Decision following the hearing of an application for resource consent under the Resource Management Act 1991

Proposal

To authorise air discharges associated with iron and steel production and ancillary activities at the Glenbrook Steel Mill.

This resource consent is GRANTED. The reasons are set out below:

Application number:	DIS60376538
Site address:	Glenbrook Steel Mill, 131 Mission Bush Road, Waiuku
Applicant:	New Zealand Steel Limited
Hearing commenced:	Wednesday 26 October 2022 at 9.30am
Hearing panel:	David Hill (Chairperson) Lou Wickham Reginald Proffit Dave Serjeant
Appearances:	<u>For the Applicant:</u> Alana Lampitt, counsel Robin Davies, corporate Claire Jewell, corporate environmental Jenny Simpson, air quality Jennifer Carvill, planning <u>For the Submitters:</u> Equal Justice Project • Isabelle Robinson • Anushka Sequera Dr Grant Hewison, counsel Rachael Keir <u>For Council:</u> Douglas Fletcher, Principal Project Lead Jonathon Clarke, Planner Paul Crimmins, Air Expert Sam Otter, Senior Hearings Advisor
Hearing adjourned	Thursday 27 October 3.00pm
Commissioners' site visit	Thursday 27 October 10.00am
Hearing Closed:	Monday, 19 December 2022

Introduction

1. This decision is made on behalf of the Auckland Council (**the Council**) by Independent Hearing Commissioners David Hill (Chairperson), Lou Wickham, Reginald Proffit and Dave Serjeant appointed and acting under delegated authority under sections 34 and 34A of the Resource Management Act 1991 (**the RMA**).

2. This decision contains the findings from our deliberations on the application for resource consent and has been prepared in accordance with section 113 of the RMA.

3. The applications were publicly notified at the request of the applicant, New Zealand Steel Limited, on 15 November 2021. A total of 13 submissions were received, with two in support, 10 in opposition and one being neutral.

Summary of proposal and activity status

4. The Glenbrook Steel Mill (**the Mill**) operates pursuant to three existing air discharge permits that New Zealand Steel proposes to replace with a single air discharge permit. The details of the existing consents and their status are as follows:

    a. Main Air Permit - Discharge Permit 14317 (DIS60266277) – this permit authorises the production of molten ore from iron-sand and the manufacture of steel and steel alloys from an integrated steel works and ancillary or related activities, including the transport, storage, handling and combustion of coal at 131 Mission Bush Road, Glenbrook. This permit expired on 1 November 2021 (but is still being utilised subject to s124(3) of the RMA). The present application seeks a replacement consent for discharges to air from these activities.

    b. Commercial Iron Plating Air Permit - Discharge Permit DIS60363772 - this permit authorises commercial iron plating of up to 500 tonnes per day (179,000 tonnes per year) in addition to the plating activities authorised by Permit 14317. This permit also expired on 1 November 2021 and the present application seeks that these discharges are considered within the replacement main consent.

    c. Generator Air Permit – Discharge Permit DIS60388342 – this permit authorises air discharges from 19 generators with a total gross heat release of up to 62MW. This permit is due to expire on 22 December 2023, and the present application seeks that these discharges are considered within the replacement main consent.

5. The proposal is, in general terms, to authorise air discharges associated with iron and steel production and ancillary activities at the Mill. Whilst Discharge Permits DIS60363772 and DIS60388342 (in b. and c. above) contain specific production or plant related limits, the main air permit application (DIS60266277) was not explicit regarding the operation and emissions.

6. However, the air quality assessment prepared by Ms Simpson for the applicant noted that the application was "*not seeking to authorise any changes in the nature or scale of*

discharges to air from the site compared to currently consented activities".[1] This assessment also provided a detailed process description of the iron and steel making and ancillary activities and their discharges to air which may be summarised as: [2]

a. An Iron Making Plant requiring the combustion of up to 701,200 tonnes[3] per year of coal and waste gases.

b. A Steel Making Plant producing steel slab and steel billets from molten iron.

c. Rolling Mills producing coils from cast slab, and flat steel products.

d. Finishing Plants manufacturing a range of metal-coated and colour coated products; and

e. Ancillary processes including;

   i. vanadium recovery by controlled oxygen blowing;

   ii. waste steel reprocessing and flaring of gases from the steel furnace;

   iii. waste heat recovery, steam and electricity generation;

   iv. combustion of natural gas for drying primary concentrate;

   v. combustion of natural gas for slab reheating;

   vi. combustion of natural gas for total gross heat release of up to 10 MW for steam generation;

   vii. slag cooling, storage, handling and reprocessing;

   viii. crushing of slag by-product;

   ix. raw materials and process materials (e.g., RPCC) storage and handling;

   x. acid recovery in natural gas fired roasters;

   xi. drying of solvent-based paints;

   xii. commercial iron plating of up to 500 tonnes per day (179,000 tonnes per year);

   xiii. combustion of natural gas and/or diesel in 19 generators for a total gross heat release of up to 62 MW; and

[1] *Assessment of Effects on the Environment Glenbrook Steel Mill Air Discharge Permit Replacement* (AEE). Prepared for New Zealand Steel by Tonkin & Taylor dated October 2021. At Appendix F *Air Quality Assessment* (AQA). Section 1.3.
[2] AEE AQA. At Section 3.
[3] AEE AQA. At Appendix C *Dispersion Modelling Study Glenbrook Steel Mill – Existing Activities*. Table 13 (projected maximum activity rate).

xiv. 4.2 MW natural gas fired back-up generators for emergency use.

7. The Assessment of Effects on the Environment (**AEE**) prepared for the application, Ms Carvill's evidence, and Section 11 of section 42A report detailed the reasons for consent in terms of Activity Table E14.4.1 of the Auckland Unitary Plan (**AUP**). We adopt the detail of these reasons as set out. Overall, the proposal has been considered as a discretionary activity. Activity status was not in dispute.

8. The adverse effects of the emissions of greenhouse gases was a matter of submission and evidence during the hearing. We discuss this matter and its statutory limitation later in the decision. Regardless, we note that the applicant confirmed that greenhouse gases are emitted from the plant and are included in the application.

Site and Surrounds

9. Section 2.1 of the AEE provides a description of the site and surrounding area. We conducted a site visit on the morning of Thursday, 27 October 2022 and also observed parts of the receiving environment. To contextualise the assessment of effects of air discharges on this environment and submissions received we record the following facts from the AEE:

- the site has an overall area of approximately 550ha of which approximately 190ha is used for operational aspects of the Mill, and which is zoned Business – Heavy Industry Zone under the AUP;
- to the west of the site lies the Waiuku River, a tidal arm of the Manukau Harbour;
- between the river and Pukekohe and Papakura to the east, including the site, rolling to flat land stretches across the southern Manukau lowlands;
- the wind rose for the locality shows predominant winds from the southwest quadrant (~40%), with secondary winds observed to come from the north-east quadrant (~25%). The area experiences a low frequency (2.5%) of calm conditions and a high frequency of moderate to strong winds indicating generally good dispersion of discharges to air; and
- the site is surrounded by small and large rural holdings. Land use includes livestock farming, cropping, horticultural activities and life-style blocks. There are some 15 dwellings in the closest proximity to the site boundary to the east and north-east.[4] Glenbrook School is situated 1.3km to the east of the site.

[4] Jenny Simpson evidence for NZ Steel Appendix A: Figure A4A

Procedural matter – amendments to the application following notification

10. The section 42A report advised that the applicant had amended the application following the submission period. Those changes to the application included the removal of air quality monitoring stations at Glenbrook School and Sandspit Reserve, and a proposed new air quality monitoring station at Mission Bush Road, referred to as site 25. The applicant considers that the new location is more sensitive than Glenbrook School due to its closer location to the northern yards and materials stockpiles. The intent was that this site would provide an early warning for exceedances of the proposed investigation trigger limits, especially as it represents impacts upon the persons located along the site's eastern boundary on Mission Bush Road, Brookside Road, and Glenbrook Beach Road.

11. Changes to monitoring stations were notified to all submitters.

12. We find that the amendment is within the scope of the application. It does not change the activity. The location and operational procedures for monitoring stations are the subject of conditions in any grant of consent. There is no prejudice to any party from the amendment and we specifically consider the matter of monitoring stations in this decision.

Relevant statutory provisions considered

13. In accordance with section 104 of the RMA, we have had regard to the relevant statutory provisions including the relevant sections of Part 2 and section 104B in relation to a discretionary activity, sections 105 and 107 relating to discharge permits, and sections 108 and 108AA in relation to conditions.

Submissions

14. The section 42A report summarised the matters raised in submissions. Most submissions came from residents in the local Waiuku/Glenbrook/Clarkes Beach area, although none of these came from occupants of the closest 15 dwellings referred to above. Other submissions came from Ngaati te Ata, and from persons representing broader air quality interests, in particular the effects of greenhouse gases on climate change. The majority of submitters supported a granting of consent, with four submissions seeking that consent be refused (principally because of greenhouse gas effects). The focus for most submitters was appropriate conditions of consent.

15. The most prominent concern was the duration of consent, with a reduced term being sought, and the adverse effects of greenhouse gases. Most submissions also identified concerns with some aspect of particulate emissions.

16. Whilst nine submitters sought to be heard at the hearing, only Rachel Keir, a local resident and farmer at 278 Glenbrook Beach Road, 1.1km to the north of the site boundary, and Dr Grant Hewison combining with the Equal Justice Project attended the hearing and gave oral submissions.

17. Mr Clarke advised in the section 42A report that the Franklin Local Board stated that it had no objection or comments to make in respect of the application.

Summary of evidence heard – New Zealand Steel Limited - applicant

18. The applicant presented a comprehensive case for the application, including the AEE and supporting specialist studies, and statements of evidence by Mr Robin Davies, Chief Executive – New Zealand and Pacific Islands (within the wider parent company Bluescope Steel Limited), Ms Claire Jewell, Environment Manager New Zealand Steel Limited, Ms Jenny Simpson, Technical Director – Environmental Engineering Tonkin & Taylor Ltd and air quality specialist, and Ms Jennifer Carvill, Technical Director – Planning at Tonkin & Taylor Ltd. Each witness spoke to their pre-circulated evidence together with summarised points in a powerpoint presentation.

19. Ms Alana Lampitt, counsel for the applicant, led us through the key points of her opening legal submissions, which had also been pre-circulated. As summarised in the submissions Ms Lampitt:

    (i) outlined the background to the proposal, its proposed mitigation measures and key environmental effects, as well as two recent updates following lodgement of the application. These updates are the introduction of the new monitoring site at Mission Bush Road and that it was no longer proposed to extend coal stockpiling into the area known as the 'Northern Yards', a proposal about which Mr Crimmins had expressed concern;

    (ii) responded to the section 42A report and submissions, emphasising that the applicant's and Council's experts had a high level of agreement that the effects of the discharges can be adequately managed and are acceptable;

    (iii) commented on the applicant's proposed conditions, identifying that there were only two conditions – being the consent duration and the frequency of stack testing - that were not agreed between the applicant and Council; and

    (iv) addressed four legal issues relevant to the proposal, of which she focussed mainly on the duration of consent as that matter was not agreed with Council.

    Notwithstanding that focus, we agree that all four matters - being the status of applicable air quality standards and guidelines; the relevance of section 104E RMA and the consideration of greenhouse gas emissions; the relevance of section 104(2A) RMA on having regard to the value of the existing investment in our decision; and section 123(c) RMA relating to duration – are important matters to consider in our decision and each matter is addressed further below.

20. Ms Lampitt also provided a bundle of authorities that detailed the introduction, passage and subsequent Orders on the repeal of section 104E of the RMA relating to the consideration of greenhouse gases. It was Ms Lampitt's submission that *"all effects*

relating to the discharge of greenhouse gas emissions on climate change are not relevant for this application".[5]

21. Mr Davies emphasised the value of the investment at the Mill (a replacement cost of $5.1 billion) and the benefits of the Mill to the region and nation in terms of gross domestic product ($596 million), total expenditure ($1.62 billion), and direct and indirect employment (1276 at the Mill and more than 4000 nationally). He considered that the size of investment commitment at the Mill warranted a consent duration of no less than 25 years – noting that this was a minimum period of certainty for which financing for asset replacement / upgrades was practicable. Mr Davies also emphasised the critical role New Zealand Steel played as a local supplier of essential building materials, exampling recent projects that benefitted from this during the peak Covid 19 pandemic by avoiding overseas supply chain issues for steel product.

22. Mr Davies also provided information on the company's commitment to decarbonisation and other initiatives supporting greenhouse gas emission reductions. He explained that, unique to steel-making, coal is not primarily combusted to generate heat, but as a reductant in the process that removes oxygen from iron. On this basis, steelmaking is recognised by the Climate Change Commission as a 'hard to abate' industry and the Commission's modelling for meeting emissions reduction targets did not rely on emissions reductions from New Zealand Steel. Mr Davies advised that there is currently no commercially viable substitute to produce virgin steel without coal/carbon.

23. Mr Davies advised that the company is providing funding support to New Zealand research on the use of hydrogen as a reductant alternative to coal. We are also aware of overseas pilot projects that are trialling the use of hydrogen in steel-making.

24. Ms Jewell's presentation provided useful information and graphics on the stages of iron and steel processing, which assisted our understanding of emissions sources. She then summarised the site management systems and the key measures and equipment to control both point source and fugitive emissions. Ms Jewell noted the introduction of in-line hot accretion crushing and iron plating fume suppression measures, as well as other incremental improvements in controlling fugitive emissions, such as road dust.

25. Ms Jewell also detailed the efforts made by the company to engage with the community, including iwi and hapū and the surrounding rural neighbours. She noted that the currently voluntary operation of the site Environmental Committee was to be "codified" by the inclusion of a proposed condition addressing the committee's operation and role.

26. Ms Jewell advised that New Zealand Steel "places considerable weight on its relationship with mana whenua". Although there are a number of iwi that have associations with this part of the southern Manukau, consultation efforts have mainly been with Ngaati te Ata and Ngāti Tamaoho, both iwi being members of the Environment Committee. A number of hui had been held with both groups prior to and following lodgement of the application. New Zealand Steel had also worked with the Ngaati te Ata Te Taiao team to develop the document titled *"New Zealand Steel – Glenbrook Steel*

[5] Lampitt legal submissions para. 52

Mill Reconsenting: Responses to Ngaati Te Ata Cultural Values", which accompanied the application.

27. We note that a submission from Ngaati te Ata expressing a neutral position to the application was received.

28. Ms Simpson is very familiar with discharges to air from New Zealand Steel, having provided advice to the applicant for approximately 20 years. Ms Simpson provided a high-level overview of the main processes and emission source controls at the Mill, referring us to Mr Crimmins' useful summary table of key sources, key discharges to air, and summary of potential health effects. Ms Simpson then identified the following contaminants of interest as relevant to the air quality assessment:

    a. total suspended particulate (TSP), particulate matter less than 10 micrometres in diameter (PM_{10}), and particulate matter less than 2.5 micrometres in diameter ($PM_{2.5}$);

    b. products of combustion including sulphur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), dioxins, and polycyclic aromatic hydrocarbons (PAHs);

    c. metals including lead, vanadium, iron, manganese, cadmium, arsenic, chromium, copper, nickel and zinc;

    d. mercury;

    e. hydrogen chloride (HCl) and chlorine; and

    f. volatile organic compounds (VOCs).

29. Ms Simpson then outlined the approach to assessing discharges to air from the Mill. The site has been operating for over 50 years, with over 35 years in the current manufacturing configuration and 16 years under the existing consent. Ms Simpson's approach was to rely on ambient air quality monitoring data to the greatest extent possible with support from dispersion modelling to:

    a. assess the appropriateness of ambient monitoring locations;

    b. evaluate the effects of contaminants where there is no air quality monitoring data; and

    c. evaluate the effects of discharges not captured in the monitoring record, notably the 62 MW of diesel generators currently permitted under consent DIS60388342 and proposed to be included in the main consent.

30. Ms Simpson then stepped through her assessment of each contaminant, which concluded that, except for particulate, all contaminants were either measured or predicted to be within acceptable levels and would not have any adverse effects on human health. Ms Simpson noted that predicted maximum short-term levels of NO_2 approached the World Health Organisation (**WHO**) 2021 daily air quality guideline (**AQG**)

for NO_2 (25 µg/m^3) and recommended continued ambient monitoring for this contaminant.

Daily PM_{10}

31. Ms Simpson considered PM_{10} to be a key pollutant discharged from the Mill. Ms Simpson noted PM_{10} had been monitored for more than 10 years at three offsite locations: 64 Glenbrook Beach Road (**GBR**), Glenbrook School and Sandspit Reserve in Waiuku. More recently monitoring for PM_{10} commenced at Mission Bush Road in March 2022.

32. Figure 5 below is Ms Simpson's graph of days when the trigger investigation limit (**TIL**) (50 µg/m^3 as a 24-hour average) was exceeded as measured at 64 GBR over the period of consent (2007 – 2021).[6] We note, for discussion later in this decision, that the TIL is numerically equivalent to the national environmental standard (**NES**) for PM_{10}, which permits one exceedance in any twelve-month period for compliance purposes.

33. Ms Simpson then tabulated the top ten maximum daily PM_{10} concentrations measured at 64 GBR for 2015 – 2021, to illustrate the magnitude and variability over this period. Table 5 of her evidence (reproduced below)[7] shows that the maximum daily PM_{10} concentrations ranged from 52 µg/m^3 to 95 µg/m^3. All concentrations in this table in dark grey exceed the daily TIL (and NES) for PM_{10}.

34. Ms Simpson then noted that in the first six months of operation in 2022, the Mission Bush Road site measured five exceedances of the PM_{10} TIL (and NES), with two of these exceedances being greater than 55 µg/m^3.

[6] Statement of Evidence of Ms Simpson dated 28 September 2023. At [8.43]
[7] *Ibid*.

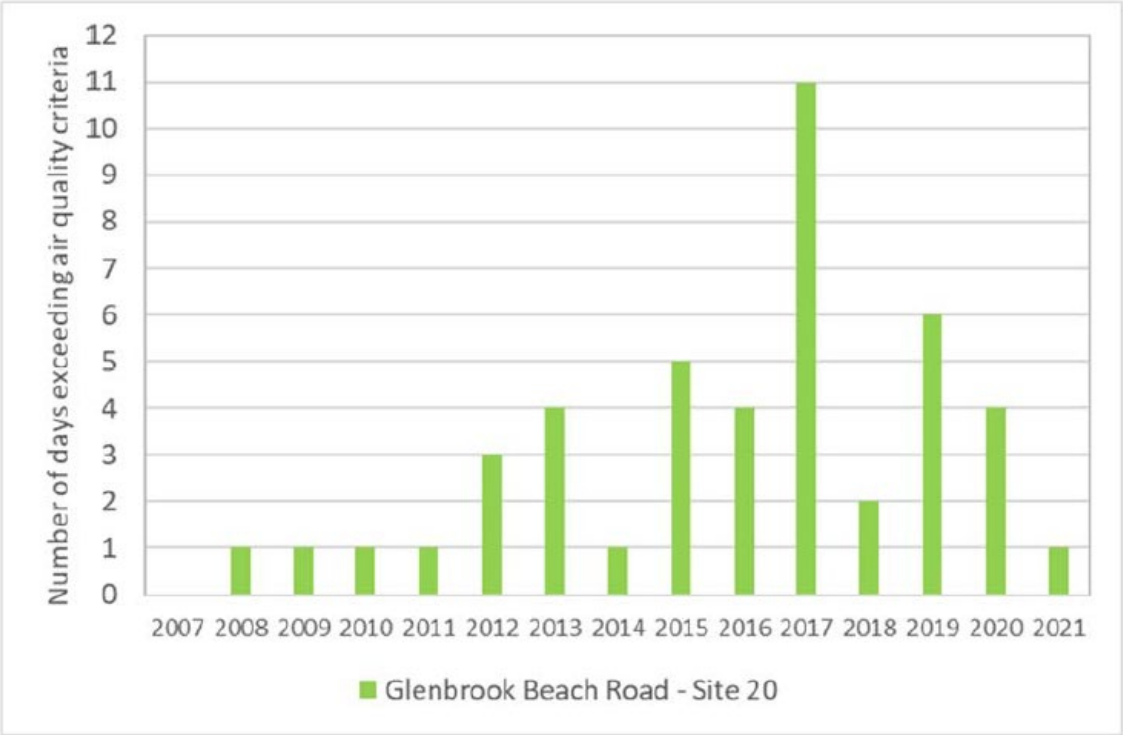


Figure 5: Count of days exceeding the 24-hour TIL (50 µg/m³) at 64 GBR (Site 20)

Table 5: Ranked 24-hour PM_{10} air quality at 64 GBR (Site 20)

Rank	Concentration (µg/m³, 24-hour average)						
	2015	2016	2017	2018	2019	2020	2021
1	68.4	61.0	77.8	56.0	78.5	95.2	52.0
2	64.3	59.2	71.5	54.6	63.7[a]	73.0	47.2
3	58.5	53.5	60.3	49.8	57.6	53.6	42.2
4	58.2	51.4	57.5	44.5	56.7	51.2	40.3
5	52.8	47.6	56.8	44.2	55.8	50.5	40.2
6	48.8	47.1	55.1	44.0	51.4	47.1	38.9
7	47.7	46.6	54.4	42.7	50.1	45.2	38.7
8	46.6	44.4	54.3	42.6	49.7	44.4	38.3
9	46.6	44.3	53.1	42.5	48.1	43.2	38.1
10	45.4	44.2	52.4	41.7	45.0	42.3	36.4

Table Note:

a. The high concentration recorded on 6 December 2019 is attributed to long range transport of particulate matter from Australian dust storms

Annual PM_{10}

35. Figure 6 below is Ms Simpson's graph of annual average PM_{10} measured at 64 GBR for the period of consent (2007 – 2021). This shows that annual concentrations of PM_{10} measured at 64 GBR were consistently below the NZ AAQG and Auckland AAQT (20 µg/m³) but consistently exceeded the WHO AQG (15 µg/m³). Annual PM_{10}

concentrations at Glenbrook School were (with one minor exception in 2019) below the Auckland AAQT, NZ AAQG and WHO AQG.

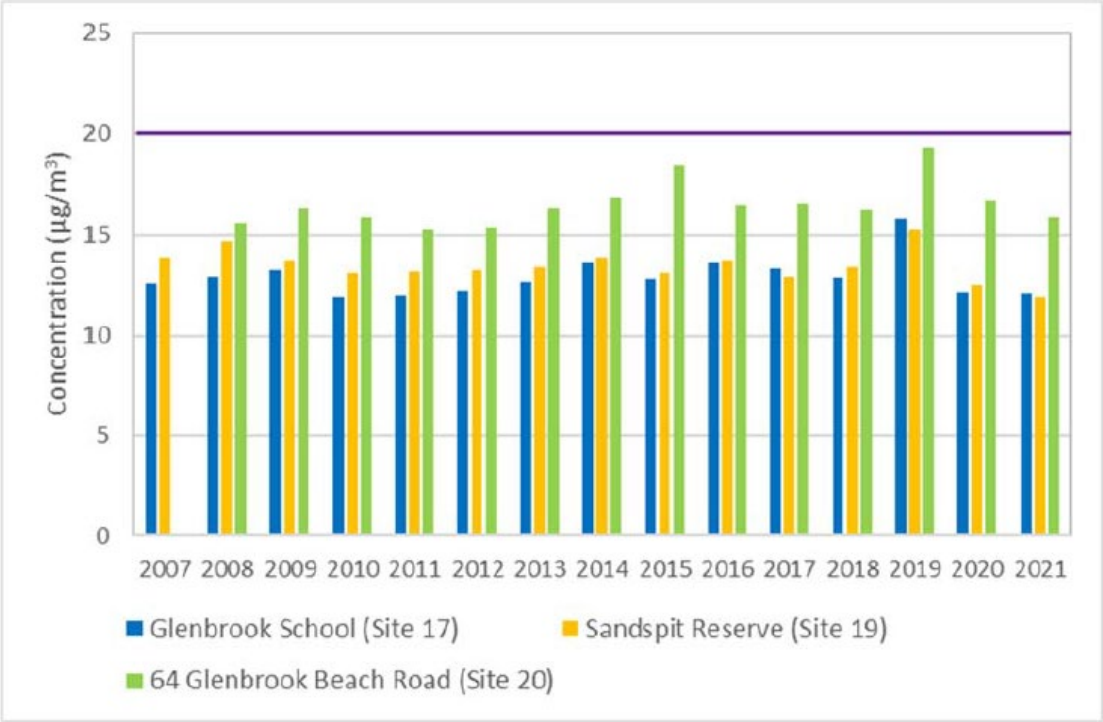


Figure 6: Annual average PM_{10} concentrations at 64 GBR (purple line represents the New Zealand Ambient Air Quality Guideline)[31]

Daily $PM_{2.5}$

36. Ms Simpson informed us that monitoring has been undertaken for $PM_{2.5}$ at 64 GBR since 2019, and at the new monitoring site on Mission Bush Road since March 2022. Daily $PM_{2.5}$ concentrations measured at the GBR site were consistently below the Auckland AAQT (25 µg/m^3) but exceeded the WHO AQG (15 µg/m^3) six times in both 2019 and 2020.[8] The WHO AQG permits 3-4 exceedances per year.

37. In the six-month period ending 31 August 2022, the monitoring site at Mission Bush Road measured one exceedance of the Auckland AAQT and eight exceedances of the WHO AQG for daily $PM_{2.5}$.[9]

Annual $PM_{2.5}$

38. Ms Simpson presented annual $PM_{2.5}$ measured at 64 GBR for 2019 (6.5 µg/m^3) and 2020 (6.0 µg/m^3).[10] These were below the Auckland AAQT (10 µg/m^3) but exceeded the WHO AQG (5 µg/m^3) for annual $PM_{2.5}$. There was insufficient data from the Mission Bush Road monitoring site for comparison with the annual criteria.

[8] Jenny Simpson evidence for NZ Steel Table 4 page 29
[9] Jenny Simpson evidence for NZ Steel para. 8.34
[10] Jenny Simpson evidence for NZ Steel footnote page 30

Ms Simpson's Recommendations

39. Ms Simpson noted that annual PM_{10} and $PM_{2.5}$ consistently met the NZ AAQG and the Auckland AAQT at 64 GBR. Although daily levels were higher at the new Mission Bush Road site, Ms Simpson considered that annual levels would not be much higher than GBR, because the winds blew less frequently from the site towards Mission Bush Road (than GBR). Based on sensitive receptors being located outside the Operational Area, Ms Simpson concluded that the risk of annual average PM_{10} concentrations exceeding the WHO AQG at sensitive receptors was low.

40. Ms Simpson considered the daily $PM_{2.5}$ concentrations at sensitive receptors is likely to meet the Auckland AAQT and that annual and daily $PM_{2.5}$ levels would be similar to urban Auckland concentrations.

41. Ms Simpson concluded that daily concentrations of PM_{10} may have exceeded the NES at sensitive receptors on one or two occasions each year, noting the regulations permit one exceedance per year.

42. Ms Simpson recommended continued monitoring for PM_{10} at onsite and offsite locations, the introduction of new hourly and daily TILs with additional controls on fugitive dust and consent conditions for reporting and interpretation of monitoring data. This includes the appointment of a Suitably Qualified and Experienced Air Quality Practitioner (**SQEP:AQ**) to provide independent advice throughout the life of the consent and a five-yearly best practicable option (**BPO**) assessment.

43. Ms Simpson also considered the potential ecological effects of discharges to air concluding:

    a. based on measured concentrations and estimated deposition rates, there would not be any adverse effects from emissions of SO_2 and NO_2 on plant health;

    b. a small amount of commercial kiwifruit staining occurs, and this is managed through *profit a prendre* agreements with local growers;

    c. deposition rates of copper and lead measured at the northern boundary of the site do not appear to be influenced by Steel Mill activities; and

    d. it is unlikely that deposition rates of zinc (estimated to be around 70 mg/m^3/year) will have any appreciable effects on freshwater and marine environments.

44. Ms Simpson considered that all main point source emissions are controlled by appropriate air pollution control equipment with consent conditions requiring process monitoring and stack emissions testing to demonstrate compliance with emission limits.

45. Ms Simpson then outlined an iterative approach, in a draft Air Quality Management Plan (**AQMP**) included with the application, to manage fugitive emission sources that may cause exceedances of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (**the NES**) for PM_{10} offsite. She considered that, overall, the controls and management measures proposed would help ensure that

rigorous management practices are consistently implemented so as to avoid potential environmental effects and ensure that residual effects are acceptable.

46. Ms Carvill's presentation and evidence addressed a range of matters that contributed to her overall conclusion that adverse effects on the environment will be minor and that the proposal is consistent with the relevant objectives and policies.

47. Ms Carvill referred to the recommended conditions of consent noting the key conditions of:

    a. the one-off Improvements Feasibility Report to address handling and recovery of the reduced primary concentrate and char (**RPCC**) and the Vanadium Recovery Unit;

    b. the yearly and five-yearly reporting, and incidents and complaints reporting;

    c. the oversight and independence provided by the SQEP:AQ to such reporting requirements and the consideration of stakeholder concerns;

    d. TILs being used to manage air quality to an acceptable level; and

    e. the adoption of the BPO in environmental management.

48. In terms of potential adverse effects on the environment other than air quality, Ms Carvill addressed ecological, landscape and visual, and cultural effects. Landscape and visual effects had been the subject of a specific study by LA4 Landscape Architects, but these effects had not become a focus for submissions and no further examination of these effects were made by any party. Similarly, ecological effects resulting from deposition of air particles on land or water were concluded by the applicant as being unlikely.

49. Ms Carvill noted that in terms of cultural effects, consultation had identified key areas of interest to iwi as the health of people, the deposition of pollutants on mahinga kai, the reduction in visibility (particularly in or toward areas in the landscape that are waahi tapu and ancestral maunga), and odour effects. Ms Carvill considered that the conditions of consent and the ongoing engagement with the two iwi through the Environment Committee would ensure that these effects were appropriately managed.

50. An analysis of the statutory planning documents had been undertaken in the AEE and Ms Carvill relied on that in her evidence. She brought our attention to all of the statutory planning documents and additional documents of relevance in terms of section 104(1)(c) RMA. While being in broad agreement with the findings of Mr Clarke's statutory planning analysis in the section 42A report, Ms Carvill nevertheless identified several points of disagreement on the interpretation and application of some objectives and policies. In commenting on Part 2 of the RMA, Ms Carvill saw no need to refer to this section of the RMA for this application, albeit that a Part 2 assessment had been included in the AEE and concluded that the proposal was consistent with it.

51. As with Ms Lampitt's submissions, Ms Carvill provided a fulsome opinion on the appropriate duration of consent. Ms Carvill supported a duration of no less than 25 years. We consider duration further below.

Summary of evidence heard - submitters

52. Ms Rachel Keir attended the hearing in support of her submission. Ms Keir's submission:

- supported the economic and employment contribution made by New Zealand Steel;
- supported a shorter duration of consent, including the 20 year duration proposed by Council;
- considered that the replacement monitoring site at Mission Bush Road (Site 25) was a positive outcome and that this could replace the existing Glenbrook School site;
- identified iron plating and RPCC dumping as being key sources of emissions, and so supported proposals to suppress iron plating submissions by 90%, but was critical of only 'minimising' the uncontrolled dumping of RPCC;
- opposed activities in the expanded northern yard. We have noted above the advice from Ms Lampitt that such expansion was no longer proposed; and
- considered that controls on fugitive emissions, including through the replacement of baghouse parts, is required for ongoing compliance, particularly in dry weather.

53. Dr Grant Hewison and the Equal Justice Project (**EJP**), represented by Ms Anushka Sequera and Ms Isabelle Robinson, made a joint presentation (the latter by remote access facility) on the need for the application to address the adverse effects of greenhouse gases on climate change. Their presentation was based on submissions that had been pre-circulated. Contrary to the applicant's and Council's position, Dr Hewison submitted that the Panel was able to consider such effects. Dr Hewison referred to the *Climate Justice Taranaki Incorporated*[11] case and to *Climate Change and the RMA*[12], a paper presented to the 2008 RMLA conference by Judge Newhook, which traversed issues on a 2007 case that Dr Hewison considered relevant to the current application. [13] Notably, the paper was presented prior to the then pending Supreme Court decision on this case, which had begun with an application for a coal-fired power station at Marsden Point.

54. In support of their submissions, Dr Hewison and EJP identified the 'climate emergency' that had been recognised by the Intergovernmental Panel on Climate Change and declared by Auckland Council in 2019. Te Taruke a Tawhiri – Auckland's Climate Plan

[11] *Climate Justice Taranaki Incorporated v Taranaki Regional Council* [2022] NZEnvC 127 [14 July]
[12] *Climate Change and the RMA* by Judge Laurie Newhook, RMLA Conference September 2008
[13] *Greenpeace New Zealand Inc v Genesis Power Ltd* SC 94/2007 [19 December 2008]

had adopted a goal to reduce net emissions of greenhouse gases by 50% by 2030, while aiming for zero net emissions by 2050. The EJP perspective also emphasised the intergenerational equity aspects of addressing the effects of climate change.

Summary of evidence heard – Auckland Council

55. The Council's section 42A report was circulated prior to the hearing and taken as read. Elements of the report have already been referenced above in relation to the submissions.

56. The principal issue discussed at the hearing with the Council was the evidence and assessment of the site's emissions, especially particulates. At the Hearing Mr Crimmins, reaffirmed his conclusion that concentrations of PM_{10} within 1 km of the Operational Area may occasionally exceed the (daily) NES for PM_{10} and the (annual) WHO AQG thereby causing a *significant* adverse effect. He recommended rigorous controls, focussing on fugitive emissions, to minimise exposure as far as practicable.

57. When questioned about exceedances of the daily NES for PM_{10}, Mr Crimmins had not identified any clear trend. He noted that since 2015, NZ Steel has been required to notify exceedances to Council and report on actions taken to improve emissions. He considered that while dust control is relatively simple, it requires real commitment and noted that this had been evident through improvements NZ Steel had undertaken in recent years (e.g., road sealing and additional water cart on-site).

58. Mr Crimmins had reviewed the last two major emission reviews provided by NZ Steel to Council and generally agreed with their findings. However, he expressed a concern over a lack of detailed information in the reports affecting his ability to critically assess the BPO for emission control and management practices for such a highly technical application as the integrated steel works. He acknowledged that while the one-off feasibility improvement report required by his proposed conditions of consent would not be prepared by an independent party, he was comfortable with his recommended condition requiring oversight by a SQEP:AQ.

59. Regarding the dioxin monitoring carried out by the applicant to support its assessment, Mr Crimmins was satisfied that the measured concentrations were so low as to have negligible impact on off-site ambient concentrations. [14]

60. Mr Crimmins also advised that, due to his involvement in the lodged water consent application, he had reviewed deposition modelling and was comfortable concluding that there would be no cumulative adverse health effects from other pathways (air, water, soil).

61. With respect to compliance, Mr Crimmins stated that in general the site had good compliance with discharge limits and no recorded incidence of non-compliance. When queried, he acknowledged that the targets in the existing (and proposed) consent conditions were not enforceable per se. He considered this underscored the importance of a general condition requiring that discharges be minimised as far as practicable. He

[14] Paul Crimmins Specialist Report section 6.2.6.4

noted that this general condition (proposed condition 14) could possibly be triggered in the event of repeated or gross exceedances of conditioned targets.

62. Mr Crimmins drew our attention to the significance of the discharges being permitted by this application, noting that the KOBM baghouse emission of three kilograms per hour of $PM_{2.5}$ on its own was in the top 20 sources for the Auckland region. He advised that $PM_{2.5}$ emissions of this scale were comparable to emissions from a very large asphalt plant or just less than the ACI glass manufacturing plant.

63. When queried about review clauses, Mr Crimmins noted that NZ Steel's improvements in fugitive emissions control had only happened recently. This was a contributing factor to his concern with an extended duration of consent for 25 years. Mr Crimmins noted that he had previously attempted to review this consent but had not been successful.

64. Mr Crimmins also responded to our Direction of 4 November 2022 by way of memorandum dated 10 November 2022. In this Mr Crimmins clarified the following

    a. He considered that the Steel Plant Baghouse is not Best Available Technology, noting that it discharges horizontally. Proposed condition 18(b) requires a review of the Steel Plant's emission control system at the Vanadium Recovery area (to [15]potentially redeploy the Pipe Mill baghouse as the Pipe Mill has closed down).

    b. He supported the applicant's proposal (at the Hearing) to reduce emissions from the Iron Plant and RPCC handling in addition to a condition of consent requiring a feasibility study for further containment of RPCC handling.

    c. In the absence of specific emissions reduction requirements as a condition of consent, Mr Crimmins reiterated the need for a condition requiring emissions to be reduced as far as practicable.

    d. Whilst acknowledging the limitation of 'targets' as enforceable conditions of consent, Mr Crimmins still considered these more useful than a more general "minimise" requirement. He noted that health and safety considerations meant that hard limits were not appropriate for some sources under certain conditions. Mr Crimmins felt the 5-yearly reviews (proposed conditions 17 and 32) could be relied on to assess the adequacy of limits and targets in the consent.

    e. He considered that the conditions requiring immediate investigation and remedies in the event of an exceedance of trigger investigation levels would protect off-site air quality such that exceedances of the current statutory ambient air quality criteria would be unlikely.

65. In an email dated 9 December 2022, Mr Crimmins reaffirmed his view that there were no clear trends in annual PM_{10} measurements at 64 GBR, Glenbrook School or Sandspit Reserve.[16]

[15] yellow

[16] Paul Crimmins Comments on Applicant's Reply Memo 9 December 2022

Applicant's reply

66. The applicant provided a written reply on 25 November 2022. The reply addressed the key matters in contention at the hearing and provided a response to the request for further information contained in our Direction of 4 November 2022.

67. In relation to the matter of the application of section 104E RMA, the applicant reaffirmed and reinforced the opening submissions that the statutory bar on considering the effects of the discharge on climate change (i.e. from greenhouse gas emissions) continues to apply to the application (and which applies because the application was lodged in the period immediately before the effective date per clause 26(2) of Schedule 12 RMA).

68. Ms Lampitt also submitted that, consequent upon the Resource Management Amendment Act 2020 Commencement Order 2021, which amended the effective date of repeal of section 104E (and related provisions) until 30 November 2022, we are also not able to take that matter into account when considering the appropriate duration of consent (to which we return later).

69. In response to our Direction in relation to particulates, the applicant provided the following information:

    a. an annual emissions inventory for key pollutants identified by Ms Simpson;

    b. annual production data (as a 3-year average) for the Mill;

    c. clarification of annual average PM_{10} concentrations at offsite monitoring locations for comparison with annual average PM_{10} concentrations at the Auckland Council rural site in Patumahoe over the period of consent (2008 – 2021);

    d. copies of four historical reviews of the BPO submitted to Council as a requirement of Air Discharge Permit 14317 dated 2008, 2011, 2014 and 2017. In addition to this the applicant provided the most recent major source review submitted to Council (2021) and a copy of a BPO evaluation prepared by Ms Simpson in 2011 for the KOBM baghouse (also called the Steel Plant baghouse); and

    e. clarification of nitrogen fume suppression equipment for iron plating, the basis for estimating background concentrations for PM_{10} and $PM_{2.5}$, and the frequency of winds above 5 m/s from the western quadrant (8-10%).

Principal issues in contention

70. After analysis of the application and evidence (including proposed mitigation measures), undertaking a site visit, reviewing the Council planning officers' recommendation report, reviewing the submissions, issuing a Direction for further information, and considering that information and concluding the hearing process, we find that the proposed activity raises a number of issues for consideration. The principal issues in contention are:
    - the actual and potential effects of emissions of particulate from the Mill;
    - the actual and potential effects of emissions of nitrogen dioxide and other contaminants from the Mill;

- the relevance of section 104(2A) RMA in regard to the value of the existing investment;
- the sufficiency of conditions;
- the duration of the consent; and
- the application of section 104E regarding greenhouse gas emissions and the effects of those emissions on climate change.

71. There was consensus between the applicant and Council on the appropriate references to statutory criteria as well as national and international guidelines under Section 104(1)(c) for assessing potential impacts of air pollutants. These included:

    a. the National Environmental Standards for Air Quality (NESAQ) and Auckland Ambient Air Quality Targets (Auckland AAQT) in the Auckland Unitary Plan;

    b. New Zealand Ambient Air Quality Guidelines (NZ AAQG) for health and ecological protection (MfE, 2002);

    c. Global Air Quality Guidelines (WHO, 2021); and

    d. Other international criteria such as the State of California Office of Environmental Health Hazard Assessment reference exposure levels (RELs) and United States Environment Protection Agency risk criteria.

72. We agree this approach is consistent with good practice and have adopted these criteria in our decision.

Main findings on the principal issues in contention

73. Our main findings on the principal issues that were in contention follow.

The actual and potential effects of emissions of particulate from the Mill

74. We agree with the air quality experts' consensus view that the best way to assess discharges of particulate from the existing Mill is to consider the ambient air quality monitoring data record. As noted by the applicant, this in turn necessitates consideration of emissions, the existing environment, and dispersion modelling studies to assess and understand the dispersion profile and the appropriateness of ambient monitoring site locations.

75. Moreover, as the site has been operating for many years, we also considered it helpful to review trend analysis to see if, overall, ambient air quality and/or emissions are improving. Accordingly, we requested historical and current emissions information from the applicant and long-term monitoring data. We consider each of these in turn below.

76. For completeness we note that Ms Simpson and Mr Crimmins concluded that the Sandspit Reserve monitoring location is not impacted by emissions from the Mill, being predominantly urban and largely upwind of the site. Having visited the location and seen the high predominance of wood burners in this low-density urban area, we are inclined to agree. Data from this monitoring location is not considered further.

Ambient Monitoring: Daily PM_{10}

77. The applicant's summary of daily exceedances of the national environmental standard (NES) for PM_{10} of 50 µg/m^3 as a 24-hour average is provided in Figure 5 and Table 5 of Ms Simpson's evidence (as noted above). These show that, since 2012 there have been multiple exceedances of the NES for PM_{10} at 64 GBR, a location the experts accept as being representative of where people may reasonably be exposed.

78. Schedule 1 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 permits only one exceedance of the ambient air quality standard for PM_{10} in any 12-month period. However, the monitor at 64 GBR is located on NZ Steel land and Regulation 14(2) provides that the standard does not apply on the site on which the resource consent is exercised.

79. Ms Simpson considered that this did not mean that exceedances of the NES are likely at "more distant sensitive receptors".[17] Mr Crimmins disagreed, noting the importance of fugitive emissions to elevated daily PM_{10} during the summer months, and expressed a different interpretation of the dispersion modelling.[18] We concur with Mr Crimmins' temporal analysis of daily PM_{10} at 64 GBR and share his concerns about the residents' exposure at locations closer than 64 GBR (190, 198 Mission Bush Road, 103, 120 and 127 Brookside Road, 17, 22, 27, 29, 30 and 30A Reg Bennett Road). We conclude that residential exposure at some locations may be underestimated by relying solely on monitoring data from 64 GBR.

Ambient Monitoring: Annual PM_{10}

80. The applicant's summary of annual average PM_{10} is provided in Figure 6. The air quality experts agree that Figure 6 shows that long-term concentrations of PM_{10} at 64 GBR are less than the Auckland AAQT but consistently exceed the WHO AQG.

81. Long-term concentrations of PM_{10} at Glenbrook School comply with both the Auckland and WHO annual criteria.

Changes in PM_{10} over Time

82. With respect to daily PM_{10}, the applicant acknowledged that exceedances of the NES for PM_{10} at 64 GBR have increased since 2011 (Figure 5). We note that the maximum daily concentration measured each year may also be increasing (Table 5).

83. With respect to long-term PM_{10}, the applicant provided additional comparisons with the Auckland Council rural ambient air quality monitoring site in Patumahoe on day 2 of the Hearing (refer below, Figure 1 and Figure 3).[19]

[17] Statement of evidence of Ms Simpson dated 28 September 2022. At [8.43]
18 Memo from Mr Crimmins (Senior Specialist – Contamination, Air & Noise) to Mr Jonathon Clarke (Senior Planner) dated 14 June 2022. At page 140 of the Hearing Bundle.
[19] Ms Simpson response to further information request by panel, 27 oct 2022.

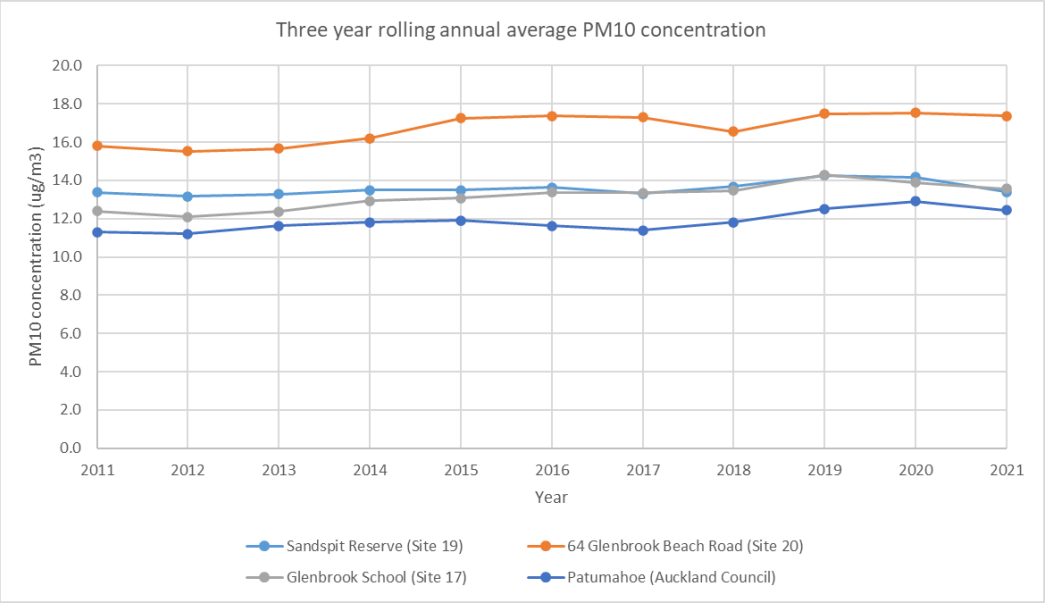


Figure 1: Three year rolling average of annual average PM_{10} concentrations

84. Figure 1 above presents 3-year rolling average concentrations of PM_{10} between 2011 and 2021 measured at 64 GBR and Glenbrook School for comparison with the rural location of Patumahoe. The use of a 3-year average by Ms Simpson (to which Mr Crimmins did not object) is helpful for 'smoothing' inter-annual variability due to meteorology.

85. Both air quality experts considered that there was no clear long-term trend in annual average PM_{10} concentrations at any of the sites. However, Mr Crimmins noted that Figure 1 showed that both 64 GBR and Glenbrook School monitoring locations recorded consistently elevated annual average PM_{10} concentrations compared with the rural background location of Patumahoe.[20] We also observe that Figure 1 appears to show a gradual increase in long-term concentrations of PM_{10} between 2011 and 2021 at both 64 GBR (orange line) and Glenbrook School (grey line).

86. Figure 3 (below) presents the incremental difference in annual PM_{10} concentrations measured at 64 GBR (and Glenbrook School) compared with the rural location of Patumahoe.[21] This shows that annual levels of PM_{10} are elevated at both 64 GBR and Glenbrook School compared with Patumahoe. Taken together, Figure 1 and Figure 3 show that at 64 GBR, the incremental difference averages at approximately 40% over the 2008 – 2021 period (i.e., annual PM_{10} at 64 GBR is, on average, 40% higher than at Patumahoe). Given the proximity of the monitoring site to the Mill, and the significance of discharges from the Mill (nearly 300 tonnes of PM_{10} per year), we consider this incremental difference is likely due to the presence of the Mill.

[20] Email from Mr Crimmins to Mr Donovan dated 9 December in response to Hearing Direction #2 from the Hearing Panel.
[21] Response to s41C RMA Direction #2 from Hearing Panel Table 3.9

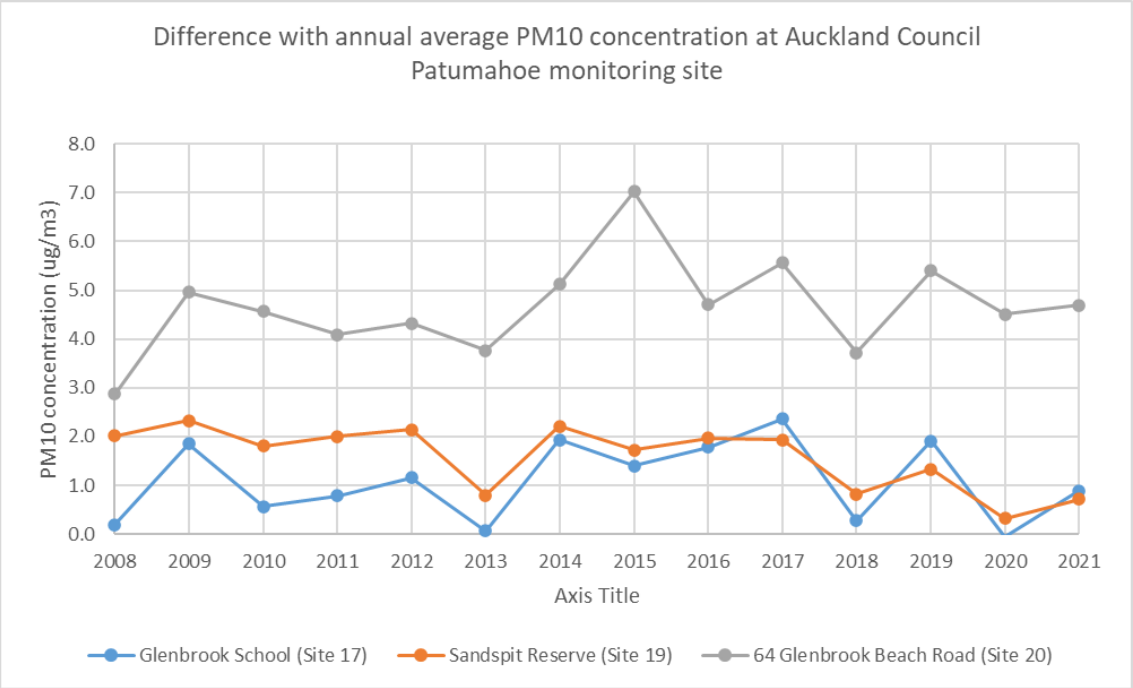


Figure 3: Difference with annual average PM_{10} concentration at Auckland Council Patumahoe monitoring site[22]

Ambient Monitoring: Daily and Annual $PM_{2.5}$

87. There are only two years of monitoring data for $PM_{2.5}$ from 64 GBR and six months of monitoring data from a new site in Mission Bush Road. Daily concentrations of $PM_{2.5}$ were below the Auckland AAQT (25 µg/m^3) at 64 GBR but exceeded it at Mission Bush Road. Both locations exceeded the daily WHO AQG (15 µg/m^3), with the Mission Bush Road site recording higher daily values on average.

88. Annual average $PM_{2.5}$ concentrations at 64 GBR exceeded the annual WHO AQG in both 2019 and 2020. Both air quality experts noted that all urban monitoring locations in Auckland similarly exceeded the annual WHO 2021 AQG in those years. We note that Glenbrook is a rural rather than an urban location and do not consider the urban comparison to be appropriate.

89. The annual average $PM_{2.5}$ concentrations at 64 GBR are elevated in comparison with the similarly rural location of Patumahoe (around 23% higher at 64 GBR over 2019-2020). Given the proximity of the monitoring site to the Mill, and the significance of discharges from the Mill (nearly 300 tonnes of $PM_{2.5}$ per year), we consider this incremental difference is likely due to the presence of the Mill.

90. The elevated $PM_{2.5}$ concentrations measured at Mission Bush Road compared with 64 GBR support Mr Crimmins' concerns about residents in other locations being potentially exposed to higher concentrations than those measured at 64 GBR.

[22] i.e. the Patumahoe monitoring site is zeroed along the axis.

Changes in $PM_{2.5}$ over Time

91. There are insufficient data to draw conclusions on long-term trends of daily or annual average $PM_{2.5}$ concentrations.

Emissions / Production

92. The estimates of annual emissions of PM_{10} helped us understand the relative importance of PM_{10} sources, specifically:[23]

    a. The Multi-Hearth Furnaces (MHF) and kilns combine to emit 144 tonnes per year of PM_{10}, which is just over half (51%) of the annual PM_{10} emissions from the entire Operational Area.

    b. Slag tipping (a fugitive source) is the next most significant source, estimated to be 48 tonnes per year of PM_{10} (which is 17% of annual PM_{10} emissions from the entire Operational Area).

    c. Cumulatively, fugitive sources are significant, emitting 99 tonnes per year of PM_{10} (34% of annual PM_{10} emissions from the entire Operational Area.

    We note Mr Crimmins' caution that estimates of fugitive emissions are highly uncertain, and that stack emissions can also show significant variability. [24,25]

93. Similarly, the estimates of annual emissions of $PM_{2.5}$ helped us understand the relative importance of $PM_{2.5}$ sources, specifically: [26]

    a. The Multi-Hearth Furnaces (MHF) and kilns together emit the majority share of annual emissions, estimated at 144 tonnes per year of $PM_{2.5}$ (68% of annual $PM_{2.5}$ emissions from the entire Operational Area).

    b. The Steel Plant (KOBM) baghouse and flare stack are the next largest sources annually, together emitting 31 tonnes per year (17% of annual $PM_{2.5}$ emissions from the entire Operational Area).

    c. Fugitive sources of $PM_{2.5}$ are less cumulatively significant than PM_{10}, comprising 23 tonnes per year (11% of annual $PM_{2.5}$ emissions from the entire Operational Area).

94. In response to our request, the applicant provided 3-year average emissions estimates and production (tonnes per year) as shown in Figure 3-1 and Table 3.8. [27]

[23] Response to s41C RMA Direction #2 from Hearing Panel. At Tables 3.2 and 3.3
[24] Memo from Mr Crimmins. At page 133 of the Hearing Bundle (footnote 33).
[25] *Ibid*. At page 129 of the Hearing Bundle.
[26] Response to s41C RMA Direction #2 from Hearing Panel. Tables 3.2 and 3.3
[27] Response to s41C RMA Direction #2 from Hearing Panel. Figure 3-1. At page 12.

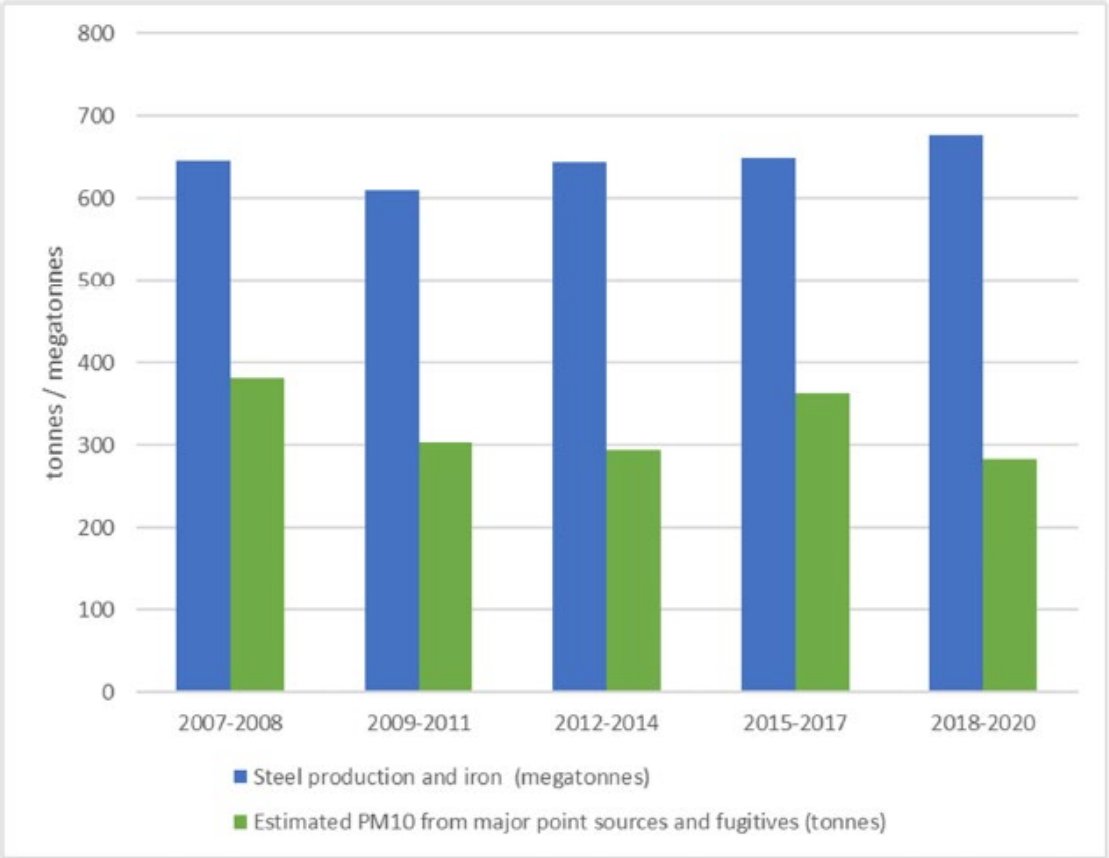


Figure 3-1: Three yearly average PM_{10} emissions and production volumes (reported by financial year)

Table 3.8: Breakdown of PM_{10} emissions and steel and plated iron data

Parameter	Source	Three yearly average emissions/production (tonnes) (financial year, i.e. 1 July to 30 June)				
		2007-2008	2009-2011	2012-2014	2015-2017	2018-2020
PM_{10} emissions (from Major Emissions Reports)	Major point sources	286.4	208	218	251	185
	Fugitives	95.2	95.2	76.6	113	99
	Total	**381.6**	**303**	**294.3**	**363.5**	**283.9**
Steel production and iron plating	Steel production	610,871	581,681	611,094	604,650	638,021
	Iron plated	34,567	28,669	32,664	44,175	39,227
	Total	**645,438**	**610,350**	**643,758**	**648,825**	**677,248**

95. The applicant argued that there was no apparent correlation between production and estimated emissions noting that emissions for the most recent reporting period (FY2018 – 2020) were lower than the previous four reporting periods but corresponded to the highest 3-year average steel and plated iron production rate. We accept that the overall emissions estimates in Table 3.8 appear to be uncoupled from production rates.

96. However, when we look at the 3-year average PM_{10} concentrations measured at 64 GBR and Glenbrook School in Figure 1 (above at paragraph 86) and the 3-year production data in Figure 3-1 (above at paragraph 94), both exhibit a long-term gradual increase.

Dispersion Modelling

97. The applicant provided dispersion modelling to assess the relative contribution each stack makes to maximum daily PM_{10} concentrations downwind.[28] This helped us understand the relative importance of sources, specifically: [29]

    a. At maximum operation, the Multi-Hearth Furnaces (MHF) and kilns together emit most (74%) of stack PM_{10} emissions.

    b. At maximum operation, the Steel Plant (KOBM) baghouse and flare stack are the next most significant (18%) of stack PM_{10} emissions.

98. The modelling (of stack sources only) predicts that higher daily PM_{10} concentrations may occur at a number of residential locations compared with the existing monitoring site location at 64 GBR.[30] This means that these residential locations might experience worse air quality than that measured at 64 GBR which has recently been found to be the case through monitoring at Mission Bush Road. Mr Crimmins considers the impact area is limited to within a two-kilometre radius of the Operational Area. We note that annual concentrations of PM_{10} at Glenbrook School, located just over 2 kilometres from the MHF and around 2 kilometres from the coal stockpiles, are below relevant health-based ambient criteria, whereas at 64 GBR they are exceeded. We concur with Mr Crimmins' view on the likely extent of what he characterised as significant effects from Mill emissions being within 2 kilometres of the Operational Area.

99. We also note the modelling does not include fugitive sources and therefore is likely to underestimate worst-case downwind daily particulate concentrations. This does not detract from the purpose of the modelling – which was to ascertain the relative impact of key stack sources - but does constrain a direct interpretation of predicted maximum concentrations downwind.

Conclusions: PM_{10} and $PM_{2.5}$

100. The table below summarises NZ Steel's monitoring data from 64 GBR and Mission Bush Road against the three "standards":

PM_{10}	**AkI AAQT**	**NZ NES/AQG**	**WHO AQG**
Daily	-	X	X
Annual	✓[a]	✓[a]	X
$PM_{2.5}$	**AkI AAQT**	**NZ AQG**	**WHO AQG**
Daily	X[b]	X	X
Annual	✓[a]	-	X

[a] Insufficient data to calculate annual concentrations at Mission Bush Rd.

[b] Mission Bush Road (small dataset, commenced March 2022)

[28] AEE AQA. At Appendix C *Dispersion Modelling Study Glenbrook Steel Mill – Existing Activities*. (Dispersion Study)
[29] AEE AQA. Dispersion Study. At Table 7.1, page 43.
[30] AEE AQA. Table 6.1. At page 53.

101. Schedule 1 of the NESAQ specifies the national ambient air quality standard for PM_{10} as a threshold concentration of 50 micrograms per cubic metre ($\mu g/m^3$) as a 24-hour average, with one permissible exceedance in any 12-month period. Furthermore, Regulation 13(1) of the NESAQ requires that the national ambient air quality standards must not be exceeded in an airshed. There was no dispute that the Mill is sited within the Auckland airshed.

102. Regulation 14(2) of the NESAQ provides that the national ambient air quality standard for PM_{10} does not apply to the site for which a resource consent is granted. Therefore the ambient levels of PM_{10} measured *onsite* at 64 GBR and Mission Bush Road are not required to meet the national ambient air quality standard for PM_{10}.

103. However, Regulation 13(1) operates as a constraint on the grant of consent for discharges to air that would cause an exceedance of the national ambient air quality standard for PM_{10} offsite over and above that permitted under that Regulation.

104. The evidence before us was that emissions from NZ Steel are likely to be causing exceedances of the NES for PM_{10} as well as exceedances of the Auckland AAQT for $PM_{2.5}$ and the WHO AQG for PM_{10} and $PM_{2.5}$ at residences within 1 km to the east and north-east of the site.

105. In relation to PM emissions, Mr Crimmins concluded that:

"*The most significant adverse effects are likely to arise at dwellings (where people are likely to be exposed for extended durations) within 1 km of the Operational Area to the east and north-east. At these dwellings, ambient PM_{10} concentrations are likely to be elevated and may occasionally exceed the relevant statutory ambient air quality criteria (NESAQ:AAQS) and the revised WHO AQG. I consider these elevated PM_{10} levels represent a significant adverse effect*." [31]

106. That statement was qualified (*likely* / *may*) and Mr Crimmins subsequently concluded that those elevated levels were not likely to arise under the conditions he proposed. As will be evident, we did not entirely agree with Mr Crimmins' conclusion.

107. With respect to potential effects, we understand that long-term exposure to PM is more significant than short-term exposure to PM. It is of concern to us, therefore, that existing monitoring shows exceedances of health-based annual criteria at both 64 GBR and Mission Bush Road and that the long-term data record suggests annual concentrations of PM_{10}, and thus chronic exposure, are increasing. Whilst association is not causation, we note both NZ Steel production and annual PM_{10} concentrations measured at 64 GBR and Glenbrook School appear to be increasing over time.

108. Regardless, exceedances over and above the NES and guidelines are occurring at the current levels of production and control, at locations where people are likely to be

[31] S42A, At Page 141 of Hearing Bundle.

exposed and increased residential activity in the general vicinity is highly likely during the extended term of any granted consent.

109. We consider that to grant consent, it is necessary for the consent holder to:

(1) reduce both daily and annual emissions; and

(2) implement the best practicable option; to

(3) meet the NES for PM_{10} and Auckland AAQT for PM_{10} and $PM_{2.5}$. We further note the desirability of meeting the health-based WHO AQG in the future.

110. These are discussed in turn below.

Emission Reductions

111. To be certain that the reductions will be sufficient to meet the relevant criteria, we turned our attention to the key sources on site and existing mitigation.

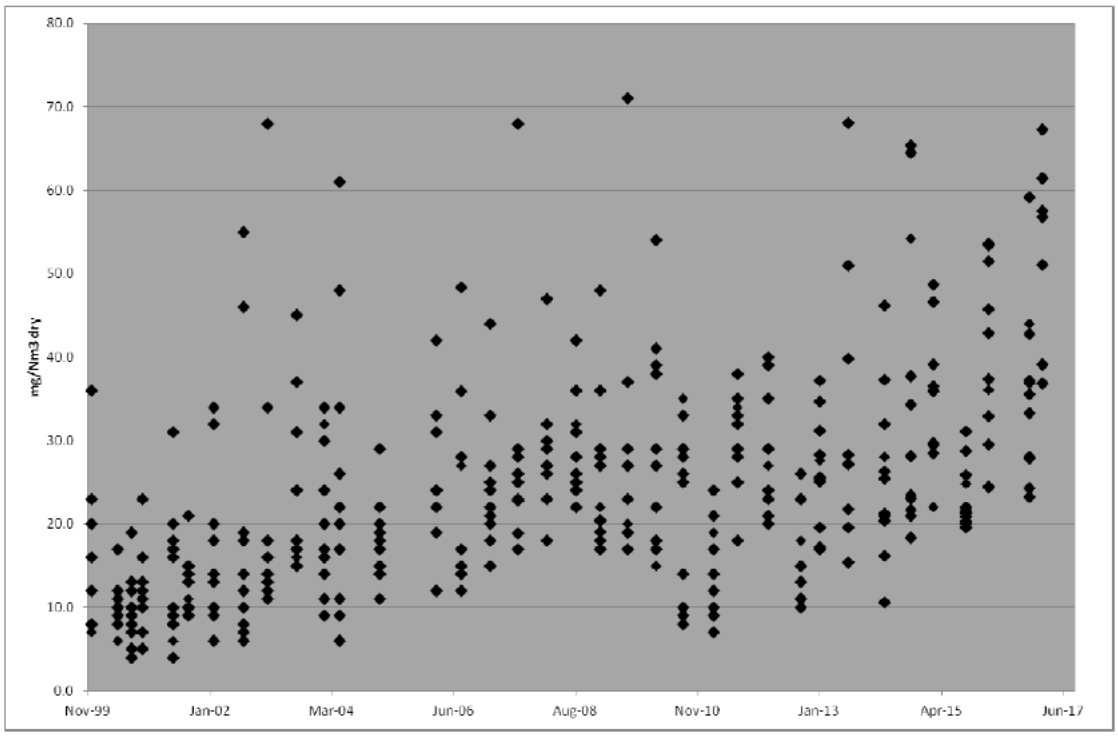
112. The Multi Hearth Furnaces (MHF) and kilns comprise more than half (51%) of annual PM_{10} emissions from NZ Steel. We note that both daily and annual PM_{10} emissions from the MHF have increased more than 50% in 2018-20 compared with 1999-2006.[32] By contrast annual emissions in 2018-2020 from the kilns were within 1% of those reported in 1999-2006.

113. The increase in stack emissions from the MHF is evident in emission sampling tests of the MHF which show an increasing trend over 1999 – 2017 (refer Figure 2.1 which follows).[33] This increase is not unusual for such a long period of time (18 years) and likely reflects general wear and tear reducing the efficacy of the abatement equipment over time as it ages. A notable feature of the application is the age of existing plant. We understand the MHFs and kilns are over 35 years old.

32 Applicant response to s41C RMA Hearing Direction #2. At Tables 3.1 a

33 Applicant response to s41C RMA Hearing Direction #2. *Major Emission Sources Review 2017* [Appendix D to Appendix A]

Figure 2.1: MHF Stack Test Results Since 1999



114. The emission limit for PM_{10} on the MHFs and kilns is 75 mg/m^3. We note that during the first four years of operation (1999-2002) the MHFs and kilns consistently complied with 50 mg/m^3. We are comfortable then, that reducing the emission limit to 50 mg/m^3 is an achievable best practicable option for this plant.

Best Practicable Option

115. The applicant has proposed, and Council has agreed, consent conditions that are consistent with the best practicable option for fugitive emissions. For example, the use of dust suppression methods on unpaved areas, speed limit <20 km/hr on unsealed surfaces, and use of a wheel wash at the site exit. We support these and have included them as conditions of consent.

116. Further to this, we note the success of fume suppression with nitrogen purging during iron plating. The applicant has suggested a condition of consent requiring 90% of iron plating be undertaken with fume suppression. We support this initiative but consider it should be extended to 100% of iron plating with exceptions provided for emergency or health & safety reasons. This is discussed in more detail below.

117. A standout matter of concern relates to the KOBM (Steel Plant) baghouse, which is well established as not being the best practicable option. This source has discharges to air exiting *sideways* rather than vertically and unimpeded. Ms Simpson put it to us that because upgrading existing, aged, equipment is so expensive, such is only warranted to "manage an identified adverse effect on the environment"[34] and further, the incremental

[34] AQA, at page 104.

benefits of upgrading the KOBM baghouse would be modest as it only contributes approximately 11% to worst case daily PM_{10} concentrations.[35]

118. While the breach of statutory criteria and exceedances of health-based guidelines occur within the site, it should be readily apparent that for all intents and purposes there is no difference in air quality at a monitoring site on one side of a fence to that on the other side of the fence. We have also accepted the evidence that these monitoring locations may underestimate residential exposure. We consider this to be a sufficiently identified adverse effect for a known carcinogen to necessitate a close review of potential emission reductions for **all** significant sources. We note that annual emissions of PM_{10} (nearly all of which is $PM_{2.5}$) from the KOBM baghouse are regionally significant at just under 20 tonnes per year.[36]

119. We appreciate that improvements that require significant capital expenditure need to be appropriately staged to provide economic certainty for future operations. We have therefore provided for a 5-year period for the MHFs and KOBM baghouse to meet minimum requirements and an additional 5-year period for the kilns. We note that, in practice, this means that we are consenting potential exceedances of the NES for PM_{10} and Auckland AAQT for possibly another 5 years under a time-capped BPO.

120. We considered leaving it up to NZ Steel to meet ambient boundary conditions through measures to be specified in the proposed Air Quality Management Plan. However, our review of previous consent conditions requiring reports on best practicable option found them to be largely ineffective. NZ Steel has provided a number of internal reports[37] that routinely conclude the existing mitigation is appropriate through reference to alternatives that either existed during process concept development (late 1970's to early 1980s), or during equipment selection (i.e., pre-1995) – whose relevance at the time of reporting is moot, and even more so in 2023.

121. The evidence indicates that despite improvements in recent years (e.g., improved fugitive emissions control, upgraded baghouses on Melters) the most significant sources contributing to long term exceedances are the MHF and kilns. Therefore, it is this plant that we have focussed on in conditions. We also note for the record that, but for the improvement in emissions from this plant that we have required through the amended conditions, we would have reduced the duration of consent considerably to a term of 5 - 10 years.

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[35] Statement of evidence of Ms Simpson dated 28 Sep 2022. At [12.16].

[36] Response to s41C RMA Direction #2 from the Hearing Panel. Prepared by R Turnwald and authorised by J Simpson dated November 2022. At Table 5.6.

[37] *Major Emission Sources Air Pollution Control Equipment Review*. 2008 Review. Prepared by New Zealand Steel Principal Process Engineer Steve Holehouse.
Major Emission Sources Air Pollution Control Equipment Review. 2011 Review. Prepared by Process and Environmental Engineering Consultant Steve Holehouse.
Best Practicable option Review for KOBM Steel Plant Secondary Ventilation. Prepared by Jenny Simpson, Beca Carter Hollings and Ferner Ltd (Beca). 2011.
Major Emission Sources Air Pollution Control Equipment Review. 2014 Review (4) Prepared by Process and Environmental Engineering Consultant Steve Holehouse.
Major Emission Sources Air Pollution Control Equipment Review 2017 Review (5). Prepared by New Zealand Steel Process Engineering and Energy Team Leader Paul van Brakel.

Meeting Ambient Air Quality Criteria

122. We consider it important that the applicant should demonstrate that it is able to meet the statutory criteria for PM_{10} and $PM_{2.5}$ offsite. We therefore support the applicant's proposed ambient air quality monitoring for PM_{10} and $PM_{2.5}$ at 64 GBR and Mission Bush Road. We further support the proposed ambient air quality monitoring for the purpose of establishing background levels at the location to the west of the site at Boundary Road, Waipipi, noting this should also include $PM_{2.5}$.

123. We do not accept the removal of the existing ambient air quality monitoring for PM_{10} at Glenbrook School. This monitoring site is important in the long-term data record and for understanding the extent of significance of effect for PM_{10}. We consider it would be helpful if Glenbrook School also monitored $PM_{2.5}$ to improve understanding of dispersion of elevated, thermally buoyant emissions from key sources such as the MHF and kilns. If cost is an issue, monitoring for $PM_{2.5}$ at Glenbrook School and Waipipi could be undertaken using low-cost, non-regulatory methods (with appropriate calibration) – as provided for under proposed consent conditions.

124. As the purpose of a trigger investigation level (TIL) is to avoid exceedance of ambient (offsite) criteria, then it is inconsistent to set the TIL at the same value as the ambient criteria – as appears to be proposed. This because, as noted above, there is no difference in air quality at a monitoring site one side of a fence to that on the other side of the fence. Thus, if the ambient criteria are exceeded at the monitor then it is too late to avoid this exceedance on the other side of the fence. We have concluded that setting the TIL at 90% of the statutory criteria is more practical and have imposed conditions accordingly.

125. We have adopted the applicant's recommended TIL for 1-hour PM_{10} based on Ms Simpson's review.[38]

The actual and potential effects of emissions of nitrogen dioxide from the Mill

126. The table below summarises NZ Steel's monitoring data from 64 GBR against the three "standards":[39]

NO_2	AkI AAQT	NZ NES/AQG	WHO AQG
Hourly	-	✓	✓
Daily	✓	✓	✓
Annual	✓	✓[1]	✓

[1] Annual national air quality guideline is for ecological protection

127. Dispersion modelling for the new diesel generators predicts concentrations of NO_2 will be below the hourly NES for NO_2, Auckland daily and annual AAQT and hourly & annual

[38] Statement of Evidence of Ms Simpson dated 28 September 2023. At [8.54 – 8.60]
[39] AEE AQA. At Appendix E. *Ambient Monitoring Data Review*.

WHO AQG (for human health protection) as well as annual NZ AQG ecological guidelines.

128. Ms Simpson noted that while maximum predicted cumulative concentrations of NO_2 (35.6 µg/m^3) approach the daily WHO AQG for NO_2 (40 µg/m^3), this maximum is unlikely to occur in combination with worst-case background concentrations from the intermittently operated generators.[40]

129. We note that Ms Simpson has compared predicted concentrations with the (2005) daily WHO AQG for sulphur dioxide of 40 µg/m^3 whereas the (2021) daily WHO AQG for NO_2 is 25 µg/m^3. This means the predicted cumulative NO_2 levels are above the daily WHO AQG. We also note that the monitoring at 64 GBR has already recorded NO_2 concentrations above the daily WHO AQG,[41] but within the 3-4 permissible exceedances per year.[42]

130. We agree with Ms Simpson's recommendation for continued ambient monitoring for this contaminant and consider this should occur for the foreseeable future. We also consider it would be helpful to reinstate NO_2 monitoring at 64 GBR. We have imposed daily TIL that are 90% of the daily WHO AQG and statutory criteria.

131. The deposition of nitrogen can cause ecological effects, with flora particularly impacted at high concentrations. The evidence before us was that deposited nitrogen (2.9 kg of N/ha/yr) will be less than the adopted 'critical load' of 5 kg of N/ha/yr. On this basis we accept that there will be no adverse effects from deposited nitrogen.

The actual and potential effects of emissions of other contaminants from the Mill

132. The Mill discharges many other contaminants, some of which are highly toxic, that are significant in terms of scale and potential effect. These are discussed briefly in turn below.

Carbon monoxide

133. Emissions of carbon monoxide (**CO**) have been assessed through dispersion modelling of the key sources: the kilns and the KOBM flare. The maximum predicted ground level concentrations for CO are not significant compared to the 8-hour NES for CO and the hourly Auckland AAQT.[43] We find that discharges of CO do not pose a notable human health risk.

[40] Statement of Evidence of Ms Simpson dated 28 September 2023. At [8.8]
[41] AEE AQA. At Appendix E. *Ambient Monitoring Data Review.* Maximum daily NO_2 concentration 27.9 µg/m^3 in Table 8.1 at page 30.
[42] Statement of Evidence of Ms Simpson dated 28 September 2023. Fourth highest daily NO_2 concentration 21.0 µg/m^3 in Table 3 at [8.3].
[43] Assessment was not undertaken of the daily WHO AQG (4 mg/m^3).

Sulphur dioxide

134. Ambient air quality monitoring for sulphur dioxide (**SO_2**) was undertaken at 64 GBR and Glenbrook School between March 2017 and June 2020. The table below summarises NZ Steel's monitoring data from 64 GBR against the three "standards":[44]

SO_2	**Akl AAQT**	**NZ NES/AQG**[1]	**WHO AQG**
10-minute	-	-	(not assessed)
Hourly	-	✓	-
Daily	✓	✓	✓

[1] Annual national air quality guideline is for ecological protection

135. Emissions of SO_2 were also assessed through dispersion modelling of key sources. Maximum predicted concentrations were below the NES for SO_2, the Auckland AAQT and NZ AQG at all modelled locations outside of the Operational Area. Based on the relatively low levels of SO_2 measured at 64 GBR, and the dispersion modelling, we accept that adverse health or ecological effects are not likely to arise as a result of SO_2 discharges from the Operational Area.

Metals – airborne particulate

136. Analysis of the metal fraction in (airborne) total suspended particulate (**TSP**) was carried out on filters collected at the New Zealand Steel northern boundary monitoring site (site 4B) for one year.[45] This monitoring site is located on the northern boundary of the site, some 300m from the landfill, around 1 km from the coal storage area, and around 2 km from the MHF and kiln stacks (refer Figure A1, which follows).[46] Whilst this location is predominantly downwind, we note from Figure A1 that it is also relatively distant from key sources and is not representative of locations where people live on GBR and Mission Bush Road.

[44] AEE. At Appendix E. Ambient Monitoring Data Review.
[45] June 2018 – June 2019. AEE. At Appendix E. Ambient Monitoring Data Review. At Table 9.8, page 42.
[46] Statement of Evidence of Ms Simpson dated 28 September 2022. At Appendix A.


LEGEND
Ambient Air Quality Monitoring Sites (Distance to Operational Area)
Additional Monitoring Site to Support Consent Application
Glenbrook School
NZS Landholding Boundary - Site
Operational Area
Carters Boundary
Site 4B
- Metals Deposition
- TSP filter (suspended metals and black carbon)
Training Centre
Site 3
- SO_2
- TSP
64 Glenbrook Beach Road
Site 20
- Metals Deposition
- Dioxins
- NO_2
- PM_{10}
- PM_2
- SO_2
-TSP
- PAHs
Boundary Road
Site 18
- Metals Deposition
- TSP
Glenbrook School
Site 17
- PM_{10}
- SO_2
Sandspit Reserve
Site 19
- PM_{10}
Mission Bush
Pukewhare
Brookside Rd
Reid Rd
Morrey Rd
A3 SCALE 1:20,000
0 150 300 450 600 750 m
LOCATION PLAN
Tonkin+Taylor
www.tonkintaylor.co.nz
Exceptional thinking together
NOTES: Basemap: Sourced from LINZ and licensed for reuse under Creative Commons 4.0.
PROJECT No. 1010577
DESIGNED JORB SEP'22
DRAWN JORB SEP'22
CHECKED MOLI SEP'22
0 First version JORB MOLI 28/04/21
1 Second version JORB MOLI 27/09/22
REV DESCRIPTION ORIG CHK DATE APPROVED DATE
CLIENT NZ STEEL
PROJECT RECONSENTING GLENBROOK STEEL MILL
TITLE AIR QUALITY ASSESSMENT AMBIENT MONITORING LOCATIONS AND PARAMETERS
SCALE (A3) 1:20,000
FIG No. FIGURE A1.
REV 0

137. The analysis of TSP filters did not identify any airborne metals at levels approaching the relevant Auckland AAQT (all less than 10%) and international AQG.[47] The low metals results are within the typical regional background range for airborne metals, indicating airborne metals from NZ Steel's processes do not notably add to the levels arising from regional sources such as the wind-entrainment of soils and marine aerosols.[48]

138. An assessment of inhalation risk for two known carcinogens, arsenic and cadmium, estimated the combined incremental risk to be 1.52 per million, which is below the accepted level of increased lifetime cancer risk in New Zealand.[49] We note the assessment is not truly cumulative as only the inhalation route was assessed (i.e., chronic exposure through other routes such as drinking water and food consumption were not considered) and only two carcinogens were assessed (New Zealand Steel also emits a number of other known carcinogens such as benzene, PAHs and dioxins).

Metals – deposited particulate

139. A comparative analysis of the metal fraction in deposited particulate was carried out on samples collected at three locations: Boundary Road (a background site), 64 GBR and the northern boundary (Site 4B).[50] This showed that some metals were elevated in comparison with background levels, notably: vanadium, manganese, titanium, cadmium, cobalt, iron, chromium and zinc.[51]

140. A screening assessment considering potential exposure to these metals in drinking water flagged vanadium (only) as potentially elevated in comparison with the maximum allowable value (MAV) in the Drinking Water Standards for New Zealand. Subsequent analysis of roof-collected drinking water at six locations showed that none of the metals exceeded the MAV. This includes roof-water collected from a shed within the Site as a worst-case sampling location.

Metals – Conclusions

141. We note that vanadium was most elevated in drinking water collected from the roof of a house located a significant distance (2.4 km) to the northeast of the Operational Area.[52] This is a reassuring finding for the choice of the northern boundary monitoring site for sampling of suspended particulate (for metals).

142. During the hearing we queried Mr Crimmins on the lack of a cumulative assessment for all routes of exposure to metals emitted by New Zealand Steel. Mr Crimmins responded that he was satisfied the air, water, land deposition pathways did not pose significant risks to human health. His memo dated 10 November 2022 added that he had reviewed a Health Risk Assessment provided by the applicant for a separate water discharge

[47] NB: The WHO,2000 guideline for cadmium is 0.005 µg/m3 (not 0.3 µg/m3 as stated).
[48] Memo from Mr Paul Crimmins to Mr Sam Otter, Auckland Council dated 10 November 2022. At footnote 12.
[49] AEE AQA. At 7.4.2.
[50] AEE. At Appendix E. *Ambient Monitoring Data Review*.
[51] *Ibid*. At Table 9.3, page 36.
[52] *Ibid*.

consent. We accept his conclusion that the aerial deposition of contaminants from New Zealand Steel is not likely to cause any detectable human health effects.[53]

Mercury

143. Mercury was assessed separately as it is highly volatile and emitted primarily in gaseous form. Dispersion modelling predicted very low downwind concentrations, less than 1% of the Auckland AAQT for inorganic mercury (0.33 µg/m^3 as an annual average). We accept that emissions of mercury are in accordance with statutory criteria.

PAHs and Dioxins

144. Ambient air quality monitoring was undertaken for polycyclic aromatic hydrocarbons (**PAHs**) and dioxins and furans in suspended particulate collected at 64 GBR for 7 months.[54] This showed:

a. Very low concentrations of PAHs (expressed as benzo(a)pyrene, **BaP**) compared with the Auckland AAQT for BaP (0.0003 µg/m^3 as an annual average); and

b. Very low concentrations of dioxins (toxic equivalents) compared with the California Office of Environmental Health Hazard Assessment (OEHHA) reference exposure level for dioxins and furans (0.00004 µg/m^3 as an annual average).

145. We accept that ambient levels of PAHs are below relevant criteria. We note that the OEHHA reference exposure level is for consideration of non-carcinogen effects only.

Hazardous Air Pollutants (HCl, chlorine, benzene)

146. The assessment went into some detail to estimate and model emissions of hydrogen chloride (HCl) and chlorine from the Pickling Line and Metal Coating Lines. These emissions are extracted to scrubbers prior to discharge to air, and maximum ground level concentrations predicted by the dispersion model are insignificant compared with international AQG . We note that emissions from these lines are minimal (0.4 tonnes per year) compared with HCl emitted from the MHF (40 tonnes per year).[55] When queried about this during the Hearing, Ms Simpson said the focus was on assessing the relatively low-level emissions located closer to residents than the MHF.

147. This is certainly true for benzene, a known carcinogen, which is emitted in significant quantities (629 kg/year) from the (modelled) paint line oven incinerator compared with the 60 metre high (non-modelled) MHF emissions (437 kg/yr).

148. We accept that appropriate mitigation is in place for hazardous air pollutants emitted from the metal coating lines.

[53] Memo from Mr Paul Crimmins to Mr Sam Otter, Auckland Council dated 10 November 2022.
[54] Operational challenges & COVID-19 interrupted this sampling and a total of 7 (out of an intended 12) monthly samples were collected.
[55] Response to s41C RMA Direction #2 from Hearing Panel. At Table 3.5.

Cumulative effects

149. Despite the noted omissions in undertaking a comprehensive cumulative assessment of effects (e.g., benzene, dioxins) we accept Mr Crimmins' conclusion that most hazardous air pollutants will not approach ambient criteria offsite due to the control measures in place and the considerable distance to where people live (1 – 2 km minimum).[56]

Nuisance effects (dust & odour)

150. Nuisance dust was raised as an issue by members of the public, with vivid descriptions of "RPCC fallout". Mr Crimmins considered that discharges of dust are the cause of significant adverse amenity effects in the immediate surrounding area to the site boundaries, within approximately 1 km of the Operational Area.[57] He noted that remedial actions undertaken by New Zealand Steel had provided adequate remedy for more distant residents.

151. Mr Crimmins promotes, and we support, rigorous adherence to dust management practices, with strict adherence to the AQMP to mitigate and minimise amenity effects from dust.

152. Mr Crimmins singled out RPCC tipping and unsuppressed iron plating as key risks for large discoloured (brown/orange) clouds and offsite nuisance (refer Figure 7 below).[58] Mr Crimmins recommended specific management measures to minimise this source and we have adopted these in the consent conditions we have imposed.

Figure 7: Visible discharges as viewed from near 91 Brookside Road.

[56] S42A. At page 156 of the Hearing Bundle.
[57] S42A. At page 159 of the Hearing Bundle.
[58] S42A. At page 162 of the Hearing bundle.

153. We have, however, increased Mr Crimmins requirement for suppression of 90% of iron plating to 100% of iron plating - with exceptions provided for emergency or health and safety reasons. This is because, despite being highly visible, the clouds are primarily fume[59] which is fine particulate and potentially not just an amenity issue offsite.

154. We find that odour effects on amenity values will be negligible beyond the site boundary given the distances between emission sources and the site boundaries, and other mitigation measures such as the afterburner emission control system which further mitigate potential odour discharges.

The relevance of section 104(2A) of the RMA regarding the value of the existing investment

155. Section 104(2A) RMA is engaged. Mr Davies' evidence, as noted above, set out the size of the investment and on-going commitments at the site, and related downstream industries, and the value of the site in terms of direct and indirect gross domestic product and employment in New Zealand. Another measure is the value that the site's steel products has for the security of supply to the New Zealand economy.

156. There was no evidence to the contrary on this matter and we accept the order of magnitude of that summary. Accordingly, we have turned our minds to the value of the investment of New Zealand Steel in determining this application.

Sufficiency of Conditions

157. While there was, as noted, considerable agreement between the applicant and Council on proposed conditions – and we largely accept those – we consider some further conditions are required as discussed above, to address the additional adverse effects we have identified.

158. Additional conditions include:

a. The stack emission limit for PM_{10} on the MHFs and kilns is to be 50 mg/m^3, an achievable best practicable option for this plant (Condition 13);

b. Discharges from the KOBM baghouse are to exit vertically and unimpeded (Condition 14(d)).

c. The upgrading of the MHFs and KOBM baghouse to meet minimum requirements within 5 years, and a further 5 years for the kilns (Condition 13);

d. The extension of fume suppression from iron plating to 100% except for emergency or health and safety reasons (Condition 14(e)); and

e. The setting of Trigger Investigation Limits at 90% of the statutory criteria as a more precautionary approach to the exceedance of statutory criteria beyond the site boundary (Condition 26).

[59] Statement of Evidence of Ms Simpson. At [4.32].

Duration of consent

159. The appropriate duration of consent remained the subject of disagreement between the Council and the applicant, albeit a fairly narrow disagreement over a choice of 20 years (Council) or 25 years minimum (New Zealand Steel). Much shorter durations were sought in several submissions. Dr Hewison and the Equal Justice Project submitted that the duration be only 1 to 5 years to then allow for the greenhouse gas emissions to be properly considered.

160. The applicant's legal submissions, the evidence from Ms Carvill and Ms Simpson, and the section 42A report all referred to relevant case law on the matter of duration. The analysis framework provided by Ms Lampitt was the most comprehensive, so we use that as a base for our discussion. All commentary referred *to PVL Proteins v Auckland Regional Council*[60] as the key case for judicial guidance. Ms Lampitt referred us to the content of several paragraphs of that case where the Court stated:

[27] A decision on what is the appropriate term of the resource consent is to be made for the purpose of the Act, having regard to the actual and potential effects on the environment and relevant provisions of applicable instruments under the Act, the nature of the discharge, the sensitivity of the receiving environment to adverse effects, the applicant's reasons, and any possible alternative methods of discharge, including to another receiving environment.

[28] Relevant factors in making a decision on the term of the resource consent include that conditions may be imposed requiring adoption of the best practicable option, requiring supply of information relating to the exercise of the consent, requiring observance of minimum standards of quality in the receiving environment, and reserving power to review the conditions.

[30] Uncertainty for an applicant of a short term, and an applicant's need (to protect investment) for as much security as is consistent with sustainable management, indicate a longer term. Likewise, review of conditions may be more effective than a shorter term to ensure conditions do not become outdated, irrelevant or inadequate.

[31] By comparison, expected future change in the vicinity has been regarded as indicating a shorter term. Another indication of a shorter term is uncertainty about the effectiveness of conditions to protect the environment (including where the applicant's past record of being unresponsive to effects on the environment and making relatively low capital expenditure on alleviation of environmental effects compared with expenditure on repairs and maintenance or for profit). In addition, where the operation has given rise to considerable public disquiet, review of conditions may not be adequate, as it cannot be initiated by affected residents.

[33] On review conditions, the Regional Council submitted that they may be used in conjunction with longer terms where review is capable of addressing all issues of

[60] *PVL Proteins v Auckland Regional Council* EnvC Auckland A61/2001, 3 July 2001

concern, but not where a consent-holder's financial viability might constrain controls intended to avoid, remedy or mitigate significant adverse effects on the environment.

161. In making these statements the Court referred to other relevant case law and to sections 104, 108 and 128 of the RMA (as those provisions stood at that time).

162. Taking into account the evidence that is relevant to each of these matters our decision on duration has been guided by the following findings.

163. In relation to *PVL Protein*s [27], we accept that the Mill is well located within appropriately zoned land and a rural environment that provides a buffer to sensitive activities, such as residential development, and that this situation should remain largely the same for the foreseeable future. It is difficult to conceive that there would be a better site within the Auckland region for this activity. That said, there exist a number of dwellings in proximity to, and generally downwind from, the Mill. The existing effects of emissions on the dwelling occupants and the potential for these effects to get worse must therefore be considered.

164. Also in relation to *PVL Proteins* [27], we further accept that the Mill operations, and associated discharges, are well understood, and the nature of them is not expected to change significantly during the term of consent. As noted above however, the evidence was that as output has increased, so have emissions.

165. In relation to the nature of the discharges, Dr Hewison and EJP proposed a very short duration, based on the need to consider greenhouse gas emissions following the repeal of section 104E. We have addressed this matter in detail below, but our finding in relation to duration is that the consideration of greenhouse gas emissions in the future is best achieved by way of a review condition.

166. In relation to *PVL Proteins* [30], Mr Davies' evidence emphasised the need for investment certainty in terms of both the operational and regulatory environment. For complex and integrated sites, such as the Mill, he advised a timeframe of 25 years was the minimum necessary both to protect the investment on-site as well as other sites that support the Mill, and for the purpose of raising revenue for (and depreciating) capital improvements. We accept that the Mill operation requires a long time-frame and certainty which supports a longer-term consent.

167. However, in *PVL Proteins* [33] there is a caution expressed about relying on review conditions within longer term consents to address issues of concern in a scenario where financial viability might constrain controls intended to avoid, remedy or mitigate significant adverse effects on the environment. Our findings in this regard are that the deferral of expenditure on plant that are key sources of PM_{10} emissions has contributed to long-term site emissions increase. Rather than wait for a review to be instituted in this regard we consider that a condition requiring the necessary upgrade to best practice is required.

168. In relation to *PVL Proteins* [28], we have supported the inclusion of conditions requiring best practice and independent monitoring and reporting in order to ensure that exceedances of NES are avoided beyond the site boundary.

169. Relevant to *PVL Proteins* [31] we note Council's expressed concern that review conditions have proven largely ineffectual and administratively difficult to operate – which is the reason it prefers shorter consent durations. We were not provided with detailed evidence as to the practical or administrative difficulty suggested, or why that should be a factor in this instance. The RMA clearly and explicitly provides for the review of consents and conditions. However, our finding and approach to the conditions is to not rely on the general review condition to achieve improvements to overall emissions but to identify specific improvements and reliance on implementing the best practicable option.

170. In summary, our finding is that the term of consent of 25 years is appropriate, taking into account the conditions of consent requiring improvements to key plant, the requirements for best practicable option, and the general review clause.

Application of RMA section 104E

171. As noted above, it is the applicant's and Council's agreed position that, despite the application providing for the emissions of greenhouses gases from the Mill, we are not able to consider the climate change effects of these emissions due to section 104E RMA still being in play. The section states:

> ***104E Applications relating to discharge of greenhouse gases***
> *When considering an application for a discharge permit or coastal permit to do something that would otherwise contravene section 15 or section 15B relating to the discharge into air of greenhouse gases, a consent authority must not have regard to the effects of such a discharge on climate change, except to the extent that the use and development of renewable energy enables a reduction in the discharge into air of greenhouse gases, either—*
>
> *(a) in absolute terms; or*
>
> *(b) relative to the use and development of non-renewable energy.*

172. We also note the previously cited clause 26 in Schedule 12 RMA that specifically directs that a "..*resource consent [lodged with a local authority immediately before the effective date] must be determined as if the climate change amendments had not been enacted*".

173. The parties referred to relevant case law to support their positions and to assist us in our consideration of the matter. This case law included:[61]

a. *Todd Energy v Taranaki Regional Council* ENV Decision No. W 101/2005

b. *Greenpeace New Zealand Inc v Genesis Power Ltd* SC 94/2007 [19 December 2008];

c. *Climate Justice Taranaki Incorporated v Taranaki Regional Council* Decision [2022] NZEnvC 127 [14 July 2022];

[61] The case law referred to also references other cases, as is typical of judicial analysis. We consider that it is unnecessary to go beyond the cases referred to for our purposes.

174. We note that the common issue for each of these cases was the relevance of climate change to matters being considered under the RMA. Within that commonality there are significant differences in the factual situation and RMA processes being considered. The detail of these differences is not so important as to warrant in-depth examination to inform our decision. We do however note that:

a. Whereas *Todd Energy* and *Greenpeace* involved resource consent applications (section 120 appeals) which bring section 104E into play, *Climate Justice Taranaki* was a clause 14, Schedule 1 appeal relating to provisions of a proposed coastal plan, with the relevant section to consider being section 70A (the companion section to section 104E);

b. The cases span a period of legislative change. In 2003, the RMA was amended with the introduction of section 104E, with its repeal, being active as of 30 November 2022. *Todd Energy* and *Greenpeace* are considered within the legislative context of section 104E's introduction or soon after, whereas *Climate Justice Taranaki* was considered in the context of its repeal; and

c. Each case explores different nuances of the scheme and purpose of sections 104E and 70A. For example, in *Greenpeace* the question was whether the application must directly involve the use of renewable energy for section 104E to be relevant (as a positive consideration) but not consider the use of non-renewable energy (instead of choosing renewable energy and therefore a dis-benefit in terms of greenhouse gas emissions). In *Todd Energy,* the Court's deliberations were in the time period between the introduction of section 104E and its commencement (thus the 'mirror image' of the situation we are in). The question in *Todd* was how to have regard to the legislative intent of that introduction, as opposed to actually giving effect to it. In *Climate Justice Taranaki*, the question was not about the "effects to [or on] climate change" but more broadly the downstream "anticipated effects of climate change". The appellants argument was for a holistic consideration of the RMA.

175. With that very brief introduction to relevant case law we consider the most authoritative direction is *Greenpeace*, where, in a majority decision, the Supreme Court found at paragraph 65:

[65] When s 104E is interpreted by reference to its text and its purpose, and the record of the passage through Parliament of the legislation of which it formed part is considered, the outcome is clear; the exception within it applies only to applications involving the use and development of renewable energy.

176. The interpretation of section 104E by the applicant and Council is consistent with this decision and we accept that they are correct.

177. Turning to the *Todd* decision, Dr Hewison drew our attention to paragraph 43. Having recorded the evidence on the potential emissions of greenhouse gases from the proposed plant at less than 1% of the New Zealand total, the Court stated:

[43] So we cannot ignore whatever evidence there might be before us about the effects on the environment of the emissions of CO_2 that would arise when this discharge consent is exercised. How much weight we should give to that issue is another matter, and the (now) statutory expression of the Government's policy is relevant to that point. Particularly when exercising a discretion it is proper to have regard to, as opposed to giving actual effect to, legislative expressions of Government intent, even if the legislation may not actually be in force at the relevant date.

178. In having regard to the legislative intent, the Court concluded that:

Assessed as a stand alone adverse effect from a regional or even national point of view, the projected increase will be, so far as we can tell from what is before us, no more than minor, at worst. As an addition to what considerable scientific opinion regards as a significant global issue, central Government's strategies will apply to it.

179. In other words, looking ahead to the exercise of the consent, the Court considered that the effects of the emissions were going to be appropriately addressed by central government, as envisioned by the yet-to-commence section 104E amendment.

180. We consider that the approach taken by the Court in *Todd Energy* was a 'real world' approach acknowledging that while the application (and appeal) predated the commencement of section 104E, the implementation of the consent would be almost entirely after that commencement, under a legislative regime that excised the effects of greenhouse gas discharges on climate change from consideration by the consent authority.

181. We further consider that such a 'real world' approach is appropriate in this case. By the time this decision is released, section 104E will have been repealed, and the exercise of the consent and all related discharges will occur under the post-commencement period.

182. As noted above, the applicant provided us with a bundle of authorities that addressed the commencement of the Resource Management Amendment Act 2020 which repealed section 104E. The bundle also usefully contained relevant passages from the Select Committee report on the Act. The report observes:

We acknowledge that it will be vital to have direction at a national level about how local government should make decisions about climate change mitigation under the RMA. Otherwise, there could be risks of inconsistencies, overlap of regulations between councils and emissions pricing, and litigation.[62]

183. The report also recommended the delayed commencement period to 31 December 2021, which was then formally extended to 30 November 2022. We were not advised in the hearing of any further national level direction. Mr Crimmins told us that the Council was only at the initial stages of considering a comprehensive response to its new GHG / climate change obligations.

[62] Select Committee Report for Resource Management Act 2020 p.17 2nd para.

184. Since the hearing we note (pursuant to section 104(1)(c)) that the Ministry for the Environment has issued a guidance note[63], the introduction of which states:

"From 30 November 2022 local government must 'have regard to' Aotearoa New Zealand's first national adaptation plan (national adaptation plan) and Aotearoa New Zealand's first emissions reduction plan (emissions reduction plan) when they prepare or change a regional policy statement, regional plan or district plan. This is a requirement under the Resource Management Act 1991 (RMA), made by the Resource Management Amendment Act 2020 (RMAA). This requirement was introduced to create a stronger link between the Climate Change Response Act 2002 (CCRA) and decision-making under the RMA."

185. The focus of the guidance note (which has no statutory status) is plan-making, not the consideration of applications for resource consent. Nevertheless, changes to the Auckland Unitary Plan in response to national emissions reductions plans could be a suitable impetus to review the consent for emissions reduction purposes.

186. Our conclusion is therefore that the review condition as drafted provides the basis for considering future adverse effects, particularly in the context of taking account of changes to Acts of Parliament, regulations, policy statements or plans.

Relevant standards, policy statements and plan provisions considered

187. In accordance with section 104(1)(b)(i)-(vi) of the RMA, we have had regard to the relevant standards, policy statements and plan provisions of the following documents.

National Environmental Standards

188. Of the eight national environmental standards in force, the National Environmental Standards for Air Quality (**NESAQ**) and for Sources of Human Drinking Water **(NESDW**) were considered relevant by Mr Clarke.

189. We are confident that, with the emission reductions we have imposed as conditions of consent, discharges of PM_{10} to air will not breach the NES for PM_{10} (albeit the implementation of these conditions can take up to 5 years). This balances the mandatory requirements of Regulation 13(1) of the NESAQ against the practical ability of the applicant to undertake the necessary improvements.

190. The evidence of Ms Simpson was that the concentrations of all metals of interest were below the applicable Maximum Acceptable Value in Drinking Water, or international drinking water criteria where New Zealand values are not available, based on samples from five houses and a site shed. Mr Clarke concluded that the proposal will not result in the contamination of any sources of human drinking water as defined in the NESDW. We accept Ms Simpson's evidence and Mr Clarke's conclusion and are also satisfied

[63] National adaptation plan and emissions reduction plan: Resource Management Act 1991 guidance note. Ministry for the Environment, Wellington November 2022

that the concerns expressed by iwi on the protection of drinking water supplies are addressed satisfactorily.

National Policy Statements

191. Of the five national policy statements in place, Mr Clarke referred us to the National Policy Statement for Freshwater Management (**NPSFW**) and the New Zealand Coastal Policy Statement (**NZCPS**).

192. While the proposal has the potential to deposit particulate matter in the freshwater environment, Mr Clarke accepted that the evidence provided indicates that sedimentation of any river, lake or stream due to discharges is unlikely. Consequently, water quality and the habitat of freshwater species will be protected. Such effects, if they were to occur, would be of particular concern to mana whenua. Mr Clarke considered that the involvement of Mana Whenua in the decision-making process through consultation and direct notice of the application ensured that Maori freshwater values were identified and protected thus giving effect to Te Mana o te Wai in the NPSFW. We note that the conditions of consent also support on-going protection of these resources through the Environment Committee.

193. The site is within the coastal environment. As a consequence, similar concerns as with freshwater can be expressed in relation to coastal water quality and coastal habitat values, which is the subject of NZCPS provisions, as is the recognition that such values are of special importance to mana whenua. We are satisfied that coastal water quality and the mahinga kai accessed from the nearby coastal habitat will not be adversely affected by the Mill's emissions.

194. Mr Clarke also assessed the effects of the Mill on the natural character of the coastal environment in terms of NZCPS Policy 13. He concluded that discharges from the Mill were of an intermittent nature, dispersed rapidly, and were predominantly of a natural colour such that the coastal natural character and landscape values would be preserved. We note that his conclusions are supported by the independent landscape and visual assessment conducted for the applicant as recorded in the AEE, and accept his conclusions in this regard.

Auckland Unitary Plan

195. As noted, Ms Carvill and Mr Clarke both provided a comprehensive analysis of the statutory planning provisions of the AUP. There was only minor disagreement between them on the interpretation and application of these provisions. Where that disagreement existed we generally favour Ms Carvill's opinion.

196. For example, it is important to acknowledge that the Mill makes efficient use of existing infrastructure and heavy industrial zoned land, as envisaged by the AUP Regional Policy Statement Chapter B2.5. This efficient use contributes to the appropriate management of the scale, character and intensity of effects as observed by Ms Carvill. The same can be said of the Mana Whenua provisions in Chapter B6 which recognise the principles of the Treaty of Waitangi and the participation of Mana Whenua in the consenting process.

We conclude that the applicant has achieved this objective. The section 42A report did not comment on these provisions.

197. Further, we agree with Ms Carvill that Chapters B7.3 and B7.4 in relation to effects on freshwater, coastal water and geothermal water and parts of B8.3 on the location of the activity in relation to mean high water springs are not so directly relevant to this application.

198. In relation to the zoning and precinct provisions, H16 Business – Heavy Industry and I415 Glenbrook Steel Mill Precinct, the Auckland-wide provisions of Chapter E and Overlays (as relevant) in Chapter D, the conclusions of both planners were that the proposal was generally consistent with these provisions. The detail of those provisions is set out in the AEE and supporting Appendix K.

199. We agree that the proposal is generally consistent with these provisions. On the matters of disagreement, the interpretation in Objective 14.2(1) depends on what is considered to be the existing baseline of air quality. If that includes the existing Mill, then the operation of the Mill in accordance with the applicant's proposed conditions is to improve the air quality and the application is consistent with the objective, as concluded by Ms Carvill. Mr Clarke's conclusion that future Mill operations would be inconsistent with the objective appears to rely on the Mill being an addition to the existing baseline. In relation to consistency, or otherwise, with Objectives E14.3(3) and E18.3(4) on rural zone outcomes and land use practices respectively, we accept Ms Carvill's opinion that these provisions are of limited relevance.

200. An important omission by both parties, but one which we have considered in detail, was consideration of the Auckland AAQT. We are confident that, with the emission reductions we have imposed as conditions of consent, discharges of PM_{10} and $PM_{2.5}$ will not exceed the relevant AAQT (after 5 years). This balances the need to avoid significant adverse effects against the practical ability of the applicant to undertake the necessary improvements.

Section 104(1)(c) Other Matters

201. The applicant has proposed, and council has accepted, reference to a number of international ambient air quality criteria for assessing pollutants not included in Schedule 1 of the NESAQ, the Auckland AAQT or the NZ AQG (e.g., WHO AQG). We accept the use of these criteria for assessment purposes as relevant and helpful under s104(1)(c).

202. Ms Carvill referred us to a number of other documents that might be considered as section 104(1)(c) matters, the details of which had been assessed in the AEE. To this list Mr Clarke added the Auckland Plan. Whilst we accept that these documents have some relevance, none were of a determinative nature that require our closer inspection in this decision. We therefore adopt the findings and conclusions of Ms Carvill and Mr Clarke as to the proposal being consistent with them.

Sections 105 and 107 RMA

203. As discussed above, we are satisfied that the limitations of sections 105 and 107 of the RMA are (to the extent that they apply) met.

Part 2 of the RMA

204. When considered in the wider context of the Part 2 sustainable management purpose of the RMA and the functions of regional and territorial authorities, we are satisfied that, with the conditions imposed, the application meets the sustainable management purpose of the RMA, will not adversely affect the health and safety and/or wellbeing of neighbours, and will enable the land to continue to be used for an appropriate purpose.

Decision and reasons

205. In exercising our delegation under sections 34 and 34A of the RMA and having regard to the foregoing matters, sections 104,104B, 105 and 107 and Part 2 of the RMA, we determine that resource consent to authorise air discharges associated with iron and steel production and ancillary activities at the Glenbrook Steel Mill should be granted subject to the conditions attached as Schedule 1 and for the reasons discussed throughout this decision and, in summary, as set out below:

    (a) In accordance with an assessment under ss104(1)(a) and (ab) of the RMA, the actual and potential effects from the proposal are found to be acceptable, because:

        (i) The conditions we have imposed will be sufficient to reduce emissions such that relevant ambient air quality criteria are met offsite. Accordingly, within a short period of time (5 years) there will be no significant adverse effects on human health.

        (ii) Adverse cultural effects are mitigated and managed in a way to ensure that points raised by Ngāti te Ata and Ngāti Tamaoho are addressed. Air quality issues as being of particular significance to Māori include deposition of air pollutants to mahinga kai, marae and wāhi tapu; reduction of visibility, particularly to maunga; and impact of odour and other air pollutants to valued sites. Adverse cultural effects are expected to be no more than minor. It is noted that consultation was also invited from Ngāti Maru, Te Ahiwaru – Waiohua, Te Ākitai Waiohua, and Waikato – Tainui, however no further correspondence was received from these groups by New Zealand Steel. The conditions also provide for the participation of Ngāti te Ata and Ngāti Tamaoho on the Environment Committee.

    (b) The proposal has the following positive effects:

        (i) The steel mill contributes approximately $600m towards New Zealand's GDP (FY2019/2020);

        (ii) The steel mill directly employs 1,250 people and indirectly 4,063 full time employees;

(iii) For every tonne of steel produced in New Zealand, 80% of the dollars spent are retained within New Zealand; and

(iv) The production of steel within New Zealand contributes towards increasing building supplies for the construction sector at a time when building supplies and international imports are constrained. This then has a flow on effect, whereby the production of steel enables more housing, infrastructure, and other development to continue to be constructed in Auckland and New Zealand.

(c) In accordance with an assessment under s104(1)(b) of the RMA, the proposal is found to be generally consistent with the relevant statutory documents, including the Auckland Unitary Plan (Operative in Part), the policies of the New Zealand Coastal Policy Statement, the National Policy Statement on Freshwater Management. In relation to the National Environmental Standard for Drinking Water, the discharges appear unlikely to cause any exceedances of applicable Maximum Acceptable Values in Drinking Water, or international drinking water criteria where New Zealand values are not available. With the conditions we impose we consider that the Mill can be operated so as to meet the relevant standards of the National Environmental Standard for Air Quality.

(d) In accordance with an assessment under s104(1)(c) of the RMA, relevant health-based ambient air quality criteria have also been considered and, with proposed emission reductions, the proposal is consistent with these criteria. Similarly, the Auckland Plan has also been considered and the proposal is considered to be consistent with this document.

(e) In accordance with section 104E of the RMA, all adverse effects resulting from the discharge of greenhouse gases on climate change have been disregarded.

(f) In terms of section 105 of the RMA, the conditions require that the Mill utilises the best practicable option to minimise and avoid adverse effects on the environment, including a period of 5-10 years in which to implement process upgrades to meet the required NESAQ ambient standard for PM_{10} .

(g) In terms of section 107, the proposed air discharges will not result in any of the adverse effects set out in that section.

(h) Granting consent is consistent with promoting the sustainable management purpose and principles of Part 2 of the RMA.

David Hill
Chairperson
and for Commissioners Lou Wickham, Dave Serjeant and Reginald Proffit

13 March 2023