



Air Quality Management Plan

Favona, Trio, Correnso & Martha Mines

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1 PURPOSE

This document describes the systems and procedures for air quality management at the OceanaGold New Zealand Ltd (OGNZL) Waihi Operations. These relate to the Martha Open Pit, and the Favona, Trio, Correnso & Martha Underground Mines and ensure that all operations are effectively monitored and managed, and that there are no objectionable adverse effects on air quality.

Emissions to air from the various mining activities are specifically covered by Resource Consents:

- Favona Underground Mine; Resource Consent 109741
- Trio Underground Mine; Resource Consent 121697
- Golden Link Project Area (Correnso and Project Martha); Resource Consent 124859.

This Air Quality Management Plan ('Plan') is prepared to meet condition 6 of Resource Consent 109741, condition 6 of Resource Consent 121697 and condition 11 of Resource Consent 124859. The existing dust monitoring network provides data for ambient conditions (which includes the effects of Favona, Trio, Correnso & Martha), this Plan describes air quality management for all operations.

Early plans focused on the Martha Mine only. The 2006 Plan was a review of the Martha operation and a means of meeting the conditions prior to exercising the Favona Underground Mine consents. The 2010 Plan included requirements of the air discharge consent for the Trio Development Project, and the subsequent reviews met the requirements of the Trio Underground Mine, Golden Link (Correnso), SUPA/MDDP and Project Martha consents.

2 LEGAL REQUIREMENTS

The relevant conditions of the Air Discharge Consents for Martha, Favona, Trio and Golden Link are attached as Appendix A. While there are some differences in the consent conditions between the three mining operations, fundamentally the conditions require the following:

- No objectionable effects of particulate matter beyond the site boundary
- Waikato Regional Council (WRC) notification as soon as possible when a non-compliance occurs
- Vehicle washing facilities, sealing of roads, stockpile management to minimize particulate emissions, dampening of roadways and yards as necessary
- Development of an Air Quality Management Plan to detail air quality management objectives, the measures to be taken to meet those objectives, and air quality monitoring programmes including trigger levels for dust
- Annual reporting
- Complaints management.

This Plan is also prepared to comply with OceanaGold's Environmental Performance Standard (Appendix C), which also emphasises compliance with legal requirements.

3 AIR QUALITY ASPECTS

3.1 Waihi Operations

The Martha Pit began operation in 1987 and has been through several extensions, laybacks, and suspensions since then. The most recent episode began with the suspension of workings after a slip on the north wall in 2015. Since then, further stabilisation work was undertaken on the north wall in 2017/18 and plans to further layback the north wall and mine the pit are set to commence in the future. Air quality monitoring has been ongoing throughout the life of the mine (even when pit works have been suspended) and will continue for Project Martha when activities recommence.

The Favona Underground Mine is located north and east of the existing processing plant. Site preparation works were conducted from late 2004, with the subsequent construction of the Favona Exploration Decline in 2005. The placement of potentially acid forming (PAF) material on the polishing pond stockpile in 2006 marked the first exercise of the Favona Underground Mine consents. Mining of Favona was completed in 2011.

The Trio Underground Mine commenced production in 2012 and was the focus of production for two years before production mining abated in 2014. The lowering of groundwater levels in Trio (as a consequence of Correnso development) enabled the development of an extension into 'Trio Deeps' in 2018; production mining of this area was completed in 2020.

The Correnso Underground Mine project began late 2013 and was the mainstay of ore production after Trio. Mining in the Correnso Underground Mine is nearing completion, with remaining mining limited to narrow vein techniques.

The Martha Drill Drive Project (MDDP), consented in 2017, was the extension of two development drives from the westernmost extent of the existing Slevin Underground Project. These drives have been extended under the south-eastern wall of the Martha Pit and provide both access for exploration drilling for the deeper Martha ore deposit and access for the Martha Underground Mine.

Air quality management for the Martha Underground Mine includes an intake and exhaust portal at the bottom of the Martha Pit, broken through in 2019. In April 2022, two new 700kW primary fans were installed to increase the volume and quality of air through Martha. With newer mining equipment replacing older diesel vehicles, the increased air flow and cleaner vehicles have lowered the emission concentration levels.

3.2 Mining Activities

As a consequence of surface mining, dust can be produced from drilling, blasting, ripping, grading, loading, haulage, tipping, crushing, conveying, and general vehicle movements. Dust can also be generated from exposed areas and stockpiles. Other mining air emissions include combustion gases (carbon monoxide and dioxide, nitrogen oxides and sulphur dioxide), directly from blasting and via exhaust emissions from machinery.

The nature of underground mining is such that the off-site air quality implications are less than for open-cast mining. Emissions produced underground are not subject to the vagaries of the weather and are exhausted through ventilation outlets. Other emissions relating to underground mining are from short-haul stockpiling activities near the portal.

Near-mine exploration will be ongoing while the current mining continues. Should any nearby ore body be proven viable, extensions to the surface and/or underground operations are likely to be pursued. If

an extension to mining is pursued, this Plan will be reviewed to determine if any changes to effects or monitoring need to be captured and the Plan updated if necessary.

3.3 Waste Rock Embankment Operations

Waste rock from stockpiles (and the open pit, once active again) is used to construct the Tailings Storage Facilities (TSFs), raise the crest of the embankments, provide underground backfill, and supply the fill for the embankment buttresses. Complaints arising from this activity are less frequent than pit activities due to the rural location of the TSFs. However, the TSFs are highly visible to the surrounding land and vigilance is still necessary, particularly in the drier summer months and especially in windy conditions. Progressive rehabilitation of the final surface of the waste rock embankments to pasture and native vegetation, removes the need for active air quality management on the embankments. Therefore, a much smaller area including stockpiles and roads is managed. Lime being broadcast (either for pasture improvement or on potentially acid forming waste rock used in the TSFs construction) is sometimes misconstrued as haul road dust.

Topsoil stripped from the footprints of the TSFs has been stockpiled, shaped, and revegetated. These topsoil stockpiles do not pose any air quality issues while they are in this state, but care is required when they are re-handled for rehabilitation.

3.4 Milling Operations

Areas north and west of the processing plant are utilised for stockpiling areas in preparation for milling and backfilling. Separate stockpiles are required for each source as they require different treatments to optimise gold recovery and are therefore processed in 'campaigns.' Currently there is no Martha ore stockpile, however, ore from Martha Underground may remain on the ROM pad at the processing plant for up to two weeks due to current milling operations. Although most underground waste rock is relocated within the workings, waste rock is also stockpiled near the processing plant at the Favona Stockpile to be reused as backfill. As with other active stockpiles on site, this has the potential to generate dust (especially in dry, windy conditions).

Another source of dust is from the lime silos located over conveyor lines around the plant. In practice, dust from the lime silo feeders is minimal and has not caused complaints from off site.

Other potential emissions include cyanide gas from the leach tanks and cyanide dust from its infrequent use in solid form at the cyanide storage and mixing facility in the processing plant. Cyanide is toxic to humans in both the gaseous and particulate forms, and health and safety controls for these reagents is so stringent that off-site emissions are negligible.

Fine particulates from the carbon regeneration furnace may occur. Particulate emission tests have been undertaken and show the effects to be insignificant, and (like cyanide) health and safety controls in the immediate vicinity minimise off-site emissions.

3.5 Drilling Activities

Drilling occurs in and around the Waihi District, generally under contract, for geotechnical and exploration purposes. Complaints about air emissions from drilling are rare as only diamond drilling is undertaken in residential areas and such drilling utilises fluid lubrication. Reverse Circulation (RC) drilling is used for less than 10% of exploration drilling, uses bag filters on its cyclone for dust suppression, and is restricted to areas further from residences due to the noise it generates.

3.6 Controlled Burns

Burning of waste materials is conducted in four main activity areas:

- Vegetation at Baxter Road green-waste disposal area
- Destruction of tramp and hazardous goods packaging (wooden pallets, packaging and plastic liners) on the Northern Stockpile area (Consent 124859 allows the discharge of emissions from burning of surplus packaging)
- Vegetation stockpiles in areas where land has been cleared in preparation for native planting or amenity area development
- Burning of demolition material has occurred on rare occasions.

When a controlled season is in force, all burning is subject to fire permits. Standard fire permit conditions include:

- No person shall burn, or permit or allow to be burnt, any matter or thing in such a manner as to be offensive
- Notifying neighbours if a burn is in town or near their residence.

3.7 Ventilation Shafts and Drive

The Underground Mines have two ventilation shafts; the Favona shaft adjacent to the ore stockpiles at the processing plant, and the Trio shaft situated within regenerating forest on the western side of Union Hill. There is also a two drive from MDDP that emerges into the Martha Open Pit in the south-east wall at the 920mRL level. The Trio shaft and 920 breakthrough drive have operational vent fans; the Favona shaft has had its fans removed and acts as a minor air inlet.

The majority of Martha is ventilated from fresh air entering the Martha Open Pit circulating around the mine and exhausted by the pair of 700kW fans back into the Open Pit. A secondary fan in Trio 983, below Union Hill draws fresh air into the Favona portal and Favona vent shaft, around the rest of the mine which is then exhausted out via the Trio shaft.

Mining activities are currently focused in the Martha Underground Mine, therefore the air exhausted from the mine is primarily discharged into the Martha Open Pit. The Trio ventilation shaft still provides fresh air for the Correnso Mine, Underground Crib Room and Underground Workshop. The exhaust waste products resulting from mining activities include dust generated from rock handling and the combustion residues from diesel machinery exhausts and blasting (i.e. diesel particulate, carbon monoxide, oxides of nitrogen, oxides of sulphur, and hydrogen sulphide).

4 AIR QUALITY CONTROL OBJECTIVES

The air quality control objectives are:

- To mitigate dust emissions from all operations
- Ensure compliance with resource consents, including maintaining the air quality monitoring programme
- To manage point and non-point source air emissions to be protective of human health and the environment
- To monitor areas of community concern

- To ensure that other emissions are within Workplace Exposure Standards and are not objectionable or offensive
- To respond promptly to complaints and non-compliances and to communicate mitigating actions taken
- To continue to identify best practicable options, and investigate and trial new methods, products and technologies to minimize and mitigate effects

5 AIR QUALITY MANAGEMENT

5.1 Responsibilities

The General Manager has overall responsibility to ensure legal and other requirements in this Plan are fulfilled and resources are available to achieve this.

The Head of Sustainability ensures:

- Fulfilment of all monitoring and reporting requirements under the consents/licences and this Plan
- The Plan is reviewed every two years
- Air management programmes identified in this Plan are developed, implemented and maintained where appropriate
- Mitigation actions are identified and communicated where necessary

Department Managers and Supervisors are responsible for ensuring that emission controls are maintained and utilised, employees are trained in procedures relating to air quality management, and that maintenance procedures and conditions of contracts with air quality implications are supervised and enforced.

The Company Liaison Officer is responsible for responding to complaints and liaising with the community. The Company Liaison Officer has sufficient delegated authority to require that mitigation measures be undertaken to meet consent requirements.

The contracts between OGNZL and its contractors require operations to be carried out in compliance with all regulatory authorisations as they relate to the operation. Contractors are subject to a "Pre-Qualification Assessment" to ensure they have effective environmental and external relations procedures. Contracts with OGNZL contain provisions requiring compliance with OGNZL Policies and Procedures which includes reference to consents that the contractors must comply with. The Manager – Process and Manager – Mining (Underground) have delegated responsibility for overseeing any surface and underground contractors ensuring compliance with regulatory requirements.

5.2 Emission Control and Maintenance Procedures

5.2.1 Dust

5.2.1.1 General

The following methods are, and will continue to be, used for dust control on site:

- Water tanker vehicles used on a regular basis when necessary for dampening down active operational areas around the pit, stockpiles, processing plant and waste disposal areas. Fine material generated by road construction and haulage is kept damp

- Wheel wash facilities to prevent mud being tracked off site are located at both the pit and waste disposal areas. Where vehicles have driven through muddy areas, drivers are required to use the wheel washing facilities before leaving the site
- Dust collectors and bag filters are used on blast hole drill rigs in the open pit, and in the infrequent times that reverse circulation (RC) drilling is undertaken for exploration. Diamond drilling utilises fluid lubrication and produces negligible dust
- Modern blasting techniques limit dust generation in the open pit, e.g. good quality 'stemming' of blast holes to prevent excessive fly-rock, gas and dust generation from the blast holes. The relatively small size of open pit blasts also mitigates air emissions
- Irrigation sprays are used at jaw crushers and conveyor transfer points when necessary. Conveyors in some exposed locations are roofed which reduces drying effects and exposure to gusts
- Open pit stockpiles are maintained at heights below the level of the perimeter fence around the pit rim
- Hydroseeding and selective planting of exposed areas of the upper open pit batters and benches (i.e. above the eventual lake level) has been carried out, with maintenance and enhancement ongoing. Public walking tracks around the pit rim have been gravelled
- Rehabilitation of final batters at the waste disposal site and long-term stockpiles is undertaken as soon as surfaces are available, and weather is appropriate. (Revegetation in the pit and on the waste disposal site is detailed in the Rehabilitation & Closure Plan, which is updated annually)
- Screens and fences are used to prevent wind-blow in dust prone areas (e.g. lime silos).
- Water carts and sprayers are used where necessary underground to maintain the roads in a wet condition, and muck piles are watered down with hoses prior to placing the material into trucks
- Conservative speed limits reduce dust disturbance from passing vehicles. The most used access roads have been sealed

These practices are regarded as normal procedures on site and are carried out irrespective of weather conditions. In this way, when changing weather conditions periodically generate conditions likely to generate dust, good air quality management practices are already being undertaken. Many of the measures also have collateral benefits in terms of noise control, employee health, equipment maintenance, reduced weed burden, and improved production.

5.2.1.2 Wind Speed Trigger Levels - Proposed Mitigation Actions

When significant surface mining activities commence in relation to Project Martha, OGNZL proposes to initiate a warning/action system to mitigate the impact of aggravating weather conditions on dust generation. Wind speed trigger levels will be established from the meteorological station data (refer section 6.11) that will initiate response measures during dry windy conditions as outlined in Table 1. (Ref: *Project Martha - Assessment of Environmental Effects of Discharges to Air* (BECA Ltd, 2018)):

Table 1. Proposed wind speed trigger values and mitigating actions.

Trigger Methods	Trigger Values (measured at the on-site monitoring station)	Actions
Wind Speed Alert	Hourly average wind speeds exceed 5 m/s as measured at Site 6.63 (Met Station/Office) and winds are blowing towards sensitive receptors located within 100m of the project boundaries.	Dust sources and dust control measures will be reviewed, and additional dust control methods shall be implemented as required to ensure adverse effects do not result beyond the boundary of the mine.
Wind Speed Alarm (note, this does not apply during rain events)	<p>Gust wind speeds (two-minute average or less) exceed 10 m/s as measured at Site 6.63 (Met Station/Office) during two consecutive ten-minute periods and winds are blowing towards sensitive receptors within 100m of the project boundaries.</p> <p>Works may recommence when wind gusts (two-minute average or less) are less than 7.5 m/s as measured at Site 6.63 (Met Station/Office) during the previous two consecutive ten-minute periods.</p>	All dust-generating activities will cease within 200m of sensitive receptors located within 100m of the project boundaries except for dust control activities.

Notes:

1. *These mitigation actions apply during dry and windy conditions. There is less likelihood of objectionable dust generation during rain.*
2. *For the purposes of these actions, 'sensitive receptors' includes privately-owned residences, rest homes, marae, schools, kindergartens and childcare facilities, commercial and retail businesses.*

5.2.1.3 Dust Suppressants

OGNZL has trialled surface binding agents for dust control and will seek to utilise new technologies where they are successful and cost effective. Prior to trialling any new suppressants or additives, prior written approval for their use must be obtained from WRC.

5.2.1.4 Drilling

For exploration drilling, diamond drilling is the primary technique used. Diamond drilling utilises fluid lubrication and produces negligible dust. For the infrequent times that RC drilling is undertaken, a bag filter on the cyclone separation system is used for dust suppression.

5.2.1.5 Stockpile Management

Material being conveyed is kept damp by the sprayers in the crushers and transfer stations; this reduces dust generation during transport and when being discharged onto stockpiles. Agricultural irrigation sprayers can be used on stockpiles around the mill during summer when dust is more of an issue. Grassing of long-term stockpiles (e.g. topsoil) is also being carried out where possible.

5.2.2 Blasting Emissions

In addition to dust emissions, blasting results in the emissions of gases. These include carbon monoxide, nitrogen oxides, and sulphur compounds (such as sulphur dioxide). OGNZL follows good international practice to minimise potential impacts of blasting. The primary explosive used, ANFO emulsion (ammonium nitrate, fuel oil/diesel and emulsifiers), produces relatively low emissions of those gases. Diesel, which has lower sulphur content than fuel oil and produces less sulphur emissions, is favoured in the open pit and underground.

Management of the effects from blasting in the open pit and underground is reviewed by OGNZL daily. Pending blasts are discussed and consideration given to the likely effects on nearby residents. Adverse weather conditions and sleeping shots (where explosives have been in the ground overnight and tend to give off more fumes when fired), may require liaison with any concerned residents.

5.2.3 Cyanide Emissions

5.2.3.1 Particulate Emissions

Solid cyanide is predominantly transported to site in bulk Isotainers™. It is mixed into solution in the transport container at site, thereby reducing the opportunity for airborne emissions - i.e. a water scrubber is not required for isotainer deliveries.

Previously, sodium cyanide was primarily brought on to the site in the form of bags of briquettes. With this process, some dust is emitted during the debagging process, as the briquettes are added to water in a mixing tank. These emissions are controlled with a water scrubber. This system is now only utilised as a backup when Isotainer deliveries are delayed and accounts for less than 5% of the site cyanide input.

5.2.3.2 Performance Testing and Maintenance

Emissions from the venturi scrubber were previously tested once a year to confirm satisfactory performance. Because the use of the debagging plant is now infrequent, and the low results of emission tests, approval was received from Environment Waikato (now WRC) in 2002 to discontinue the emission testing at the debagging plant (unless OGNZL goes back to the dry bag method of delivery on a routine basis).

5.2.3.3 Cyanide Vapour Emissions

Hydrogen cyanide emissions from the leaching process and any downstream liquid wastes are not significant. Significant emissions would only occur if the pH of the liquid drops below 7. Lime is added to the ore prior to crushing, and the process is strictly controlled to maintain a pH of above 10, with probes set to trigger an alarm if the pH drops below this level.

Management of pH levels and monitoring for hydrogen cyanide gas is primarily undertaken for worker safety (refer Sections 6.4 and 6.5 for monitoring procedures). Cyanide vapour emissions off site are negligible as a consequence of this at-source management.

5.2.4 Other Mill Emissions

Within the mill area, specific processes are subject to air emission treatment measures. These measures are predominantly for the protection of employees, with limits set by Worksafe's Workplace Exposure Standards, but the effect is that emission levels off-site are also well below any unsafe levels. These processes include:

- Fumes from above the drying ovens (which may contain elevated metals) are drawn through a water scrubber prior to discharge to air
- A scrubber around the hydrochloric acid delivery area draws air through a lime filter, which effectively neutralises acid fumes

5.2.5 Vehicle Emissions

Regular inspection, maintenance and tuning of all vehicles used on site ensures that vehicle emissions are kept to a minimum. This is in the best interests of both OGNZL and contractors as efficient engines prolong vehicle life and minimise fuel costs. OGNZL operates a comprehensive maintenance programme to ensure that all on-site mobile equipment and light vehicles are serviced as required and has a contract with a local automotive service agent to service its road-registered equipment and light vehicles. All leased vehicles are maintained by the contracted lease company.

OGNZL has been using low-sulphur diesel in on-site vehicles for some years and has also installed diesel particulate filters (DPF) on heavy underground trucks to improve working conditions underground. The underground trucks are also monitored during routine maintenance to ensure that emissions are within specifications. This is expected to have had a consequential beneficial effect of reducing sulphur and particulate emissions from the ventilation outlets.

6 AIR QUALITY MONITORING

OGNZL carries out, and will continue to carry out, various air monitoring related activities as follows:

- Continuous total suspended particulate and deposited particulate dust monitoring at a network of sites around the operation
- Measurements of cyanide gas concentrations in the air at the treatment plant
- Personnel monitoring for worker exposure to air emissions
- pH monitoring of tailings which provides a measure of cyanide emissions
- A register of all complaints regarding air quality (and other environmental matters)
- Scheduled vehicle servicing (including specific emissions monitoring) to ensure emissions are within acceptable levels
- Occasional testing of particulate emissions from the carbon regeneration furnace and gases from the gold room stack
- Meteorological data, including wind speed and direction, rainfall, temperature, solar radiation and relative humidity

Information on each of the monitoring programmes is given below.

6.1 Particulate Monitoring

Appendix B shows the locations of the dust monitoring sites. The OGNZL dust monitoring programme is one of the most extensive dust monitoring programmes in New Zealand, and it provides an excellent record of air quality data collected over more than 30 years.

The dust monitoring programme complies with the requirements of the Discharge to Air Consent (Consent 124859) for the Golden Link Area of operations. Because this consent included emissions monitoring from the mill, underground and tailings facilities, the existing monitoring sites also cover the requirements for other Discharge to Air Consents for the Favona and Trio Mines.

There are two types of dust measurement in the current OGNZL continuous dust monitoring programme – total suspended particulate (TSP) and deposited particulate (DP). TSP is determined by drawing a measured volume of air through a filter and then weighing the dust collected over seven days. DP is measured by means of a special funnel over a collection bucket which simply collects the dust settling on a fixed surface area over a month.

The existing monitoring programme will be utilised to monitor compliance with the Project Martha requirements, along with the installation of three additional “real time” TSP monitors that will assist in the active management of dust control (refer section 6.12).

Several procedures are used to ensure the quality of the dust monitoring programme. Some of these, such as equipment set-up and data checking, are an integral part of the routine activities and standardised through regularly updated SOPs. Other “external” procedures are used to ensure the overall quality of the work:

- Air volume meter calibrations: All gas meters are calibrated annually.
- Balance calibrations: Laboratory balances used for weighing filters are calibrated and checked annually.
- Real time TSP calibrations: Monitors are flow calibrated quarterly.
- Procedure reviews: General review of laboratory and field procedures is carried out regularly, and task observations are undertaken to ensure that the recommended methods are being followed correctly.

Senior Environmental staff are responsible for ensuring the above checks are undertaken. Records are kept of calibrations and reviewed.

In addition to the Waihi network, dust monitoring sites were installed in Katikati and Paeroa in 1995 to collect data from nearby towns without mines. These control sites were decommissioned in 2006 with the approval of Environment Waikato (now WRC) after providing consistent results for comparison with the Waihi data. In 2012, TSP and DP monitoring stations were re-instated at new locations in Katikati and Paeroa as a discretionary activity to gather further regional information. The sites were decommissioned in 2013.

Previously, investigations were undertaken into the appropriateness of sites in terms of practicality and adherence to the Standard for Siting Air Monitoring Equipment (AS/NZS 3580.1.1.2007). As a result, the following changes to monitoring locations have been made to improve the network:

- TSP 6.65 (Moresby Ave) south of the Martha Pit was moved away from overhead trees in 2017
- DP 6.66 (Waihi College) was moved away from overhead trees, relocated approximately 40m to the west to a clear area that meets the location specifications
- DP 6.70 (Smith Farm) was relocated due to difficult access and distance from the TSFs. The alternate site is closer to the TSFs, named DP 6.73 (TSF East), has been operating since 2016 and has now replaced DP 6.70 as it collected consistent similar results.

6.1.1 Limits and Trigger Levels

There are no National Environmental Standards for TSP or DP. In the absence of any specific National Exposure Standards for TSP or DP, the results of the ambient air monitoring are related to the Ministry for the Environment Good Practice Guide for Assessing and Managing Dust (MfE GPG).

Total Suspended Particulate (TSP)

Waihi trigger level: 45 $\mu\text{g}/\text{m}^3$, averaged over seven days.

The MfE GPG suggests a TSP trigger level of 60 $\mu\text{g}/\text{m}^3$ (24-hour average) be applied in sensitive (residential) areas. Because the OGNZL monitoring is undertaken over seven days, a lower trigger level has been established and is proposed to continue.

The current monitoring is inclusive of all dust sources, not just the mine. At certain times of the year, there are significant dust contributions from non-mine sources that need to be acknowledged (home fires are significant during winter, while farming, small businesses and residential development are often dusty in summer). Past monitoring in similar towns (Paeroa and Katikati) has determined a typical non-mine TSP level of approximately 17 $\mu\text{g}/\text{m}^3$; factoring in these non-mine sources, the Waihi trigger level is considered acceptably conservative.

Deposited Particulate (DP)

Waihi trigger level: 4 $\text{g}/\text{m}^2/\text{month}$, averaged over one month.

The MfE GPG recommends a trigger level of 4 $\text{g}/\text{m}^2/30$ days (above background concentration). OGNZL has been conservatively recognising the MfE GPG level and not factoring in background levels, with the logic that it is better to be pro-active and keep levels low rather than to debate how much we are allowed to increase existing levels. No changes to the trigger level for DP are proposed.

When a trigger level is exceeded, OGNZL will investigate and report on the reason for the result and, where appropriate, identify corrective actions to prevent a recurrence. Internally and informally, even unusual results are investigated to determine if there is any impending issue rising.

6.2 Personnel Exposure Monitoring

OGNZL has an annual monitoring programme that assesses the occupational health of workers during their daily work. Lapel-mounted samplers are attached to mining personnel (including contractors) with various air pumps, heads, and filters. Work roles are divided into similar exposure groups (SEGs) and samples are taken based on the hazards associated with a particular group which include:

- Respirable dust and quartz
- Inhalable dust (i.e. metals and welding fumes)
- Diesel Particulate Matter (DPM) (i.e. underground and maintenance personnel)
- Volatile organic compounds (i.e. conveyor belt maintenance)
- Gases and vapours (if required).

Health and Safety personnel oversee the monitoring of mining personnel and ensure the results are recorded into the InHealth database. Individual sample results are discussed with each employee. After each sampling round (3-4 per year), results are reported to site and reviewed so any actions to further control exposure can be taken. All the data is reviewed annually, and the annual personnel sampling

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schedule is created for the next year. The Worker Health Principal Control Plan and the Occupational Hygiene Exposure Management Corporate Guideline are also updated.

6.3 Cyanide Particulate Emission Testing

Condition 11 of the Discharge to Air Consent required annual testing of the emissions of particulate cyanide from the scrubber fitted to the debagging unit on the Process Plant. The tests were arranged by the Process Manager each year. With the majority of the sodium cyanide now mixed in isotainers (as described in section 5.2.3), this requirement has become superfluous, and the emission testing has been discontinued with the agreement of WRC. If the dry bag method of unloading is again used on a frequent basis, the annual testing of particulate emissions will be reinstated.

6.4 Cyanide Concentrations in Air (Processing Plant)

Monitoring for cyanide gas at the processing plant consists of several systems, with a high degree of replication and reassurance:

- Fixed cyanide (HCN) gas monitors take measurements continuously in the following locations: SAG Mill discharge, Ball Mill feed, Ball Mill discharge, Thickener overflow, 10" cyclones, Leach Tank 1A, Cyanide Mixing Shed, Elution Area, and the Gold Room
- Manual samples are taken twice per 12-hour shift at the following locations: Cyanide Mixing Shed, Tails pumps, the top and bottom of the Elution Area, and at Leach Tanks 1A, 5 and 11. All readings are recorded on a log sheet
- Three mill operators wear personal monitors for HCN during the course of their shifts.

The fixed electronic monitors are calibrated six-monthly by OEM (Drager) representatives and are fitted with electronic alarms. A first audible alarm triggers at 2.5ppm HCN and a second audible alarm at 5ppm HCN. While these levels are to mitigate exposures within the workplace, it also ensures on-site management is such that cyanide gas levels off-site are well below any unsafe levels. The personal monitors are calibrated each shift prior to use.

Further details about cyanide gas management are also included in the OGNZL Cyanide Management Plan (WAI-451-PLN-002).

6.5 Cyanide in Tailings

The determination and control of cyanide in process solutions is an automated process undertaken using a cyanide analyser which controls the concentration of free cyanide in the leach tanks to a predetermined set-point.

In addition to this automated control, process operators take samples every two hours from the Leach and CIP tanks, determining pH and free cyanide, and recording the data in a log sheet.

6.6 Carbon Regeneration Furnace

Particulate emission tests were carried out, approximately annually, on the Carbon Regeneration Furnace. This is not a specific requirement of the current air emissions consent but was a condition of previous statutory requirements. Due to the low particulate emissions from the Carbon Regeneration Furnace, this monitoring has now ceased. Personnel exposure monitoring for particulates is still conducted on a regular basis in relation to health and safety.

6.7 Complaints Register

OGNZL maintains a register of complaints (including environmental matters) and has done so since 1987. The register is held by the Company Liaison Officer, who is responsible for responding to complaints, and it gives details of each complaint received by the company and any follow up action. Summaries of the air quality related complaints are included in the Annual Air Quality Monitoring Report and six-monthly complaint reports to district and regional councils.

6.8 Vehicle Exhaust Gases

The impact of vehicle exhaust gases such as carbon monoxide, sulphur dioxide and the oxides of nitrogen were monitored at Martha mine in 1993. The measurements were made using continuous analysers, and results showed only minimal impacts from vehicle movements associated with the mine operations, with most results well below relevant air quality guidelines. No future measurements are proposed but, if required, would be carried out using comparable techniques.

OGNZL requires that its vehicles, and those of contractors, are maintained to a prescribed schedule and standard. This ensures that machinery is kept in efficient running order which also mitigates excessive exhaust gases. The underground trucks fitted with DPF (Diesel Particulate Filters) are tested monthly for exhaust emissions and have their DPF dataloggers downloaded and checked. If warranted, the DPF are sent away for 're-baking' (the service interval is typically 18 months).

6.9 Particle Size and Quartz Analysis

Condition 12 of the Discharge to Air Consent for Golden Link Project Area (124859) requires the consent holder to undertake fine particulate and silica (or quartz) particle size distribution in accordance with the methodology defined in the Air Quality Management Plan and report such monitoring in writing to WRC not less than once every two years, unless otherwise approved in writing by WRC.

A review of monitoring results indicated limited value in continuing with PM₁₀ and Silica monitoring, based on years of compliant monitoring by both OGNZL and WRC, ongoing TSP and DP monitoring, and the limited dust generating activities in the pit at the time. In December 2015, OGNZL requested from WRC permission to suspend PM₁₀ and Silica monitoring, and a response from WRC granted permission to suspend monitoring pending significant changes in potential dust generating activities.

At the time of writing, no significant new dust sources are foreseen for the pit activities. The re-entry activities are small scale (using relatively few machines, small blasts, and light trucks) and all resource exploration is planned to be diamond drilling which generates minimal dust.

Both DP and TSP monitoring will continue unchanged, and it is expected that any issue with PM₁₀ or silica is likely to be indicated by an increase in the coarser dust fractions. In addition, personnel monitoring for respirable dust (effectively PM₁₀) and silica will also indicate if there is any reason for concern.

6.10 Ventilation Shafts

6.10.1 Favona

Monitoring the emissions from the underground ventilation shaft was recommended by the report entitled "Favona Underground Mine, Waihi, Report to: Environment Waikato – Assessment of Air Quality Aspects" (dated October 2003) and is a requirement of Condition 6(c) of the Favona Discharge to Air Consent. A programme to monitor emission from the ventilation shaft is also a requirement of the Golden Link Consent (124859, condition 11 (iv)). In 2007, Watercare Services Ltd conducted emission

testing on the Favona ventilation shaft during blasting operations. Samples were tested for particulate emissions, carbon monoxide, nitrogen dioxide and nitric oxide. A report describing the results was prepared by Watercare and forwarded to WRC. The results of this testing were considered representative of shaft emissions during routine blasting activities (which is when air emissions are likely to be worst). Average concentrations were all less than the relevant values in the New Zealand Ambient Air Quality Guidelines (AAQG) and National Environmental Standards for Air Quality (NESAQ).

6.10.2 Martha

In 2019 the location of the ventilation system's point of discharge was moved to the bottom of the Martha Open Pit, following an expansion of the Martha Underground Mine. Air quality testing and an assessment of the off-site effects was undertaken by Air Matters in 2024. The scale and nature of the emissions were very similar to the 2007 assessment, except for carbon monoxide (CO) which was elevated in the 2024 testing. A number of factors will affect CO emission rates and therefore a reasonable amount of variability is expected.

Dispersion modelling was carried out to estimate the off-site effects of the ventilation's discharge following the completion of the testing. The discharges contribution to off-site concentrations for the assessed contaminants was low when compared to the relevant criteria. When an appropriate, but conservative, background level is taken into consideration the ventilation emissions will not cause any assessment criteria to be exceeded in an off-site location. Based on this assessment the adverse effects from the ventilation emissions are considered less than minor.

The existing particulate monitoring programme (as described in section 6.1) will continue being utilised to monitor compliance with the Project Martha requirements, along with the three additional "real time" TSP monitors that will assist in active air quality management into the future.

6.11 Meteorological Data

In conjunction with the various specific air quality monitoring programmes, OGNZL also maintains a comprehensive weather station near the Martha Pit. This station monitors wind (speed, direction and gusts), air temperature, rainfall, humidity and solar radiation.

6.12 Real Time TSP Monitoring

In addition to the current continuous dust monitoring programme (TSP and DP), OGNZL installed three real-time TSP monitors in 2021 for Project Martha pit activities as dust management tools, in accordance with recommendations from the Project Martha Hearings Panel. These are positioned alongside the current monitors at Grey Street (6.61), Met Station (6.63) and Bulltown Road (6.74), (refer to Appendix B for locations) providing prompt feedback on TSP levels to ensure that future earthworks in the open pit will have an established real-time system ready in advance. The monitors can also analyse for specific dust fractions (PM₁₀, PM_{2.5}, using special cyclones) should the need arise in the future.

An alert level of 200 µg/m³, averaged over one hour, has been set for the real-time TSP monitors, in accordance with the MfE GPG suggested trigger levels for residential areas. When exceeded, a SMS or email is sent to OGNZL Environment Team staff so they can investigate. If the source is determined to be mining related, then dust control measures will be reviewed. Additional dust control methods shall be implemented as required, to ensure adverse effects do not result beyond the boundary of the mine.

7 REPORTING

Data from monitoring is kept in a database and reviewed against applicable trigger levels and consent limits as it is entered. OGNZL will notify WRC as soon as practicable upon becoming aware of any non-compliance.

Results from the air quality monitoring programme and other air quality matters are summarised in the Annual Air Quality Monitoring Reports prepared by OGNZL and submitted to WRC. The requirement for the annual reports is specified in condition 8 of Discharge to Air Consent for the Favona Underground Mine, condition 8 of Discharge to Air Consent for the Trio Underground Mine and condition 14 of Discharge to Air Consent for the Golden Link Project Area (Correnso and Project Martha).

The reports summarise all relevant air quality information for the previous calendar year, including the results of the monitoring as required by the consents, any environmentally important trends arising from the monitoring programme, comment on compliance with all conditions, any reasons for non-compliance or difficulties in achieving compliance with the conditions of the resource consents, and any works that have been undertaken (or that are proposed to be undertaken) to improve air quality performance.

In addition to the Annual Air Quality Monitoring Reports, reports on discrete monitoring projects as required by the consents are submitted to WRC as they are completed.

8 REVIEW

The contents of this Plan shall be reviewed and updated at least once every two years as required by condition 6 of Resource Consent 109741 (Favona) and to ensure that the material continues to be relevant and up to date. The updated Plan is forwarded to WRC for approval, as required by the consent conditions.

Notwithstanding scheduled reviews, significant 'change management' may necessitate a review of the Plan to acknowledge impacts on air quality. The change management process requires an assessment of impacts and implications relating to air quality.

The next review will be in 2027, or earlier if significant changes are proposed.

9 DEFINITIONS

Term	Definition
AAQG	(NZ) Ambient Air Quality Guidelines
ANFO	Ammonium Nitrate Fuel Oil
CO	Carbon monoxide
DP	Deposited Particulate
DPF	Diesel Particulate Filter
DPM	Diesel Particulate Matter
HCN	Hydrogen cyanide
MDDP	Martha Drill Drive Project
MfE GPG	Ministry for the Environment Good Practice Guide
NASEQ	National Environmental Standards for Air Quality
OEM	Original Equipment Manufacturer
OGNZL	OceanaGold New Zealand Ltd
PAF	Potentially Acid Forming
PM _{2.5}	Particulate Matter (particles < 2.5 µm in diameter)
PM ₁₀	Particulate Matter (particles < 10 µm in diameter)
Reverse Circulation	Reverse Circulation (Drilling)
SEG	Similar Exposure Group
TSF	Tailings Storage Facility
TSP	Total Suspended Particulate
WRC	Waikato Regional Council

10 REFERENCES

Air Matters, July 2024: OceanaGold NZ Ltd Martha Mine, Assessment of Environmental Effects – Ventilation Discharge, March 2024. Unpublished report for OGNZL.

Australian/New Zealand Standard AS/NZS 3580.1.1:2007: Methods for sampling and analysis of ambient air. Part 1.1 Guide for siting air monitor equipment.

Australian/New Zealand Standard AS/NZS 3580.10.1:2003 (R2014): Methods for sampling and analysis of ambient air. Method 10.1 Determination of particulate matter - Deposited matter – Gravitational method.

Australian/New Zealand Standard AS/NZS 3580.9.3:2003: Methods for sampling and analysis of ambient air. Method 10.1 Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.

Australian/New Zealand Standard AS/NZS 3580.9.6:2003: Methods for sampling and analysis of ambient air. Method 9.6 Determination of suspended particulate matter – PM₁₀ high volume sampler with size selective inlet – gravimetric method.

BECA Limited, March 2018: Project Martha – Assessment of Environmental Effects of Discharges to Air. Technical Report (Appendix L) for Project Martha.

Environment Waikato, March 2011: Air Quality Monitoring Report for Hamilton, Tokoroa, Taupo, Te Kuiti, Matamata, Putaruru, Ngaruawahia, Waihi and Turangi – 2010. Environment Waikato Technical Report 2011/07.

Graham, B W, 1996: Submissions and Evidence of Waihi Gold Company, Extended Project. Evidence of Bruce William Lang Graham.

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Watercare Services Limited, August 2007: Newmont Waihi Gold Ltd, Ambient Air Monitoring Report, 20 March 2007 to 01 July 2007. Unpublished report for Newmont Waihi Gold.

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APPENDIX A RELEVANT RESOURCE CONSENT CONDITIONS

Resource Consent Conditions: Favona Mine Project, Resource Consent Number 109741, Discharge to Air

Activity authorised:

To discharge contaminants to air from the mine portal, vent shaft(s) and project area
(fugitive emissions) being dust, CO₂, blast fumes and exhaust fumes.

Consent duration:

Granted for a period expiring 31 December 2028.

Subject to the following conditions:

General

1. This consent is subject to the conditions listed in Schedule 1 – General Conditions.
2. There shall be no particulate matter or gaseous emissions (including odour) in the discharge that gives rise to objectionable adverse effects (as defined in Section 6.4 of the Proposed Waikato Regional Plan – Decisions Version dated February 2002), at or beyond the boundary of the subject property.

Should a discharge occur that causes an objectionable adverse effect, the consent holder shall provide a written report to the Waikato Regional Council (the “Council”) within five days of being notified of such by the Council. The report shall specify:

- (a) the cause or likely cause of the event and any factors that influenced its severity;
- (b) the nature and timing of any measures implemented by the consent holder to avoid, remedy or mitigate any adverse effects, and
- (c) the steps to be taken in future to prevent recurrence of similar events.

Emission Controls

3. Stockpiles shall be managed to minimise particulate emissions from this source. Methods may include but are not limited to: covering, grassing, sheltering from prevailing winds or wetting.
4. Exposed yard surfaces and roadways shall be kept damp, or otherwise treated or maintained, as necessary to minimise particulate discharges to air, including during non-work hours.
5. No chemical dust suppressants or additives shall be used without prior written approval from the Waikato Regional Council.

Air Quality Management Plan

Approver: Superintendent Environment

Approved date: 13/02/2025

Next Review: 13/02/2027

6. Prior to the exercise of this consent, the consent holder shall prepare an Air Quality Management Plan and submit this to the Council for its written approval. The Plan shall, as a minimum, specifically include the following;
- (a) Description of the air quality control objectives.
 - (b) Details of the site operation and maintenance practices to be implemented to meet these objectives and the conditions of this consent, and to ensure that emissions from mining operations, particularly from stockpiles, ventilation shafts, unsealed areas, and from other sources, are minimised.
 - (c) A programme to monitor emissions from the mine ventilation stack(s).
 - (d) A programme to monitor ambient air for deposited and suspended particulate matter.

The Plan, in particular those parts of the Plan that relate to the ambient monitoring programme, shall include “real time” monitoring and be consistent with the recommendations included in the report to the Council entitled “Favona Underground Mine, Waihi, Report to: Environment Waikato – Assessment of Air Quality Aspects” dated October 2003 and prepared by Sinclair Knight Merz Ltd. The monitoring programme shall include specification of location, frequency and methods of sampling and analysis.

The exercise of this consent shall be in accordance with the Plan as approved by the Council. The Plan shall be reviewed by the consent holder at least once every two years and updated if necessary. Any updated Plan shall be promptly forwarded to Council for approval and once approved the amended Plan shall be implemented in place of the previous version.

In the event of any conflict or inconsistency between the conditions of this consent and the provisions of the Air Quality Management Plan, then the conditions of this consent shall prevail.

Monitoring

7. The consent holder shall, as a minimum, undertake monitoring in accordance with the methodology defined in the Air Quality Management Plan, prepared pursuant to condition 6 above.

Reporting

8. The consent holder shall provide to the Council a written annual report each year that addresses at least the following:
- (a) A summary of the results of the monitoring required by this consent,
 - (b) Any environmentally important trends arising from the monitoring programme.
 - (c) Comment on compliance with all conditions.
 - (d) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this resource consent,
 - (e) Any works that have been undertaken to improve environmental performance or that are proposed to be undertaken in the up-coming year to improve environmental performance in relation to the activities included in this consent.

The report shall be forwarded in a format acceptable to the Council.

9. In addition to the annual report required pursuant to condition 8 above, the consent holder shall forward to the Council the results of any ventilation stack emission monitoring within one month of the results becoming available.

Complaints

10. If any complaints are received by the consent holder regarding dust, odour or other contaminants, the consent holder shall notify the Council of those complaints as soon as practicable. When/if complaints are received, the consent holder shall record the following details in a complaint log:
 - (a) type and time of complaint;
 - (b) name and address of complainant (if available);
 - (c) location from which the complaint arose;
 - (d) wind direction at the time of complaint;
 - (e) the likely cause of the complaint;
 - (f) the response made by the consent holder; and
 - (g) action taken or proposed as a result of the complaint.

The complaint log shall be made available to the Council at all reasonable times and a copy shall be forwarded to the Council at six monthly intervals.

Reviews

11. The Council may, within three months of the anniversary of the commencement of this consent and annually thereafter, serve notice on the consent holder under section 128 of the Resource Management Act 1991, of its intention to review the conditions of this resource consent in the event that:
 - (a) relevant national guidelines or standards or regional guidelines are established or amended; or
 - (b) the exercise of this consent causes an objectionable adverse effect (see condition 2 of this consent).

Costs associated with any review shall be borne by the consent holder.

Resource Consent Conditions: Trio Underground Mine Project, Resource Consent Number 121697, Discharge to Air

Activity authorised:

To discharge contaminants to air from a vent shaft associated with the Trio Underground Mine Project.

Consent duration:

Granted for a period expiring 31 December 2028.

Subject to the following conditions:

General

1. This consent is subject to the conditions listed in Schedule One – General Conditions.
2. If any non-compliance with the conditions of this consent occurs, the consent holder shall notify the Waikato Regional Council as soon as practicable and no later than 24 hours after the consent holder becomes aware the event has occurred.
3. This consent shall not be exercised unless and until resource consent number 121447 has been either surrendered or has expired.
4. There shall be no particulate matter or gaseous emissions (including odour) in the discharge that gives rise to objectionable adverse effects (as defined in Section 6.4 of the Operative Waikato Regional Plan), at or beyond the boundary of the subject property.

Should a discharge occur that causes an objectionable adverse effect, the consent holder shall provide a written report to the Waikato Regional Council (the “Council”) within five days of being notified of such by the Council. The report shall specify:

- (i) the cause or likely cause of the event and any factors that influenced its severity;
- (ii) the nature and timing of any measures implemented by the consent holder to avoid, remedy or mitigate any adverse effects, and
- (iii) the steps to be taken in future to prevent recurrence of similar events.

Lapse Period

5. This consent shall lapse unless given effect to 5 years following the commencement of this consent under section 116 of the Resource Management Act 1991

Air Quality Management Plan

6. Prior to the exercise of this consent, the consent holder shall prepare an Air Quality Management Plan and submit this to the Council for its written approval. The Plan shall, as a minimum, specifically include the following;

- (i) Description of the air quality control objectives.
- (ii) Details of the site operation and maintenance practices to be implemented to meet these objectives and the conditions of this consent, and to ensure that emissions from the ventilation shaft are minimized.
- (iii) A programme to monitor ambient air for deposited and suspended particulate matter.

The Plan shall take into account report supplied as part of the application to the Waikato Regional Council entitled “*Air Quality Implications of the Trio Underground Mine Project*” dated July 2010, prepared by Kevin Rolfe. The Plan shall provide details of monitoring to be undertaken including location, frequency and methodology of sampling and all analysis to be undertaken and the trigger levels with which the monitoring data will be assessed against.

The exercise of this consent shall be in accordance with the Plan as approved by the Council. The Plan shall be reviewed by the consent holder and updated if necessary. Any updated Plan shall be promptly forwarded to Council for approval and once approved the amended Plan shall be implemented in place of the previous version.

In the event of any conflict or inconsistency between the conditions of this consent and the provisions of the Air Quality Management Plan, then the conditions of this consent shall prevail.

Advice Note: Compliance with this condition shall be assessed through the updates supplied of the existing Air Quality Management Plan required as part of consent number 109741

Monitoring

- 7. The consent holder shall, as a minimum, undertake monitoring in accordance with the methodology defined in the Air Quality Management Plan, prepared pursuant to condition 6 above.
- 8. The consent holder shall provide to the Council a written annual report each year that addresses at least the following:
 - (i) A summary of the results of the monitoring required by this consent,
 - (ii) Any environmentally important trends arising from the monitoring programme.
 - (iii) Comment on compliance with all conditions.
 - (iv) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this resource consent,
 - (v) Any works that have been undertaken to improve environmental performance or that are proposed to be undertaken in the up-coming year to improve environmental performance in relation to the activities included in this consent.

The report shall be forwarded in a format acceptable to the Council.

Complaints

9. If any complaints are received by the consent holder regarding dust, odour or other contaminants, the consent holder shall notify the Council of those complaints as soon as practicable. When/if complaints are received, the consent holder shall record the following details in a complaint log:
- (a) type and time of complaint;
 - (b) name and address of complainant (if available);
 - (c) location from which the complaint arose;
 - (d) wind direction at the time of complaint;
 - (e) the likely cause of the complaint;
 - (f) the response made by the consent holder; and
 - (g) action taken or proposed as a result of the complaint.

The complaint log shall be made available to the Council at all reasonable times and a copy shall be forwarded to the Council at six monthly intervals.

Resource Consent Conditions: Golden Link Project Area, Resource Consent Number 124859, Discharge to Air

Activity authorised:

Discharge contaminants into the air relating to all activities within the Golden Link Project Area. This includes dust and carbon dioxide arising from mining operations, emissions from the Process Plant including waste heat and water vapour, vehicle fumes, and other minor and/or fugitive emissions associated with mining operations; and within Area D only, smoke from burning of tramp material (including vegetation and surplus packaging).

General

1. This consent is subject to the conditions listed in Schedule One – General Conditions.
2. This consent shall commence on 16 July 2017.
3. If any non-compliance with the conditions of this consent occurs, the consent holder shall notify the Waikato Regional Council as soon as practicable and no later than 24 hours after the consent holder becomes aware that the event has occurred.
4. There shall be no particulate matter or gaseous emissions (including odour) in the discharge that gives rise to objectionable adverse effects (as defined in Section 6.4 of the Operative Waikato Regional Plan), at or beyond the boundary of the subject property.
5. Should a discharge occur that causes an objectionable adverse effect, the consent holder shall provide a written report to the Waikato Regional Council (the “**Council**”) within five days of being notified of such by the Council. The report shall specify:
 - (i) the cause or likely cause of the event and any factors that influenced its severity;
 - (ii) the nature and timing of any measures implemented by the consent holder to avoid, remedy or mitigate any adverse effects; and
 - (iii) the steps to be taken in future to prevent recurrence of similar events.
6. Vehicle wheel washing facilities shall be provided at the entrances to the mine site and waste disposal area. The wheel washing facilities shall be well maintained and shall be used by all vehicles exiting the site as required, to minimise the tracking of particulate matter off-site.
7. Access roads to the mine site and the waste disposal area (but excluding internal access roads) shall be bitumen sealed (or to an equivalent standard approved by Waikato Regional Council). Sealing shall take place as soon as practicable upon exercise of this consent and/or as part of any access road construction that is required. Sealed surfaces shall be kept as clean and free of accumulations of dust as practicable.
8. Stockpiles shall be managed to minimise particulate emissions from this source. Methods may include but are not limited to: covering, grassing, sheltering from prevailing winds, or wetting.
9. Exposed yard surfaces and roadways shall be kept damp as necessary to minimise particulate discharges to air, including during non-work hours.
10. No chemical dust suppressants or additives shall be used without prior written approval from the Waikato Regional Council.

Air Quality Management Plan

11. Prior to exercise of this consent, the consent holder shall prepare an Air Quality Management Plan and submit this to the Council for its written approval. The Plan shall, as a minimum, specifically include the following;
- (i) Description of the air quality control objectives.
 - (ii) Details of the site operation and maintenance practices to be implemented to meet these objectives and the conditions of this consent, and to ensure that emissions from mining operations, particularly from stockpiles, unsealed roadways, the processing plant and Waste Disposal Area, and the ventilation shaft are minimized.
 - (iii) Ambient air monitoring programmes for deposited particulate matter, total matter and PM10 (particulate matter smaller than ten microns) and particle size distribution studies (including silica content).
 - (iv) A programme to monitor emissions from the vent shaft.
 - (v) Trigger levels for deposited particulate matter, total suspended particulate matter and PM10 (particulate matter smaller than ten microns). When these are exceeded the consent holder shall investigate and report on the reason for the exceedence and identify corrective action to prevent a repeat occurrence, where possible.

The Waikato Regional Council may review these trigger levels pursuant to section 128(1)(a) only in the event that:

- The National Environmental Standards for Air Quality (as amended 2011) are amended; or
 - Relevant standards or regional guidelines are established or amended; or
 - A discharge authorised by this consent causes an objectionable or offensive effect (see condition 3 above).
- (vi) Procedures for the use of wheel washes to prevent dust tracking off-site.
 - (vii) Procedures for revegetation of benches and batters at the mine site, waste disposal area embankments, stockpiles and other bare surface areas as appropriate.
 - (viii) Details of the site operation and maintenance practices to be implemented, particularly in relation to the stockpiles, haul-ways, and access roads, to keep dust emissions to a minimum.

The Plan shall be consistent with report supplied as part of the application to the Waikato Regional Council entitled “*Air Quality Implications of Underground Mining in the Golden Link Project Area*” dated March 2012 prepared by Kevin Rolfe. The Plan shall provide details of monitoring to be undertaken including location, frequency and methodology of sampling and all analysis to be undertaken and the trigger levels with which the monitoring data will be assessed against.

The exercise of this consent shall be in accordance with the Plan as approved by the Council. The Plan shall be reviewed by the consent holder and updated if necessary. Any updated Plan shall be promptly forwarded to the Council for approval and once approved the amended Plan shall be implemented in place of the previous version.

In the event of any conflict or inconsistency between the conditions of this consent and the provisions of the Air Quality Management Plan, then the conditions of this consent shall prevail.

Monitoring

1. The consent holder shall undertake monitoring of fine particulate and silica (or quartz) particle size distribution in accordance with the methodology defined in the Air Quality Management Plan, and shall report the results of such monitoring in writing to the Waikato Regional Council not less than once every two years, unless otherwise approved in writing by the Waikato Regional Council.
2. The consent holder shall, as a minimum, undertake monitoring in accordance with the methodology defined in the Air Quality Management Plan, prepared pursuant to condition 11 above.
3. The consent holder shall provide to the Council a written annual report each year that addresses at least the following:
 - (i) A summary of the results of the monitoring required by this consent,
 - (ii) Any environmentally important trends arising from the monitoring programme,
 - (iii) Comment on compliance with all conditions,
 - (iv) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this resource consent,
 - (v) Any works that have been undertaken to improve environmental performance or that are proposed to be undertaken in the up-coming year to improve environmental performance in relation to the activities included in this consent.

The report shall be forwarded in a format acceptable to the Council.

Complaints

1. If any complaints are received by the consent holder regarding dust, odour or other contaminants, the consent holder shall notify the Council of those complaints as soon as practicable. When/if complaints are received, the consent holder shall record the following details in a complaint log:
 - (i) type and time of complaint;
 - (ii) name and address of complainant (if available);
 - (iii) location from which the complaint arose;
 - (iv) wind direction at the time of complaint;
 - (v) the likely cause of the complaint and any factors that influenced its severity;
 - (vi) the response made by the consent holder; and
 - (vii) action taken or proposed as a result of the complaint including the steps to be taken in future to prevent recurrence of similar events.

The complaint log shall be made available to the Council at all reasonable times and a copy shall be forwarded to the Council at six monthly intervals

APPENDIX B DUST MONITORING LOCATIONS

OGNZL operates an ambient air monitoring programme for dust in and around Waihi. It should be noted that while the programme was designed with the mine operations specifically in mind, the site distribution is such that the monitors can be affected by other sources in the area as well.

The monitoring programme was initially set up in 1982, with seven sites. Additional sites were added in 1984 to 1987, and again (with some rationalisation of sites) in 1995 to 1997, until 24 sites were being monitored in 1998. As a result of reviews and analysis of data, sites were progressively rationalised and decommissioned over the next ten years, with eleven sites now constituting the permanent network.

It still remains an extensive dust monitoring programme. The locations of current permanent monitoring sites are shown in the following table.

Site No	Description	Location	Air Monitor Type(s)
6.59	Alexander's, Golden Valley	N of Devt Site	DP
6.60	Torrens, Golden Valley	N of Mill	DP
6.61	Leaches, Grey St	NE of Pit	TSP, DP and Real-time TSP
6.63	Met Station, Barry Rd	SE of Pit	TSP, DP and Real-time TSP
6.64	Courthouse, Haszard Street	S of Pit	TSP
6.65	Moresby Avenue	SW of Pit	TSP
6.66	Waihi College, Rata Street	W of Pit	TSP and DP
6.71	Morrison's Farm, Trig Road	SE of Devt Site	DP
6.72	Ruddock's Farm, Baxter Road	W of Devt Site	DP
6.73	TSF East	E of Devt Site	DP
6.74	Bulltown Road	N of Pit	DP and Real-time TSP
6.78	Cnr Grey & Slevin Streets	E of Pit	TSP

In addition to the permanent network, OGNZL also installs discretionary DP monitors at various locations in response to issues and complaints. These monitors are managed in the same procedure as the permanent network, with results being compared with those from the longer running monitors. It should be recognised that some of these monitors have to be placed in less-than-ideal locations to get in close proximity to a concerned resident's property. As such, these monitors have a higher tendency to be adversely affected by erratic wind patterns, vegetation, and residential emissions (roadways, gardens, fires)



APPENDIX C ENVIRONMENTAL PERFORMANCE STANDARD

7 Air Quality

Purpose

To ensure effective control measures and monitoring programs are implemented by Business Units to manage emissions and mitigate air quality impacts, to the environment and to comply with relevant regulatory requirements.

Minimum Standards

- 7.1 Business Units shall document systems and processes that demonstrate how air quality is monitored and managed to meet relevant regulatory requirements as a minimum.
- 7.2 Baseline air quality conditions shall be characterised prior to the construction of new facilities and extensions to existing facilities.
- 7.3 Business Units shall identify all affected external receivers and applicable air quality criteria to be achieved.
- 7.4 Business Units shall identify all point source and diffuse source forms of air emissions for the mine life cycle including construction, operation and closure.
- 7.5 Business Units that emit mercury and mercury compounds to air from point sources are to demonstrate the use of controls aligned to best available techniques and best environmental practices (Minamata Convention).
- 7.6 Document the operational controls to be implemented to minimise dust generation from the Business Unit to avoid or mitigate impacts on the local community.
- 7.7 Plant and facilities shall be designed, constructed and operated with appropriate air emission controls in order to comply with the host country's applicable laws and regulations.
- 7.8 Risk assessments shall be conducted to identify the risk exposure associated with air quality and the effectiveness of implemented controls.
- 7.9 Monitoring systems and programs shall be established to ensure Business Units operate in compliance, including a mechanism for assessing air quality monitoring results against the relevant air quality criteria.