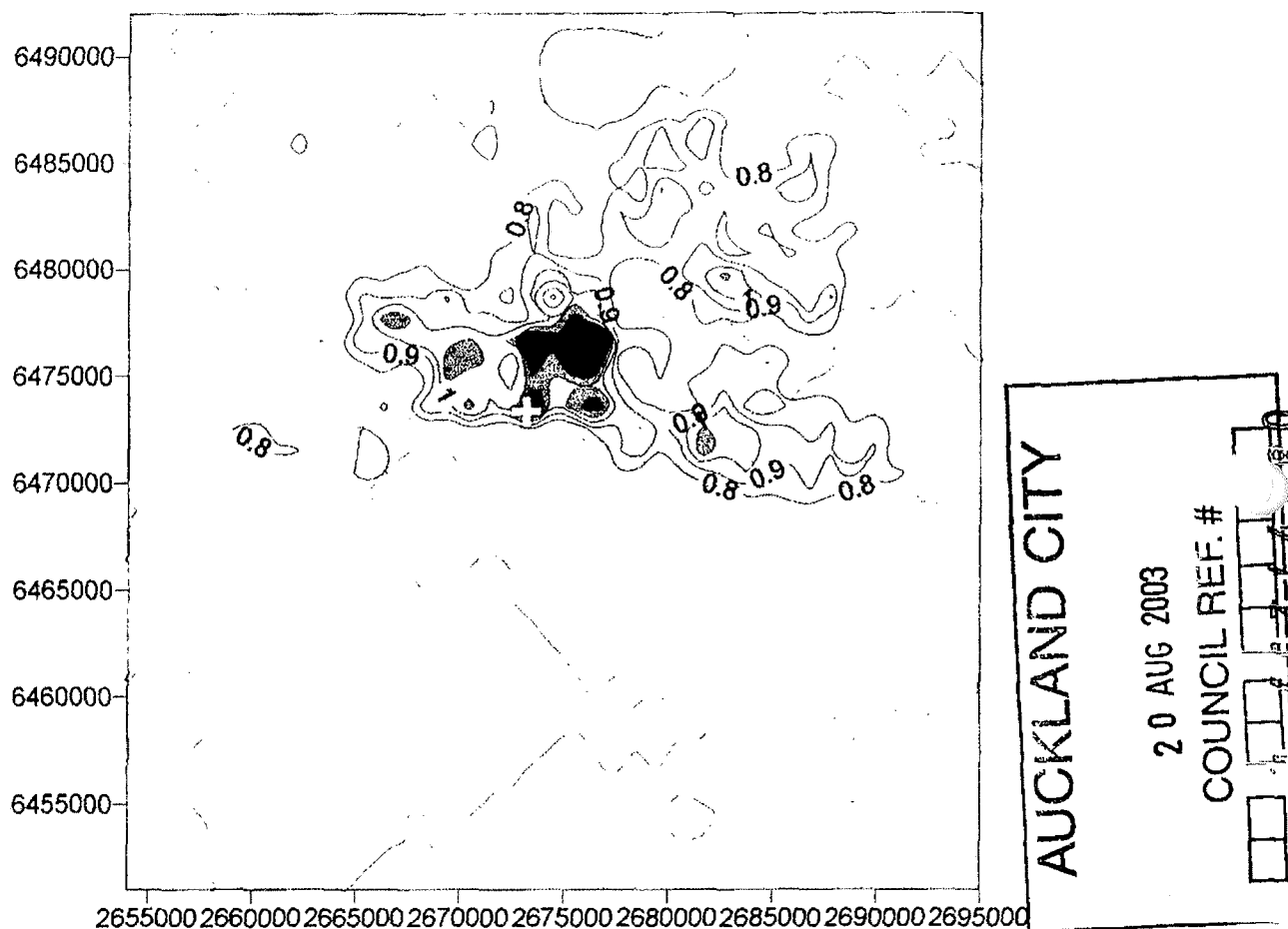


Figure 9: Additional NO_2 due to proposed activity in Winter.

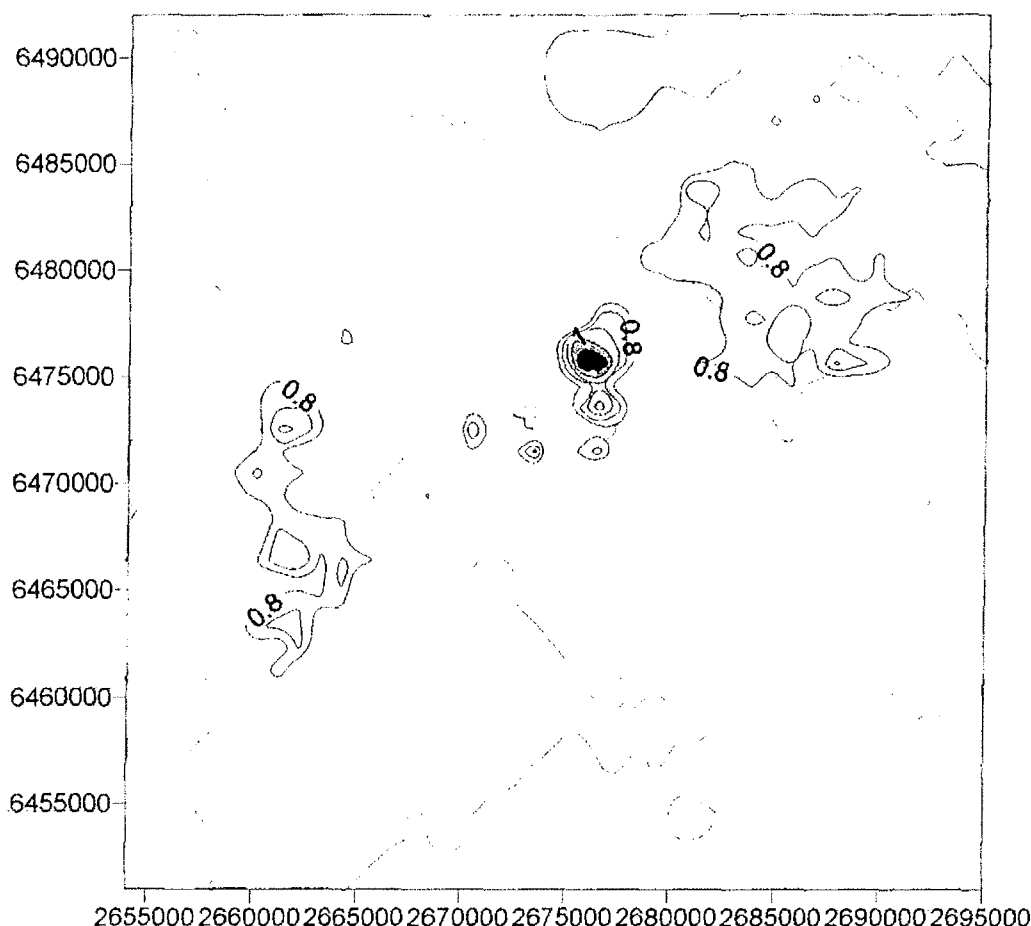


Figure 10: Additional NO₂ due to proposed activity in Summer.

Regional Scale Modelling Of Secondary Particulate Matter

Analysis has also been undertaken of secondary particulate matter by modelling the gaseous precursors to secondary particulate matter through the production of HNO₃.

The analysis shows that the mean total HNO₃ is 0.12 ppb, the maximum 'excess' HNO₃ is around 0.005 ppb. On this basis the proposed gas turbine generator at Southdown will make a negligible contribution of 0.2% to Auckland's particulate matter.

The assessment of effects on regional air quality has, therefore, concluded that:

- The maximum potential increase in fine particulates is less than 0.2%.
- While the gas turbine generator could emit a maximum of 284 tonnes of NO_x per year if running full time. The maximum peak 1-hour NO₂ increase ranges from 3.5 $\mu\text{g m}^{-3}$ in summer to 5.3 $\mu\text{g m}^{-3}$ in winter. This compares with the current ambient peak of approximately 50-70 $\mu\text{g m}^{-3}$, and the peak target of 200 $\mu\text{g m}^{-3}$ and the residential target of 132 $\mu\text{g m}^{-3}$.

AUCKLAND CITY

20 AUG 2003

COUNCIL REF. #

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Overall the effects on Auckland's regional air quality are assessed as less than minor.

7.2.4 Existing Air Quality and Cumulative Effects

Review of existing air quality monitoring data across the region shows that:

- "Vehicle emissions are a significant source of pollution.
- On occasions the ARC targets and MfE guidelines are either approached or have been exceeded."

Local Cumulative Effects

The air quality assessment has modelled the local cumulative effects by combining the NO₂ monitoring data with the maximum NO₂ concentrations contributed by the new gas turbine generator.

The results, shown in Figure 11 below indicate that local cumulative effects of NO₂ are below the MfE guidelines and the ARC residential target.

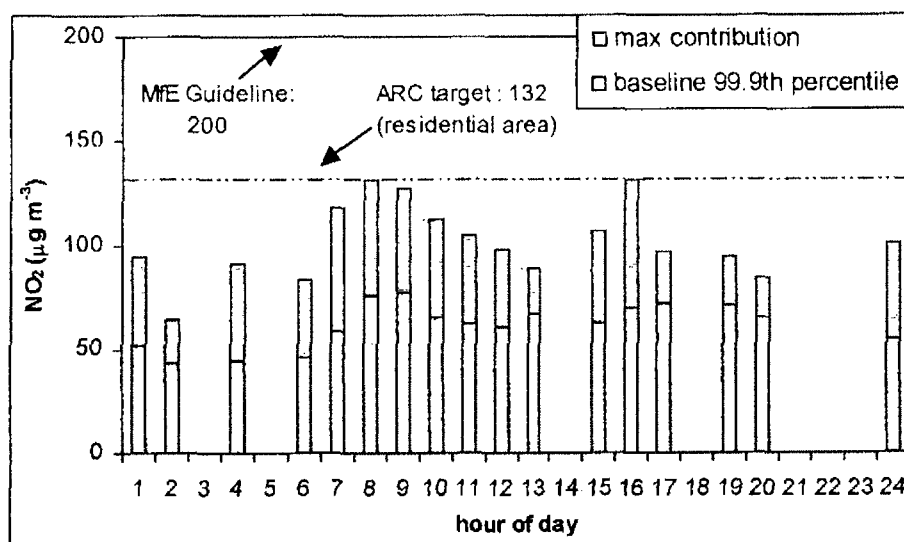
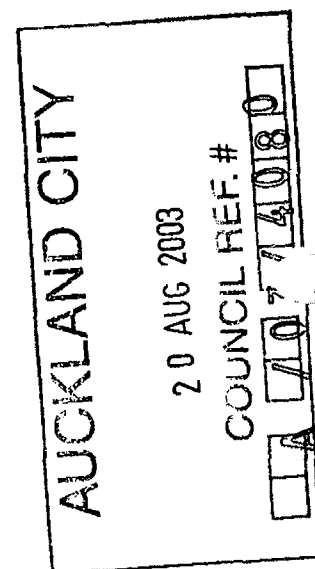


Figure 11: Local Cumulative Effects (1 hour average NO₂ concentrations.)

Regional Cumulative Effects

The regional-scale modelling of NO₂ from the addition of a gas turbine generator suggests that NO₂ concentrations from the power station generation are distributed to the northeast and to some extent to the southwest of the urban area, with the maximum at about 5 km to the northeast of Southdown.

Southdown Power Station Addition of One Gas Turbine Generator



The Penrose monitoring site is located about 2 to 3km north of the existing power station. The cumulative worst case impact of NO₂ concentrations has been assessed by combining maximum NO₂ concentrations contributed by the new gas turbine generator and the 99.9th percentile NO₂ monitoring concentrations. This method, used to derive the worst case cumulative effects, is exceedingly conservative, since it is extremely unlikely that the same conditions leading to high impacts due to traffic (light winds or low inversion) will be same as those leading to elevated ground level concentrations due to the power station (unstable, moderate winds).

Table 2: Regional Cumulative Effects (NO₂ 1-hour average concentrations, µg/m³).

Season and stack combination	Maximum NO ₂ contributions	Baseline 99.9 th percentile NO ₂ level	Cumulative NO ₂ level	MfE guideline (ARC target: residential area)	Environmental performance indicator
(a) Summer.	3.5	85.3	88.8	200 (132)	Acceptable
(b) Winter.	5.3	85.3	90.6	200 (132)	Acceptable

The analysis shows that the regional cumulative effects of NO₂ are below the MfE guideline and the ARC residential target, with the ARC environmental performance indicator being in the 'Acceptable' category.

Maximum NO₂ concentrations due to the new gas turbine generator (5.3 µg/m³, see Table 2 above) contribute to only 4% of the ARC target value (132µg/m³). Therefore, the regional cumulative effects of NO₂ emitted from the new gas turbine generator will not be significant and are well within the Ministry for the Environment Guidelines.

7.2.5 Updraft Effects

A potential effect from the discharge to air is the updraft effect on aircraft of the heat plume from the proposed stack. The effects of the proposed additional turbine have been simulated using a plume updraft model taking into account the existing plumes and are shown in Table 3 below.

Table 3: Key Results From Plume Updraft Modelling.

Source	Vertical velocity drops below 4.3 m/s at (ft)	Vertical velocity at 1000 ft (m/s)	Vertical velocity at 1500 ft (m/s)	Vertical velocity at 2000 ft (m/s)
Existing stack	262	2.4	2.1	1.8
Proposed stack	814	4.0	3.4	3.1

AUCKLAND CITY

20 AUG 2003

COUNCIL REF. #

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The modelling results show that peak updraft velocities of the plumes from the Southdown power station drop below 4.3 m/s at:

- 262 feet for the existing stacks
- 814 feet for the proposed gas turbine generator.

While merging of adjacent plumes is theoretically possible, the required conditions of zero wind at all altitudes necessary for this are unlikely to occur, and therefore there will be no significant effects from plume merging.

As recorded in Chapter 6, the Civil Aviation Authority has been consulted on this matter and has confirmed that the updraft is acceptable.

7.2.6 Conclusions

In summary the conclusions of the assessment of effects on air quality are as follows:

Nitrogen dioxide – local effects: The peak modelled ground level concentrations of NO₂ occur for 1-hour periods, within a few kilometres of the station. The concentrations due to the station emissions (existing two units plus the proposed unit) are up to 60 µg/m³. The peak cumulative concentrations are 132 µg/m³ (guideline 200 µg/m³ and Auckland Regional Council target 132 µg/m³). The contribution of the proposed new gas generator emissions to these is very small, at around 2-3 µg/m³.

Nitrogen dioxide – regional effects: The peak modelled regional increase in NO₂, due to the new unit, occurs to the northeast, and is 5.3 µg/m³.

Fine particulates – local effects: The peak modelled concentrations of PM₁₀ due to the combined power station emissions are of the order of 2 µg/m³ for the maximum 24-hour concentration. This is an insignificant addition to the local peak background concentrations of the order of 30-40 µg/m³.

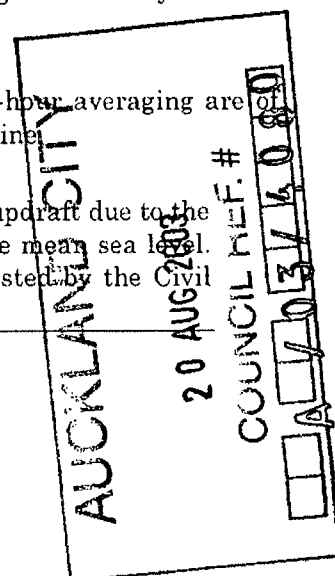
Fine particulates – secondary production: The increase in secondary particulates through nitrate reaction due to station NO_x emissions, is less than 0.5%. This is assessed for PM_{2.5}, for which reliable background data are not available, but this level of increase is negligible.

Sulphur dioxide: The peak modelled concentrations of SO₂ for 1-hour are of the order of 7 µg/m³, occurring very close to the site. Even considered cumulatively with current peaks in the region of around 25 µg/m³, these are well below the 350 µg/m³ Ministry for the Environment guideline, and the 233 µg/m³ ARC target.

Carbon monoxide: The peak modelled concentrations of CO for 1-hour averaging are the order of 2.5 µg/m³, at least 3 orders of magnitude below the guideline.

Updrafts: A specialised model has been run showing that the peak updraft due to the thermal emissions from the station will be 3.4 m/s at 1500 feet above mean sea level. This is well within the recommended guideline for Auckland, requested by the Civil Aviation Authority, of 4.3 m/s.

Southdown Power Station Addition of One Gas Turbine Generator



Conclusion: Effects of discharges to air from the addition on the proposed new unit at the Southdown power station, fired on either diesel or gas, are insignificant.

7.3 NOISE EFFECTS

7.3.1 Introduction

An assessment of noise effects has been undertaken by Malcolm Hunt and Associates and is included as Appendix 2.

The noise assessment includes:

- Measurement of existing sound levels in the area during normal station operation.
- Comparison with relevant noise limits
- Prediction of noise levels for one additional gas turbine generator in its proposed location.

7.3.2 Existing Noise Levels

Measurements of existing overnight noise show that the station noise emissions comply with a site boundary noise limit of L₁₀ 70 dBA. Peak noise levels arise from non station sound such as birdlife or the passage of trains adjacent to the site.

7.3.3 Predictions of Future Noise

Predictions of noise emissions from the proposal are based on a single General Electric (GE) LM6000 PC gas turbine generator fitted with noise suppression equipment including:

- Combustion turbine air-intake silencer.
- Turbine and generator compartment ventilation fan silencers.
- Compressor bleed vent silencer.
- Acoustical enclosure of turbine and inlet (as per existing turbines).
- Low-noise generator step-up transformer.

Table 4 indicates current and future predicted noise levels with the additional turbine at the locations shown on Figure 12.

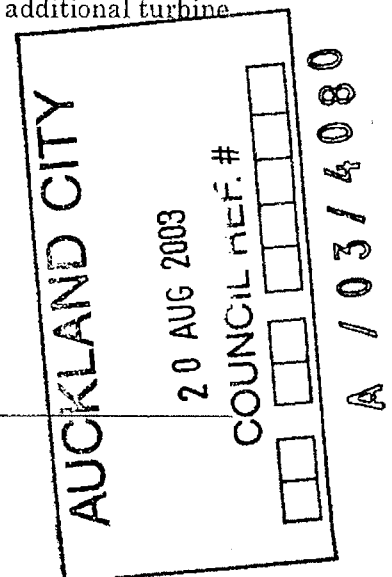


Table 4: Current and Future Predicted Noise Levels. (All values L_{10})

Site	Current		Future	Change	
1	62.6	DBA	63.2 dBA	+0.6	dBA
2	63.0	DBA	65.2 dBA	+2.2	dBA
3	67.2	DBA	67.6 dBA	+0.4	dBA
4	66.8	DBA	67.3 dBA	+0.5	dBA
5	68.6	DBA	69.6 dBA	+1	dBA
6	65.6	DBA	68.4 dBA	+2.8	dBA
7	64.0	DBA	66.0 dBA	+2	dBA
8	55.6	DBA	57.2 dBA	+1.6	dBA
9	59.2	DBA	60.2 dBA	+1	dBA
10	60.8	DBA	60.8 dBA	0.0	dBA
11	63.6	DBA	64.2 dBA	+0.6	dBA
12	60.4	DBA	64.2 dBA	+3.8	dBA
13	60.0	DBA	62.1 dBA	+2.1	dBA

7.3.4 Noise Assessment

Both the current land use consents for the existing site and the current operative district plan rules for the site set a permitted L_{10} level of 70 dBA at the boundary of the site. Predictions at key sites on the boundary show that this is achieved with the proposed additional turbine without additional mitigation. This is based on there being no "special audible characteristics" associated with the new gas turbine generator, as there is no evidence of such sounds from current operations.

7.3.5 Conclusion

The predicted noise emissions will not have any adverse effects on neighbouring activities including bird life or other biota in the coastal marine area or in any other location surrounding the site.

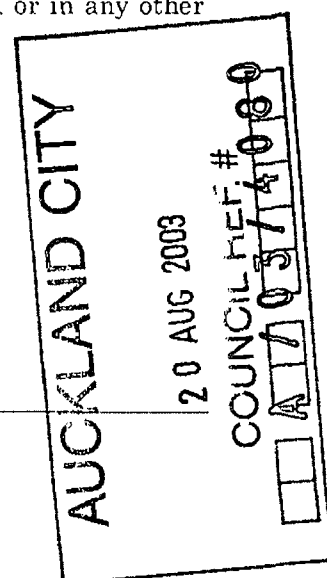
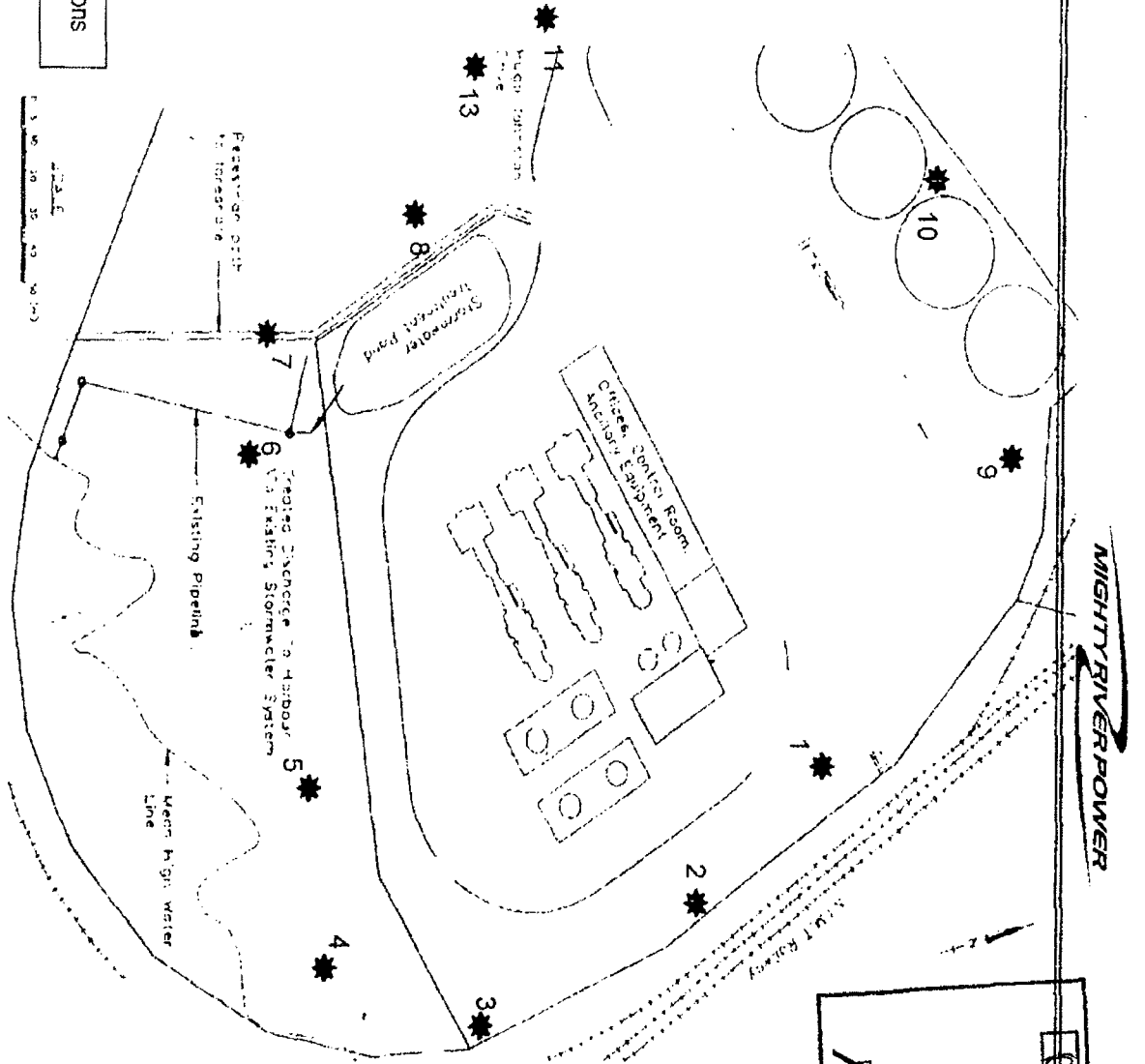


Figure 12: Noise Site Locations



Southdown Power Station Addition of One Gas Turbine Generator

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7.4 STORAGE AND USE OF HAZARDOUS SUBSTANCES

7.4.1 Existing Hazardous Substances

The existing Southdown power station requires the use of a number of hazardous chemicals to be stored and used on site. These are principally used for machine lubrication, transformer cooling and for water treatment, although a bowser of diesel fuel is also maintained for the site standby generator. The existing hazardous substances are generally stored in banded areas within the building that houses the water treatment system and steam turbine. In addition the generators and transformers containing oil are independently banded.

7.4.2 Proposed Hazardous Substances

Some additional quantities of existing hazardous substances will be necessary to provide for the additional gas turbine generator. This includes fuel oils and water treatment chemicals. However the principal additional substance required is the bulk storage of diesel.

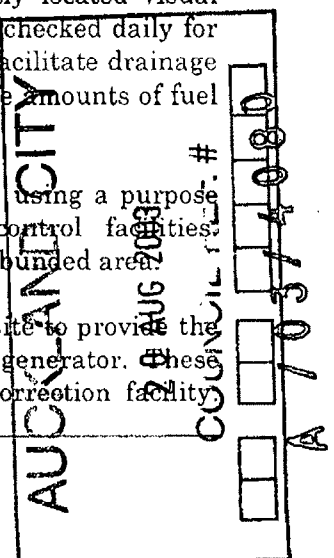
For other than diesel the storage will largely be in existing facilities. The existing small dangerous goods store will be upgraded to cater for the increase in volumes of hazardous substances stored.

For diesel storage it is proposed to construct two 20m diameter by 15m high mild steel storage tanks. The stored volume of approximately 9,500m³ represents approximately 30 days fuel storage for one gas turbine generator operating full time. A single bund, containing a gross volume of 6,067 m³ will be constructed to provide spill containment. This represents 110% of the volume of a tank plus the volume of non-failed tanks contained beneath the coping level of the bund. Because of the confined nature of the proposed storage site, it will be necessary to construct the bunds in concrete with vertical walls.

The bunding area available is 2,274m². The bund volume above requires the construction of 2.7m high concrete walls. It is intended that, on the western side, these bund walls will be common with the ancillary buildings to be built as part of the expansion project. Fluid level indication will be via a prominently located visual indicator. Site management procedures will require the bund to be checked daily for water or oil build up. A manually valved sump will be provided to facilitate drainage and this will be packed with an oil absorbing product to remove trace amounts of fuel oil from stormwater during release to the stormwater system.

The diesel fuel storage tanks on site will be filled by road tankers using a purpose built unloading facility. This will incorporate appropriate control facilities. Appropriate valving and tank level indication will be provided in the banded area.

Additional water treatment capacity is likely to be required on the site to provide the necessary high purity water for NO₂ control for the new gas turbine generator. These facilities are likely to include a reverse osmosis plant and pH correction facility.



Additional bulk storage facilities for caustic soda and sulphuric acid will be provided. Additional 20 litre plastic containers of water additives such as corrosion inhibitor will also be required. Should the number of these increase significantly, a separate bunded storage area will be provided for them.

Similarly, for lubricating oil it is proposed to build a purpose built shed for storage.

7.4.3 Risk Assessment

A risk assessment has been undertaken on all hazardous substances with a HFSP Quantity Ratio (or "Effects Ratio" in the terms of the District Plan) in excess of two. i.e. diesel, oil and sulphuric acid. As part of the methodology a work breakdown structure was produced to separate the hazardous substances into a series of defined sources or elements. This provided a logical framework for identification and helps to ensure significant risks are not over-looked.

Risks were considered under the following sources/elements:

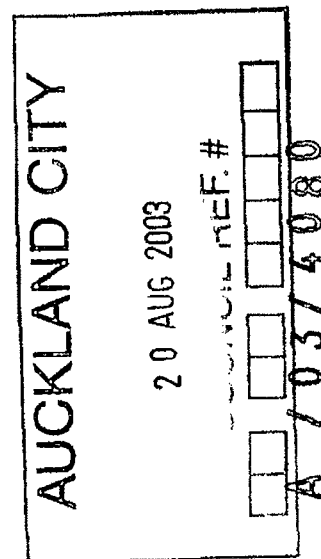
Risks assessed include:

Diesel Fuel: Fuel tanks leaking
 Fuel tank filling
 Fuel tank rupture
 Fuel tank fire

Lubricating and generator oils:
 Delivery and unloading
 Handling and transportation
 Storage
 Dispensing of oil into tank or generator

Transformer oils:
 Storage of oil
 Other risks

Caustic soda and sulphuric acid:
 Delivery and unloading of materials
 Storage of materials



Risks have been rated in terms of the likelihood of the event occurring, and the consequences, or potential impact of the event should it occur. Appendix 3 includes details of the risk assessment in a series of tables.

Each risk was prioritised by comparing the scores for consequence and likelihood against the risk criteria matrix, which ranks risks against 6 defined classes or sets, i.e. Negligible, Low, Moderate, High, Very High and Extreme.

In general, all risks prioritised as "high, very high or extreme" require due diligence and appropriate care. Risks prioritised as moderate, low and negligible ranked risks

must be regularly monitored to ensure these risks do not move to a higher ranking as the project develops.

The risk assessment has taken account of the following issues.

- **Separation distance to people sensitive activities:** There are no schools, hospitals or other people sensitive activities in the vicinity of the site. The nearest residential activities are 1.2 kilometres from the site and are shielded by Mt Richmond Domain. Ericsson Stadium is the nearest facility which can hold large numbers of people, which is also over 1.2 km from the site.
- **Location in relation to nearest aquifer, stream or the coast:** The site is less than 100 metres from the coastal marine area.
- **Nature of sub soil and site geology:** The site has a basalt lava flow layer under less than 2 metres of non engineered fill.
- **Distance to sensitive habitats:** The Mangere Inlet is a sensitive estuarine habitat with mangrove margins.
- **Cumulative and synergistic effects, and bio accumulation of hazardous substances used or stored:** The principal hazardous substance stored is diesel. Other materials are separately stored where appropriate.
- **Fire safety and fire water management:** There is substantial water supply to the site as well and storage in the stormwater pond.
- **Adherence to health, safety and environmental management systems:** Existing management systems and procedures are fully in place.
- **Spill contingency and emergency planning, monitoring and maintenance schedules:** Existing management systems and procedures are fully in place.
- **Site drainage and off site infrastructure:** The existing stormwater containment system is adequate for the proposed activity. However drainage is to wetland areas that feed into the Mangere Inlet. Other off site infrastructure taken into account include rail and road routes, gas lines and transmission lines.
- **The transportation of hazardous substances:** Transportation will be by road tanker.

7.4.4 Environmental Plan

An Environmental Management Plan (EMP) has been prepared and is included in Appendix 3. The EMP reports on matters listed as conditions for Rules 5.5.16 of the 'Proposed Auckland Regional Plan: Air, Land and Water'.

The EMP identifies specific chemical substances held on site and sets out the methods to be used to ensure they avoid contacting stormwater run-off or the method for

AUCKLAND CITY	20 AUG 2003	COUNCIL REF. #	

A 1031080

separation from retained stormwater. The EMP also identifies appropriate auditing requirements to ensure performance of all components of the EMP.

Specifically, the issues covered are asbestos contamination, stormwater, sludge, storage and delivery of hazardous substances. Asbestos contamination and stormwater are also covered by existing, separate documents. These plans will be amalgamated into single document.

7.4.5 Conclusions

Fuel storage requirements dominate the results of a Hazardous Facility Screening Procedure undertaken for the proposed expansion. Substantial bunding and discharge management facilities will be put in place to manage any risk of gross discharge to the site or surrounding environment. Likewise, all operating machines and transformers will be provided with their own bunded storage allowing managed separation of dripped or spilt oil and treatment of the captured water.

Site management procedures, and particularly spill management procedures will be amended accordingly to cater for the additional volumes of oil and chemicals stored on site and the introduction of a large volume of diesel storage.

7.5 VISUAL AND LANDSCAPE EFFECTS

7.5.1 Introduction

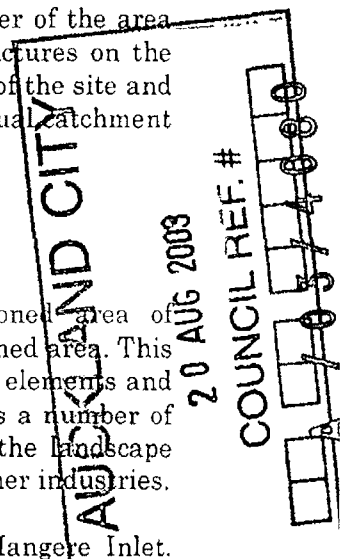
A landscape visual impact assessment has been undertaken by King Consultants and is included as Appendix 4.

The assessment methodology involves describing the landscape character of the area and then evaluating the visual impact of the proposed additional structures on the existing landscape character. This includes assessment of the visibility of the site and proposed structures, and the visual absorption capacity (VAC) of the visual catchment area in which the site sits.

7.5.2 Existing Landscape Character

The Southdown power station is located within the industrial zoned area of Southdown, which in turn backs on to Penrose, a similar industrially zoned area. This landscape is a highly modified one comprising predominantly manmade elements and structures with a high visual absorption capacity (VAC). This includes a number of electricity transmission towers which introduce a vertical element to the landscape together with the exhaust stacks of the Southdown power station and other industries.

The site location is a predominantly flat area on the edge of the Mangere Inlet. However, there are two major natural landforms situated within close proximity. Firstly, Hamblins Hill, a regional park situated immediately to the east, which is largely covered in pasture. This landform separates the power station site from the



Southern Motorway and part of suburban Mt. Wellington, which lies to the north. Secondly, Mt Richmond Domain, a less prominent landform located to the southeast of the site.

The site lies close to the edge of the Mangere Inlet, a flat expanse of tidal water with large shoreline fringes of mudflats and mangroves. However, despite the natural landscape elements, the predominant impression of the area surrounding the site is that of an industrial, utilitarian landscape, hosting a diverse range of light industrial activities. Large warehouses and buildings dominate the visual character of this landscape, which is compounded by the wide transport routes that criss-cross the industrial zones.

The visual assessment assesses the Southdown power station buildings and associated structures as having 'moderate' visibility. This is largely due to the two existing turbine exhaust stacks which can be seen by the naked eye from a number of vantage points in a 2 to 3 kilometre radius of the site. The station is also visible from several neighbouring elevated viewpoints, such as One Tree Hill and Mt Richmond Domain.

7.5.3 The Visual Catchment Area

To establish the visual catchment area, a visibility survey was conducted from a number of viewpoints surrounding the site and reflects the scale of structures proposed in this application. The catchment area is shown in Figure 13.

The existing power station is a relatively compact complex which fits into the existing industrial landscape. The majority of viewing opportunities are restricted to a 2 kilometre inner visual catchment area. Beyond this it becomes very difficult to discern the existing exhaust stacks from the general industrial backdrop. However, in order to confirm this, the visual assessment does consider specific wider viewing locations.

7.5.4 Wider Catchment Analysis

Views of the existing site are possible from wider locations such as One Tree Hill and the Mangere Bridge area. The wide catchment locations specifically considered include the following:

- Grey Road – beside Jellicoe Park
- Mangere Inlet Overbridge
- Favona Bridge
- Norana Softball Park

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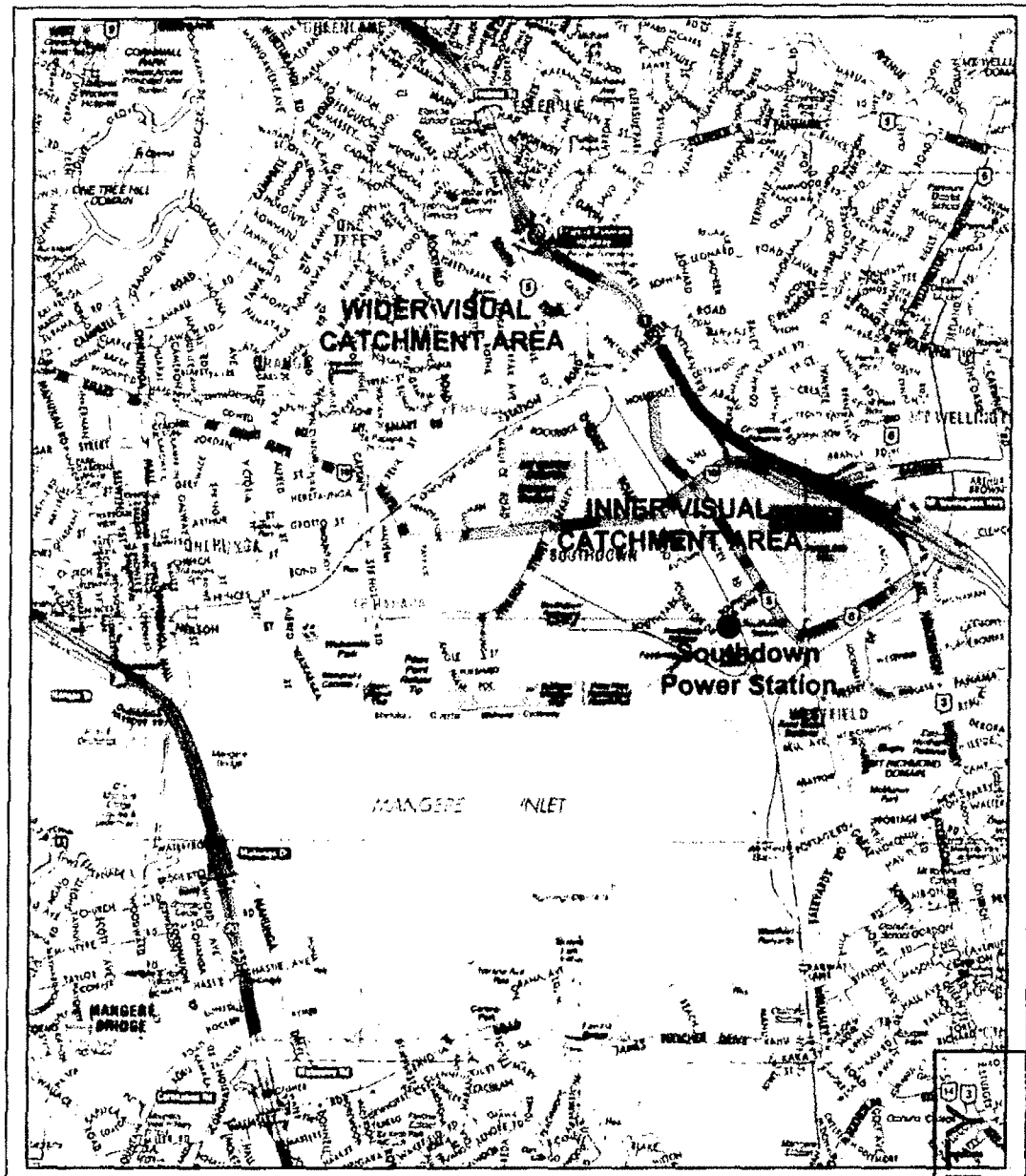


Figure 13: Visual Catchment Areas.

The assessment concludes that the existing stacks are more visible in views to the northeast of the site such as One Tree Hill than across the Mangere Inlet. However, the high VAC of this landscape and the sheer distance from which the new structures will be viewed means that the impact will be negligible. In particular, the surrounding industrial activities of similar scale, together with the visual mass of Hamlins Hill and Mt Richmond Domain located on either side of the power station, assist in minimising the visual effect of the station's proposed generator exhaust stack from this location, giving the scene an overall horizontal character.

The assessment therefore concludes that the new structures will have less than a minor visual impact on the existing landscape character and quality from these more distant areas.

AUCKLAND CITY

20 AUG 2003

COUNCIL REF. #

A 703/4080

7.5.5 Inner Catchment Analysis

The inner catchment audience includes those who have views of the power station site and who will be able to see part, or all, of the proposed new structures. This potentially includes:

- Adjacent owners and occupiers within the immediate neighbourhood,
- Workers within the inner visual catchment area (Penrose, Southdown, Great South Road),
- Motorists and travellers on the Kaka Street overbridge, Vestey Road, Great South Road, the Mangere Off Ramp / Bridge, and the Church Street Overbridge,
- Railway commuters travelling past Southdown Station,
- Recreational users on Manakau Coastal Walkway / Cycleway.

Table 5 records the assessments from specific locations. These do not specifically take into account the effects of the permitted baseline of development on the site.

Table 5: Inner Catchment Visual Analysis.

View Location	Assessment
Mt Richmond Domain	
Visibility	Views across industrial area with site in mid ground.
VAC	High – is established industrial landscape.
Effect	Minor
Vestey Road	
Visibility	Top of existing turbines are visible but visibility of new structures will not change effects.
VAC	High
Effect	Minor.
Great South Road Rail Overbridge	
Visibility	Unobstructed snapshot view across Anns Creek to site but only from moving vehicle.
VAC	High – despite Anns Creek
Effect	Stack will be visible but effect Minor
Great South Road–Westfield	
Visibility	Snapshot views between buildings.
VAC	High – existing incohesive character.
Effect	Less than minor.
Industry Road	
Visibility	Light industrial street with distant view of Station.
VAC	High – existing vertical elements and limited visibility.
Effect	Less than minor.

AUCKLAND CITY

20 AUG 2003

COUNCIL REF. #

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Church Street South Railway Overbridge	
Visibility	Major transport route with distant snapshot view.
VAC	High
Effect	Less than minor.
O'Rorke Road	
Visibility	View across south Auckland and distant view of site.
VAC	High – modified area with high density development.
Effect	Less than minor.
Hugo Johnston Drive	
Visibility	No views until South Park Road. New structures partly hidden by existing plant.
VAC	Moderate.
Effect	Less than minor.
Miami Parade	
Visibility	Pikes Point Tip in foreground, distant view of top half of stacks.
VAC	High
Effect	New stack will be visible but effect minor.
Manukau Coastal Walkway	
Visibility	Highly visible from elevated walkway bridge with Inlet, Railway and Anns Creek.
VAC	High – site is feature of interest.
Effect	Visually exposed but location of structures as part of existing site means only minor effect.

7.5.6 Mitigation

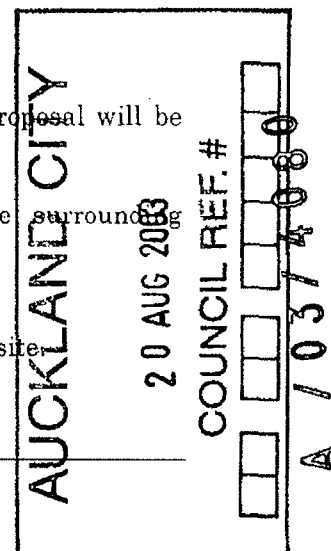
As the visual effects of the proposal are minor or less than minor there is no need to consider extensive mitigation. However, notwithstanding this, it is recommended that the additional gas turbine generator package and structures be painted in similar colours to the existing turbines and that the diesel fuel tanks be painted in muted grey or dark green tones.

The existing extensive planting around the site boundaries which is unaffected by this proposal mean that it is not necessary to undertake additional landscape planting as part of this project.

7.5.7 Conclusions

The landscape assessment concludes that the visual effects of the proposal will be minor or less than minor because:

- the existing commercial and light industrial character of the surrounding landscape;
- the location of the proposed site to existing features;
- the colour of the proposed buildings, and;
- the intervening distance between most common viewpoints and the site.



All views within the wider and inner visual catchment areas have a low sensitivity to change, and a high visual absorption capacity (VAC). The proposed structures and associated buildings will not generate any conflicts with the existing character of the surrounding area.

The visual impact from all inner vantage points is assessed to be minor or less than minor. The proposed gas turbine exhaust stack will be the most visually prominent of the 'new' structures within the expanded power station. Only the highest portion of the stack is likely to be visible or visually distinguishable from the surrounding industrial backdrop. This additional structure will not change the existing industrial character of the Southdown area, or the visual quality of the surrounding landscape.

Factors that mitigate the visual effects of the power station structures are the clustering of the structures in close proximity to the existing gas turbine exhaust stacks, and the use of dull greys and muted tones as the colour palette for the power station structures.

7.6 STORMWATER DISCHARGES

7.6.1 Existing Site Drainage Systems

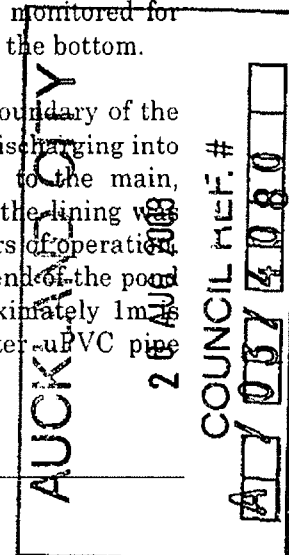
Site drainage is controlled via one of a number mechanisms as shown in the following table.

Table 6: Existing Drainage Systems

Run-Off Stream	Managed By:
Clean stormwater	Reticulated system and retention pond
Potentially oily (or dirty) stormwater	Bunded areas with manual valving or pump-out facility
Operational wastewater	Discharge to Watercare sewer
Sanitary wastewater	Discharge to Watercare sewer

Clean stormwater run-off from buildings, paved areas and overland flow from grassed areas is collected in a piped system and bitumen lined swale drains and reticulated to a stormwater retention pond. The pond allows all stormwater to be monitored for contamination and allows particulate matter to settle out as a sludge on the bottom.

The stormwater retention pond has been constructed on the western boundary of the site. The pond is constructed in two cells with reticulated stormwater discharging into the upstream cell for pre-settlement before overflowing a low weir to the main, downstream cell. The cells are concrete lined. It is understood that the lining was installed after some minor asbestos traces were found in the early years of operation. The concreted storage area is approximately 550m². The downstream end of the pond terminates in a cut-off dam approximately 1.3m high. Of this, approximately 1m is live storage. The outlet from the dam is a valved, 100mm diameter uPVC pipe terminating in a fixed level, upstream decant pipe.



The treatment functions of the pond are the settlement of particulate matter and the facility for oil absorption from the surface using a floating boom. All inflows are contained until manually released.

The retention pond is emptied by manually operating the valve and releasing flow to a gravity concrete pipe system that runs down to the nearby estuary. The stormwater retention pond is in the bottom of a depression of 3 to 4 metre depth.

The main potential sources of oily water are the gas turbine generators and the switchyard transformers. The gas turbine generator housing is open to the elements. Each is sited on its own bund that drains rainwater and any oil drips / spills to a blind sump.

The transformers have valved bunding operated in a similar manner to the stormwater retention pond.

Operational wastewater and site sanitary wastewaters are discharged to a Watercare sewer that runs through the site. Any oil collected in blind sumps is removed off site by a contract 'sucker' truck.

7.6.2 Effects of the Proposal

Assessment of the stormwater management for the proposed additional facilities has been undertaken by Opus International Consultants and their full report is included as Appendix 3.

The expansion proposal involves work entirely within the existing site, serviced by the existing reticulation and stormwater retention pond. Therefore, any increases in runoff rate or volume will be due entirely to the increase in impervious area of the site.

A hydrological analysis detailed in Appendix 3 has been undertaken in accordance with ARC TP108. The 2, 10 and 100 year events are analysed both pre and post development while the latter two events are based on the post development condition only. Factoring to the particular site 'time of concentration' and surface characteristics has been undertaken using empirical methods within TP108.

The results show that although the proposed expansion will result in an increase in impervious area, it will also result in a net decrease in the effective catchment area of the site for storm routing purposes. This is because of the very significant areas of 'blind' bunding provided for the diesel storage tanks and under the gas turbine generator set. These bunded areas will be assessed after a storm event and the water discharged manually by plant operators.

The present catchment area is 2.25ha (1.21 ha impervious and 1.04ha pervious). The post development catchment is 1.95ha (1.61ha impervious and 0.34 ha pervious) with an additional 0.3ha impervious area holding bunded stormwater.

AUCKLAND CITY	28 AUG 2003	COUNCIL REF. # 103740810

For the 2, 10 and 20 year rainfall events, there will be a small increase in run-off rate from the site. This is able to be adequately managed by the existing site stormwater reticulation.

The existing stormwater retention pond has an area of approximately 550m² (on the concrete line). However, as the sides are gently sloped, the area will be significantly more at the level of the downstream dam. With 1m of live storage, the holding capacity is approximately 550 m³.

The pond live storage depth required to retain the post development water quality volume is 0.5m. If it is assumed that bunded storage is emptied to the stormwater reticulation prior to discharge of stored storm run-off, the volume required increases by 104 m³ or 175mm depth in the pond.

Approximately 50% of the 24 hour, 2 year storm volume can be retained in the pond as live storage. Above this, there will be overflows direct to the discharge pipe out of the site. It is estimated that 100% of the 1hour, 50year storm can be retained. This is the more critical in terms of instantaneous flow rates for / from the site.

It is concluded that the existing stormwater storage is adequate for the proposed site expansion project. Experience of operating the existing system over the last eight years has shown that effects on water quality and habitat have been avoided. It is not expected that construction of the new structures will create any different contamination issues but this will be taken into account in procedures for monitoring and release.

7.6.3 Conclusions

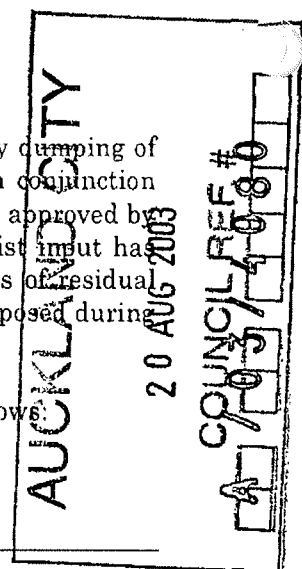
Existing site stormwater management facilities are adequate to manage the modified stormwater discharges resulting from the proposed development. The new fuel storage bunding area will intercept a large amount of direct rainfall, which will not be contributing to peak run-off flows. These captured flows will be released in conjunction with management of discharges from the existing stormwater treatment pond.

7.7 PREVIOUSLY CONTAMINATED LAND

Prior to development the existing power station site was contaminated by dumping of asbestos. A comprehensive process of remediation was implemented in conjunction with development of the site. The site was reported in 1995 to have been approved by the consent authorities as being fully remediated. Nevertheless, specialist input has been sought from Pattle Delamore Partners on possible remaining risks of residual contamination and in particular any remaining risks of asbestos being exposed during construction.

The previous remediation strategy for the site identified four zones as follows:

- Zone 1: No fibrolite or asbestos detected.
- Zone 2: Only chrysotile asbestos detected.



- Zone 3: Fibrolite and pipe materials found and chrysolite and brown asbestos detected.
- Zone 4: A pocket of asbestos was found at high concentrations.

These zones are shown in Appendix 3.

The review of previous reports has concluded that the area where the proposed new gas turbine generator is to be location was remediated. Fill in Zones 2 and 3 was completely removed down to basalt rock within the building footprint and extensive areas outside the footprint. It is evident that the basalt was exposed over the complete area where the additional generator turbine is to be located and also over a considerable part of the south east corner of the site where the fuel storage and additional buildings are to be located.

However, it is noted that removal of fill in these areas does not necessarily guarantee absolute freedom from asbestos contamination. There is a small risk that backfill material recycled from elsewhere on the site may have had asbestos material within it at low concentrations. Similarly, there is a small risk that if the basalt surface was not completely cleaned before backfilling there is a possibility that loose material at the soil / rock interface may contain asbestos.

The new structures are likely to be founded directly onto the basalt layer. In order to manage these small risks the following measures will be undertaken:

- Testing of existing fill to verify the absence of asbestos,
- Sampling and testing of the soil overlaying the basalt progressively as the foundation is exposed
- If any residual contamination is identified measures will be taken to keep the soil moist and personnel will wear respirator protection when undertaking final water blasting.

These will be formalised in a Construction Management Plan which can be certified by OSH and Auckland City Council prior to construction commencing.

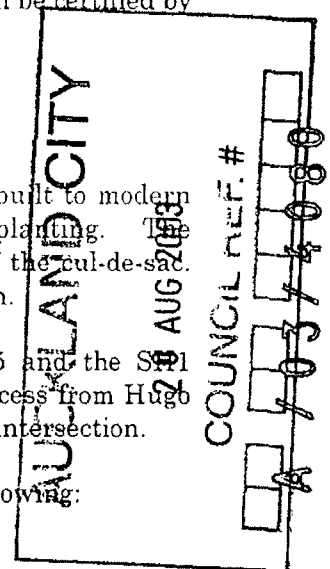
7.8 TRAFFIC

Hugo Johnston Drive forms the road access to the site. The road is built to modern standards of design for an industrial access road with mature planting. The entranceway to the site is located at the turning area at the head of the cul-de-sac. The turning circle is large enough for B Train trucks to make a full turn.

Hugo Johnston Drive connects to the arterial routes of SH10, SH5 and the SH1 Southern Motorway giving efficient access for staff and deliveries. Access from Hugo Johnston Drive onto Church Street is through a traffic light controlled intersection.

Increased traffic arising from the project will be associated with the following:

- Construction traffic



- Operational staff
- Fuel delivery

Construction projects are a frequent event on the land served by Hugo Johnston Drive and will likely continue to be so as further developments occur. It is likely that the open land adjacent to the existing power station and owned by the applicant will be used for lay down and materials. There is effective vehicle access to this land.

Construction traffic associated with labour and materials can expect to occur for 6 months but this is not expected to have any adverse effects on other parties or on the operation of the road network.

There may some additional staff employed on site as a result of the project but there is ample existing on site parking for staff and visitors.

The most significant traffic generation will be road tanker diesel fuel deliveries. Fuel is likely to be sourced from Wiri and delivered by road. The extent of traffic generation depends entirely on the frequency of use of the additional turbine and whether it is used on diesel or gas. The worst case scenario is full time use on diesel which would require one tanker delivery every two and a half hours to keep the on site fuel storage fully stocked.

This is not expected to have any adverse impacts on traffic conditions on the road network.

7.9 POSITIVE ECONOMIC AND COMMUNITY EFFECTS

There are significant economic and community benefits for the Auckland region from the provision of additional electricity generation capacity at the Southdown power station. They include the ability to:

- Provide additional electricity generation at times of seasonal shortage.
- Input the power into the network in the area of greatest demand.
- Supplement existing generation capability at times of high demand or when existing capability is not available.
- Supplement electricity generation at times of crisis or emergency.

In addition, construction of the project will provide opportunities in the local and regional economy for the supply of plant, equipment and labour during construction and ongoing operation and maintenance. A small number of permanent on site jobs may also be created.

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"93(1) A consent authority must notify an application for a resource consent unless -

- (b) the consent authority is satisfied that the adverse effects of the activity will be minor.*

94(1) If notification is not required under section 93(1), the consent authority must serve notice of the application on all persons who in the opinion of the consent authority, may be adversely affected by the activity, even if some of those persons have given their written approval to the activity.

(2) However, a consent authority is not required to serve notice of the application under subsection (1) if all persons who, in the opinion of the consent authority, may be adversely affected by the activity have given their written approval to the activity.

94A When forming an opinion for the purposes of section 93, as to whether the adverse effects of an activity on the environment will be minor or more than minor, a consent authority -

- (a) may disregard an adverse effect of the activity on the environment if the plan permits an activity with that effect; and*
- (b) for a restricted discretionary activity must disregard an adverse effect of the activity on the environment that does not relate to a matter specified in the plan or proposed plan as a matter for which discretion is restricted for the activity.*

94B(1) Subsection (2) and (3) apply when a consent authority is forming an opinion, for the purposes of section 94(1) as to who may be adversely affected by the activity.

(2) The consent authority must have regard to every relevant statutory acknowledgment, within the meaning of an Act specified in Schedule 11, made in accordance with the provisions of that Act.

(3) A person -

- (a) may be treated as not being adversely affected if, in relation to the adverse effects of the activity on the person, the plan permits an activity with that effect; or*
- (b) in relation to a controlled or restricted discretionary activity, must not be treated as being adversely affected if the adverse effects of the activity on the environment do not relate to a matter specified in the plan or proposed plan as a matter for which*

Control is reserved for the activity; or
Discretion is restricted for the activity
- (c) must not be treated as being adversely affected if it is unreasonable in the circumstances to seek the written approval of that person.*

The key issues here are that for each application, the effects on the environment must be minor, taking into account what was previously termed the "permitted baseline". Similarly, in identifying any affected persons those effects must exceed the effects on that person of what is permitted in the plan.

8.2 LAND USE CONSENT

The land use consent sought is for:

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- The construction, maintenance and operation of one additional gas turbine generator fuelled on diesel or gas and associated buildings, pipe work and other infrastructure, including an exhaust stack 28 metres in height.
- The storage and use of diesel, use of gas, and storage and use of other hazardous substances associated with the additional gas turbine generator.
- Earthworks associated with foundations for buildings, structures and associated facilities.
- The location of one additional gas turbine generator fuelled on diesel or gas and associated buildings, pipe work and infrastructure on a contaminated site or potentially contaminated site.

Relevant considerations in terms of permitted effects are:

- Gas fired electricity generation is a permitted activity. The proposed turbine will be run on diesel or gas with the only different land use effects being the need to store diesel fuel on site.
- The bulk and size of all structures are permitted effects apart from the top two metres of the proposed exhaust stack.
- The noise effects are permitted within the rules of the plan.

The visual assessment reported above has concluded that the effects on the environment are minor even disregarding the permitted effects of development on the site. The site and general area is planned to accommodate heavy and noxious industry and while the storage of hazardous substances requires consent, the risk management requirements have been met.

It is the applicant's assessment that the effects on the environment of the land use consents sought are less than minor and that the section 93(1) test is met.

Similarly, with regard to affected parties there are no activities proposed that could not be expected in an industrial area of this nature. Neighbouring land owners have been directly consulted as reported in Chapter 6. None have raised any particular concerns about the proposal. Given the permitted effects of the proposal it is the applicant's assessment that neighbouring land owners and occupiers should be treated as not being adversely affected.

There are no special circumstances that need to be taken into account pursuant to section 94C. The application should therefore be processed on a non-notified basis.

8.3 DISCHARGE OF STORMWATER

Consent is required for discharge of stormwater that collects in the diesel storage bunded area. This is because of the risk of diesel contamination of the stormwater and consequent risk of discharge of contaminants into water from the site.

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20 AUG 2003

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The stormwater assessment has concluded that the existing stormwater system is entirely adequate for the proposed additional activities and indeed the additional bunded area forms an added layer of protection by containment of stormwater from the area and controlled release.

The effects of this consent are assessed as minor and no parties are considered to be affected. There are no special circumstances that need to be taken into account pursuant to section 94C. The application should therefore be processed on a non notified basis.

8.4 DISCHARGE TO AIR

The Proposed Regional Plan: Air, Land and Water permits diesel combustion activities where it is limited to an on site capacity of 20 MW.

The proposed turbine generator will have a nominal capacity of 40-50 MW.

The assessment of the discharge to air of contaminants from the additional turbine and taking into account the cumulative effects of existing discharges has concluded that the effects on air quality on either a local or regional basis will be negligible.

The effects on the environment of granting consent will therefore be less than minor and there are no identifiable persons that can be considered to be affected.

An analysis of recent case law on the effect of greenhouse gas emissions has been conducted. This is included as Appendix 7. The Courts clearly consider such matters are for political decision and action at a national level. The Resource Management (Energy and Climate Change) Amendment Bill recently introduced to Parliament reinforces this view. As this position applies also to notification decisions, this application should not be notified on the basis of greenhouse gas emissions.

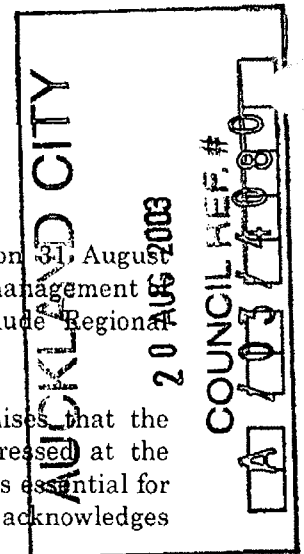
There are no special circumstances that need to be taken into account pursuant to section 94C. The application should therefore be processed on a non notified basis.

9. Policy Assessment

9.1 AUCKLAND REGIONAL POLICY STATEMENT

The Auckland Regional Policy Statement (ARPS) became operative on 31 August 1999. It is a statement of policies and methods about the sustainable management of the region's natural and physical resources. Relevant sections include Regional Overview and Strategic Direction, Energy and Air Quality.

The ARPS supports a range of energy efficiency policies but recognises that the sustainability of the energy resource is an issue that must be addressed at the national level. It recognises that the supply and distribution of energy is essential for the development, well being and prosperity of the Auckland region, but acknowledges that these activities may have adverse effects on the environment.



The ARPS states that the ARC will encourage the provision of an adequate supply of energy to the Auckland region. This is to involve inter-regional liaison to ensure that cross boundary benefits to Auckland of energy developments located in other regions are recognised.

"The Auckland Region is a major user of the country's energy. Its economic viability is dependant on a continued and reliable supply. Yet at a national level, electricity supplies during peak demand in winter have at times proved to be critically limited. Because little of the energy used is produced in the Region, there is a heavy reliance on imports of petrochemicals, electricity, coal and gas from both outside the Region and the country. The continued availability of a reliable supply of energy is an important cross boundary issue that is fundamental to the economic and social well being of the Region and the nation" (ARPS page 5-1).

This proposal is located within the Auckland region at the heart of an area of high power demand. Facilitating it's development will assist the region in meeting it's energy needs.

Issue 5.2.4 states:

"The production, distribution and use of energy is essential for the development, well-being and prosperity of Auckland Region and there would be major impacts, should for any reason, the supply of energy be curtailed. However, the production, distribution and use of energy may have adverse effects on the natural and physical environment and some of these may be great."

This issue recognises that provision of adequate energy supply does not come without environmental costs. This proposed power station expansion has minimal adverse effects on the environment. It is integrated into an existing power station, it does not require additional transmission lines, and it will not have adverse effects on communities, ecosystems or visual values. It does involve some emission of contaminants to air but the assessments have shown that ground level concentrations comply with ARC guidelines.

The ARPS policies on energy relate to making more efficient use of energy, promotion of renewable energy resources and efficient urban form. These policies do not relate to this power project, which will provide greater security of electricity supply.

Policy 5.4.4 states "Assessment of environmental effects for energy generating and transmission proposals shall, where necessary, be carried out in accordance with the requirements of the Fourth Schedule of the RM Act and any relevant provisions of the RM Act". This policy is achieved through these applications.

Method 2 under section 5.4.5 states: "When consent authorities are considering applications for resource consents relating to the production or transmission of energy and are having regard to the Regional Policy Statement under section 104(1)(c) of the RM Act, they shall, where appropriate, have regard (inter alia) to Chapters 2 and 5 of this policy statement and the extent to which the proposal conforms with the strategic direction, objectives and policies set out in those chapters."

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Chapter 5 is the Energy chapter considered above. Chapter 2 is titled "Regional Overview and Strategic Direction". This chapter recognises in its discussion of strategic issues that:

- The region will need to accommodate continued population growth and economic development in the foreseeable future (Issue 2.3.1).
- Regionally significant infrastructure is essential for the community's social and economic well being including energy production and transmission and its location development and redevelopment is of strategic importance (Issue 2.3.4.).
- New infrastructure should be carefully located so that it does not affect sensitive activities and that sensitive activities are avoided from locating in that vicinity.

Chapter 2 sets out a strategic direction in the form of objectives and policies. Policy 6 recognises the importance of enabling the safe and efficient operation of existing regional infrastructure. However, much of the strategy is based around growth management, urban containment and urban intensification. The provision of additional electricity generation capability and security of supply is necessary in managing the continued growth of the region and is appropriately located as part of an existing power station lying at the heart of the region's demand and electricity transmission system.

Chapter 10 sets out objectives and policies on Air Quality. Objective 10.3.1 is:

"To avoid, remedy , or mitigate deterioration of air quality in the Region."

Policy 10.4.7 relates to industrial emissions and states:

- "1. Adverse effects due to discharges to air from industrial and trade premises in the Auckland Region will be minimised and shall comply with criteria for such discharges specified in Regional or District Plans, regulations or conditions of resource consents.
1. Sufficient monitoring of industrial discharges shall be undertaken to demonstrate compliance with regional rules or district plans, regulations or conditions of consents.
2. Industrial emission testing shall be carried out according to standard test methods as specified in regional or district plans, regulations or conditions of resource consents.
3. Adequate separation distances shall be maintained between industrial or trade premises that discharge, or have the potential to discharge, noxious, dangerous, offensive or objectionable contaminants to air and adjacent land uses.
4. Odour standards and standard methods for the measurement of odour shall be established."

AUCKLAND CITY

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The effects on both local and regional air quality have been carefully assessed and the discharges have been found to meet MfE and ARC target standards. There are no sensitive land uses in the vicinity of the site:

9.2 PROPOSED AUCKLAND REGIONAL PLAN: AIR, LAND AND WATER

9.2.1 Air Quality

The Proposed Regional Plan approach to air quality management was outlined in section 5.5.

Relevant objectives and policies included in the plan are:

"Objective 4.3.10.

To minimise the discharge of contaminants into air from individual sources including industrial trade processes, waste management activities and productive land activities.

Policies

4.4.3 *Significant adverse effects from the discharge of contaminants into air from any source shall be avoided, where this is not practicable, the effects of such discharges shall be minimised.*

4.4.4 *The discharge of contaminants into air that significantly compromises the Auckland Regions ability to meet the Auckland Regional Air Quality Targets shall be considered inappropriate.*

4.4.5 *The discharge of contaminants into air shall be considered appropriate where:*

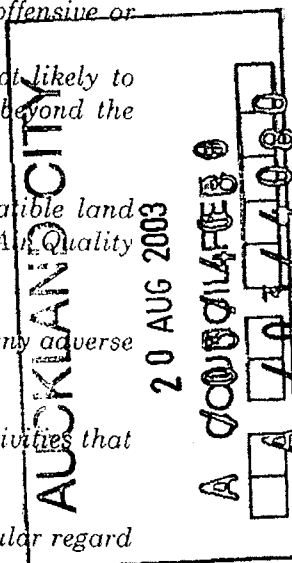
- (a) *It does not cause, or is likely to cause, noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke or ash, beyond the boundary of the premises;*
- (b) *It does not cause, or is likely to cause, noxious, dangerous, offensive or objectionable visible emissions;*
- (c) *It is a hazardous air pollutant and does not cause, or is not likely to cause, adverse effects on human health or the environment, beyond the boundary of the premises; or.....*

4.4.6 *To avoid or minimise adverse effects from competing and incompatible land uses, including reverse sensitivity, activities shall locate within the Air Quality Management Area suitable to the nature of the activity.*

4.4.7 *The best practicable option shall be employed to avoid or minimise any adverse effects from the discharge of contaminants into air.*

4.4.11 *In assessing the effects of discharges of contaminants into air, all activities that discharge contaminants into air on that premises shall be considered*

4.4.12 *In assessing the effects of discharges of contaminants into air, particular regard shall be had to:*



- (a) *Adverse effects on the environment, including amenity, human health and property.*
- (b) *Any relevant technical publications, industry codes of practice or national guidelines or regulations;*
- (c) *The methods to avoid or minimise adverse effects on the environment;*
- (d) *The location of the activity and the proximity of other activities sensitive to the discharges; and*
- (e) *The assimilative capacity of the receiving environment and any cumulative effects."*

The air quality assessment has concluded that the effects on both the local and regional environment will be negligible and that ARC guideline levels are met.

9.2.2 Stormwater

With regard to discharge of stormwater the Proposed Regional Plan includes the following objective:

"5.3.7 To promote sustainable site management practices that avoid discharges of contaminated stormwater from an industrial or trade process."

And the policies;

"5.4.6. When processing consent applications for private stormwater discharges the ARC shall have regard to:

- (a) *Relevant stormwater management matters listed in Policies 5.4.9 and 5.4.10.*
- (b) *The overall effects of stormwater discharges and the diversions from the site, and in particular, the extent to which stormwater quality treatment and quantity control are or will be provided for existing and proposed land uses within the same certificate of title or contiguous area.*

5.4.11. To the fullest extent practicable, discharges from stormwater and wastewater networks entering rivers and streams that flow into the coastal marine area shall be treated to a level that enables the receiving environment objectives in the Regional Plan: Coastal to be met."

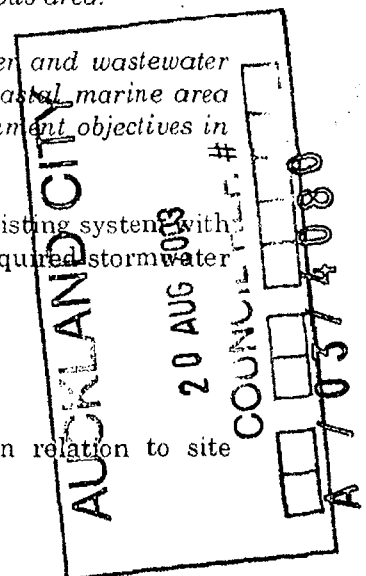
The assessment of stormwater issues has demonstrated that the existing system with appropriate management procedures is adequate to ensure that required stormwater quality is achieved. The Regional Coastal Plan is considered below.

9.2.3 Contaminated Land

The Proposed Regional Plan also includes policies and rules in relation to site management or remediation of contaminated sites.

Objective 5.3.13 states:

Southdown Power Station Addition of One Gas Turbine Generator



"To ensure the remediation and management of contaminated land, closed and operative landfills and cleanfills is undertaken to protect the environment and public health."

The site has previously been declared as remediated. However, despite this, conditions have been proposed that will ensure any minor residual contamination is appropriately managed during the construction phase. This meets the full intent of objective 5.3.13.

9.3 AUCKLAND TRANSITIONAL REGIONAL PLAN

No policy guidance is given in the Auckland Transitional Regional Plan regarding discharge of contaminants to air or stormwater discharges.

9.4 CITY OF AUCKLAND DISTRICT PLAN – ISTHMUS SECTION

The site is located in the Business 6 zone of the operative District Plan. This zone is specifically structured to provide for and protect land in the zone for the operation of "noxious and unpleasant" industrial activities. Indeed, the Plan's first objective for this zone states:

"(a) To provide for the operation of noxious and unpleasant industrial activities within the City."

The policy associated with this objective is:

By recognising through zoning, existing noxious and heavy industry areas on the Isthmus.

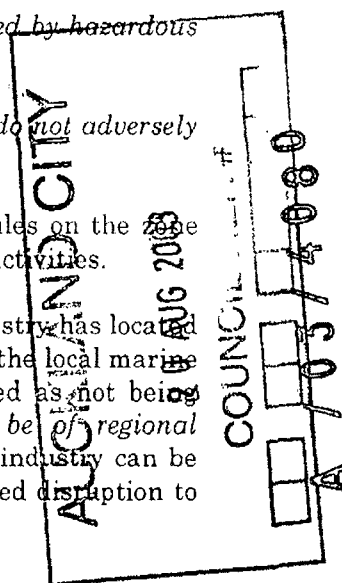
The other two objectives are

"(b) To ensure that the safety of the public is not compromised by hazardous or dangerous activities within the zone.

(c) To ensure that the effects or impacts of industrial uses do not adversely affect the environment.

The policies for these objectives form a direct link through to the rules on the zone particularly in regard to hazardous substances, buffers and control of activities.

The District Plan recognises that traditionally heavy and noxious industry has located adjacent to harbours and estuaries and that this has had an effect on the local marine environment. However the relocation of such industry is recognised as not being practical and the Southdown industrial area is "considered to be of regional significance". It is regarded as one of the few areas where noxious industry can be located with adequate water and trade waste capacity, and with limited disruption to the surrounding community.



The Plan also recognises the reverse sensitivity issues and seeks to avoid activities in this area that are likely to attract members of the public to the area as well as residential activities.

All aspects of these policies are met by the proposal including the management systems associated with hazardous substances storage and use.

9.5 PROPOSED AUCKLAND REGIONAL COASTAL PLAN

The Proposed Auckland Regional Coastal Plan contains the following relevant objectives and policies in relation to discharge of stormwater to the coastal environment.

Objective 20.3.1 To maintain appropriate water and sediment quality in the coastal marine area and to enhance water and sediment quality where practicable in the parts of the coastal marine area where water and sediment quality is degraded.

Objective 20.3.2 To adopt the best practicable option for avoiding, remedying or mitigating the adverse effects from stormwater and wastewater discharges on the coastal environment.

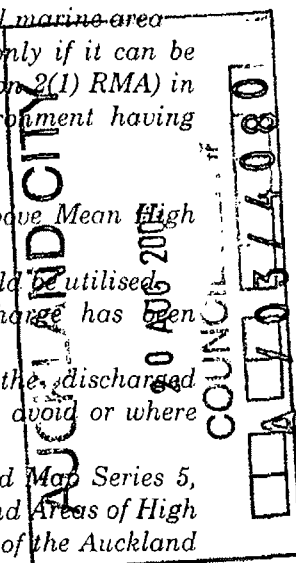
Policies

20.4.1 The discharge of contaminants in to the coastal marine area shall be avoided where it will result in more than minor modification of, or damage to, or the destruction of:

- (b) *The values of any Coastal Protection Area 1 or Tangata Whenua Management Area.*
- (c) *Any site, building, place or area scheduled for preservation in Cultural Heritage Schedule 1.*

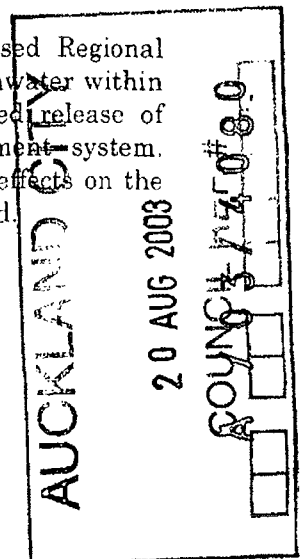
20.4.3. Any proposal to discharge contaminants or water into the coastal marine area (unless the discharge is prohibited) shall be considered appropriate only if it can be demonstrated that it is the best practicable option (as defined in section 2(1) RMA) in terms of preventing or minimising the adverse effects on the environment having considered whether:

- (a) *it is practicable or appropriate to discharge to land above Mean High Water Springs*
- (b) *there is a community discharge system in place that should be utilised*
- (c) *The volume and level of contamination of the discharge has been minimised to the greatest extent practicable.*
- (d) *The receiving environment is able to assimilate the discharged contaminants and water, with any adverse effects being avoided or where practicable remedied or mitigated within:*
 - i. *The areas identified in tables 8.1 and 8.2 and Map Series 5, sheets 1-4 (Degraded and Susceptible Areas and Areas of High Ecological Value Susceptible to Degradation) of the Auckland Regional Policy Statement.*



- ii. Those Coastal Protection Areas, set out in this Plan, which are based upon ecological rather than geological values:
- (e) the adverse effects on the present or foreseeable use of the receiving waters have been avoided or where practicable remedied or mitigated, particularly in areas where there is;
 - i. high recreational use
 - ii. relevant initiatives by Tangata Whenua (established under regulations relating to the conservation or management of fisheries) including Taiapure, rahui or Whakatupu areas;
 - iii. the collection of fish or shellfish for consumption
 - iv. areas of maintenance dredging.
- (f) any adverse effects on people or communities have been avoided where practicable, or remedied or mitigated.
- (g) Adverse effects on the present and reasonably foreseeable use of the receiving waters for recreational purposes and the suitability of fish and shellfish for consumption have been avoided, where practicable, or remedied or mitigated.
- (h) Cleaner production methods which would result in the volume and level of contamination of the discharge being minimized, to the greatest extent practicable have been adequately investigated, and where practicable put in place.
- (i) The discharge after reasonable mixing does not either by itself or in combination with other discharges, give rise to any or all of the following effects:
 - i. The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - ii. Any conspicuous change in colour or visual clarity;
 - iii. Any emission of objectionable odour;
 - iv. Any significant adverse effects on aquatic life
 - v. Any significant adverse effects on aesthetics and amenity value.
- (j) the discharge complies with relevant, appropriate and accepted international or national Codes of Practice and Environmental Guidelines."

The discharge meets the permitted activity standards of the Proposed Regional Coastal Plan. Appropriate bunding and consequent separation of stormwater within the bunded fuel storage area is proposed. This allows for controlled release of stormwater from this area into the existing collection and treatment system. Procedures associated with this will ensure that there are no adverse effects on the coastal environment and that the policies of the Coastal Plan are achieved.



APPENDICES

1. *Air Discharge Assessment for One Additional Gas Turbine Generator at Southdown Power Station: NIWA.*
2. *Southdown Cogeneration Power Plant; Addition of One Gas Turbine Generator; Assessment of Noise Effects: Malcolm Hunt Associates.*
3. *Southdown Cogeneration Plant Expansion; Addition of One Gas Turbine Generator; Consent Issues for Stormwater, Site Contamination, Hazardous Substances and Plant Foundation: Opus International Consultants.*
 - 3.6 *HFSP Calculator.*
 - 3.7 *Risk Assessment.*
 - 3.8 *Environmental Management Plan.*
 - 3.9 *Spill Handling Procedure.*
 - 3.10 *Pattle Delamore Report.*
4. *Southdown Power Station Expansion Project: Landscape Visual Impact Assessment: Single Gas Turbine Proposal: King Consultants Ltd.*
5. *Southdown Power Station Certificate of Title.*
6. *Consultation Document: Southdown Power Station - Outline of Proposed Expansion.*
7. *Letter to Auckland Regional Council Regarding Greenhouse Gas Emissions.*

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