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Attention: Shay McDonald
Otago Regional Council
Level 2
144 Rattray Street
Dunedin 9016

SLR Project No.: 860.016676.00001

RE: Bendigo Ophir Project
Air Quality Assessment Review

As part of the Fast-Track consent process for the Bendigo-Ophir Gold Project (BOGP), Matakanui Gold Limited submitted an Air Quality Assessment (AQA) and an Air Quality Management Plan (AQMP), both prepared by Pattle Delamore Partners (PDP). These documents, dated October and September 2025 respectively, were included in the application material reviewed by the Otago Regional Council (ORC). A further assessment of concrete batching and cement paste plants has also been provided.

ORC subsequently issued a letter on 17 December 2025 requesting further information, drawing on the findings of SLR's peer review completed on 12 December 2025. That letter raised nine specific matters requiring clarification or additional detail. PDP has provided written responses to each of those matters in its memorandum dated 29 January 2026. These responses are compiled in Table 1 of this document, along with my responses.

My original responses to PDP's written responses dated 18 February 2026 triggered additional responses from PDP "Bendigo-Ophir Gold Project Air Quality Assessment Addendum: Visual Dust Monitoring and Instrumental Arsenic Dust Monitoring" dated 17 March 2026. An additional meeting clarifying the detail of the response was held 19 March 2026 between myself, Shay McDonald (ORC), Jeff Bluett (PDP) and Cheryl Low (BOGP) and was summarised in an email from PDP 19 March 2026. My original 18 February responses are updated here.

In providing this response, I (Graeme Starke, Certified Air Quality Practitioner) have reviewed PDP's supplementary explanations alongside the conclusions of SLR's original peer review. My role is to confirm whether PDP's further information adequately addresses the issues outlined by ORC, and to identify points of agreement, disagreement, and any residual uncertainty, and to describe the implications of that uncertainty for adverse effects.

Table 1: ORC Information Requests, PDP and SLR Responses

#	ORC Request	PDP Response	SLR Response
1	Please provide an air quality assessment, prepared by a suitably qualified and experienced air quality specialist, for: a. The concrete batching plant b. The cement paste plant	PDP considers that the AQA's comprehensive assessment of dust discharges and effects to off-site receptors sufficiently encompasses all aspects of the BOGP, including minor ancillary activities such as the preparation of concrete for use within the project. The preparation and use of concrete is an anticipated activity related to the construction of the mine. Concrete batching is proposed within small-scale purpose-built plants located more than 1.5 km from the nearest sensitive receptors and featuring standard dust control measures, such as air filters for the cement storage silos. Given the scale of the activity, mitigation measures and separation distances involved, no off-site dust effects are likely to arise from the use of concrete or cement as part of the BOGP. For clarity and to respond to this request in detail, PDP is preparing a stand-alone addendum AQA for the cement and concrete batching plant. This short report shall detail the activity, dust management measures (including dust capture devices), and assessment of air quality effects based on the separation distance to off-site receptors.	SLR considers that the PDP standalone addendum to the AQA satisfies this request.
2	Please provide a quantitative assessment, prepared by a suitably qualified and experienced air quality specialist, of the expected emissions from all dust sources on site, including haul roads. An objective of Report B.33 is to quantify the amount of dust from each source, but this has not been achieved by the qualitative assessment. Page 4 of Mr Starke's memorandum	PDP disagrees with the scope and necessity of this request. PDP considers this request is a misinterpretation of the SLR Review and would not add useful information for the assessment of dust effects. The SLR Review agrees with the qualitative IAQM dust assessment methodology employed by the AQA and agrees that quantification of the discharges and dispersion modelling would not be appropriate to assess dust effects (page 4 to 5). As noted by the SLR Review, the GPG:Dust specifically recommends against such theoretical quantifications, favouring that time and expense instead be taken to manage and mitigate dust.	The PDP AQA stated in Section 1.51 that an objective of the dust assessment was to "Quantify the amount of dust likely to be discharged from each source". SLR notes that Section 4 (V) (a) of the IAQM recommends that an assessment of the impacts and resulting effects of dust from a minerals development should usually contain "the likely magnitude of dust emissions". The magnitude of dust emission from the sources are qualitatively addressed in Section 5. SLR accepts that, as no dispersion modelling is being undertaken, the qualitative magnitudes address this requirement especially given the large separation between receptors and most sources.

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	provides context for this question.	While a theoretical estimation of dust discharge quantities may be feasible based on published emission factors, open areas, rainfall and vehicle movements, PDP considers such an estimate would have orders of magnitude inaccuracy and not reflect the likely actual discharges given proposed mitigation measures.	Therefore, SLR accepts PDP's position that "a theoretical exercise to quantify dust discharges would not usefully add to the assessment of dust effects". It is suggested that section 1.5.1 of the AQA be amended to remove the stated objective of quantification and rely instead upon the qualitative assessment of magnitude provided.
3	No assessment of the potential effects of construction-phase dust appears to have been undertaken. Please provide an assessment of the effects of construction-phase dust, with particular focus of the potential adverse effects that may be experienced at Dwelling 3 (as identified in Report B.33). The assessment should include recommendations as to appropriate monitoring and a Trigger Action Response Plan at or near Dwelling 3.	PDP considers that the AQA already adequately considers the dust discharges, mitigation measures and resulting adverse effects associated with the construction phase. Within the AQA, the construction phase is defined as: "site preparation, earthworks, haul road construction, stockpile establishment, and early-stage mining activities." The AQA's assessment of dust effects specifically considered Dwelling 3 during all phases of the project, including initial construction, and details mitigation measures. Particularly refer to section 10.2 of the AQA which concludes there is a 'Negligible Effect' of dust (during all phases of the project) at Dwelling 3. The AQMP details that a range of dust monitoring and trigger action responses are to be undertaken throughout all stages of the project, including construction. This monitoring includes an E-BAM+ PM_{10} instrumental monitor located at Lake Clearview (to be shifted nearer to the dust sources at Ardgour Road once power is available there).	SLR accepts PDPs position on this.
4	The proposal to cease certain works when adverse dust conditions exist and cannot be managed is proposed to be triggered, in part, by staff observation of dust blowing over the site boundary. Please explain how effective this is expected to be achievable in	PDP considers the range of dust monitoring and contingency measures detailed within the AQMP are sufficient for the effective control of dust effects. The AQMP includes a range of dust monitoring and trigger action responses. That these measures include instrumental dust monitoring at Ardgour Road, with specific trigger alert levels and contingency measures.	PDP's memorandum from 17 March 2026 provides a detailed workflow process and associated language of identification that addresses this issue.

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	practice, given the site boundaries are unlikely to be easily visible by onsite workers. In your answer, please consider alternative monitoring methods, including the recommendation of Mr Starke for the installation of a dust monitoring camera in the service and administration area at Ardgour.	Overall, the key dust requirement is contained in the proffered conditions of consent (refer to Fast Track Document D.04): *70. There must be no particulate matter or gaseous emissions in any discharge to air that gives rise to objectionable, noxious or dangerous adverse effects (as defined in Section 16.2.9 of the Regional Plan: Air for Otago as at the date of the commencement of this consent) at any location beyond the boundary of the BOGP Consent Area.* This proposed dust limit condition adheres to the recommended wording of the GPG:Dust and is the standard that all dust monitoring is assessed against. PDP does not consider that a dust monitoring camera is necessary, although such a device may be explored in a future iteration of the AQMP if dust discharges and effects eventuate. The proposed reviews of the AQMP allow for this adaptive management where additional monitoring techniques and locations could be added in response to any dust issues identified.	
5	Please provide justification for the use of 7.5 m/s wind speeds in the qualitative assessment of dust impacts, when 5.5 m/s is recommended by IAQM (2016) Method or< 5 m/s is discussed in the MfE Good Practice Guide for Assessing and Managing Dust. Your answer should include discussion on mechanically generated dust from vehicle activity (rather than from only wind- blown dust) and should also explain why PDP	PDP considers that the AQA adequately assesses the actual and potential adverse effects of dust, including that generated by vehicle movements. The AQA applies IAQM's Source-Pathway-Receptor framework to assess dust risks, including consideration of local meteorology and receptor distances. IAQM (2016) does not prescribe operational triggers; professional judgement is expected to determine site-specific wind-speed trigger levels. The 5.5 m/s wind-speed figure quoted by SLR Review is only described by the IAQM guidance as 'sometimes used as a general threshold' and states that instead of this general threshold 'it is preferable to use a wind blow initiation wind speed specific to the mineral type.'	The AQA stated that the GPG Dust "suggest that high-risk conditions occur when wind speeds are over 7.5 m/s". The GPG Dust never mentions this wind speed. Further in Section 7.2 the 7.5 m/s is introduced as high-risk conditions for dust generation ("dust pick up begins…."). Then in Section 7.3.4 the high wind speed travel distances are mismatched in the text stating 7.5 m/s in the second dot point (at the top of page 52) whilst presenting 10 m/s in Figure 17. Further Figure 17 compares travel distance rather than dust generation speeds).

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	only consider high-risk winds of greater than 7.5 m/s are capable of affecting Dwelling 3.	Section 7.3.4 of the AQA utilises Stoke's Law of particle dynamics to estimate that wind-speeds of 5 m/s may transport dust particles (specific to the density of BOGP mine materials) up to 75 m from source, and higher wind-speeds of 7.5 m/s are required to transport these dust particles up to 150 m. Given that the nearest sensitive receptor to dust sources (Dwelling 3) is located approximately 140 m from the BOGP project boundary (and significantly further from construction or operational phase dust sources), only winds greater than 7.5 m/s may present a plausible transport pathway for this receptor given the site-specific density of dust particles. The GPG:Dust also supports site-specific triggers and limiting or ceasing dusty activities on "particularly windy days". The GPG:Dust recommends a wind-speed warning of 10 m/s (1 minute average, occurring twice in 20 minutes) as a suggested trigger level. Section 9.3.2 and Table 23 of the AQMP detail that a two-level trigger alert for 1-hour average wind-speeds will be implemented at BOGP as a dust mitigation measure: • Tier 1 trigger (alert to staff for enhanced vigilance of dust): 5 m/s, 1-hour average • Tier 2 trigger (alert to staff to observe dust generating activities and mitigation measures. Cease processes if dust witnessed as crossing the BOGP boundary): 7.5 m/s, 1-hour average.	For most sources on site this does not impact the assessment, due to the significant distances between sources and receptors. For Dwelling 3, characterised as both an intermediate distance receptor (140 m, Table 33) and a close receptor (100 m, Table 38) in different sections of the AQA, the use of 7.5 m/s has potential implications for the frequency of impacts from the haul road to the entry point of Shepherds Valley (given 53.4% of winds blow in that direction). Rereading the AQA and the PDP response highlights that this receptor should be considered an intermediate distance receptor (140 m). Therefore, putting aside the confusion generated by the multiple designations of the receptor, the use of 7.5 m/s over other published data comes down to professional judgement. Reflecting on PDP's responses and clarification of their position around the purpose of the use of 7.5 m/s, and given the professional experience of the author and reviewers, the use of 7.5 m/s can be accepted in the context as a plausible transport pathway for an intermediate distance receptor. Additionally, SLR has reviewed external data (Bluett et. al. 2015[1]) that supports PDP's position based on the likely distance of dust impact from haul roads to receptors. While the data reviewed was from an unfinished study the data supports limited impacts from a haul road.

[1] https://rcaforum.org.nz/sites/public_files/images/Item%2011%20-%20Road%20Dust%20%20Research%20%28Bluett%20and%20Cunliffe%29.pdf

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		Accordingly, PDP consider that the 5 m/s and 7.5 m/s triggers detailed in the AQA and AQMP are appropriate thresholds for pathway control for the dust sources at BOGP, including vehicle movements.	Therefore, SLR agrees that the AQA presented Source-Pathway-Receptor framework with control measures and trigger levels proposed adequately assesses the risks for air quality impacts at Dwelling 3 for both operational and construction activities including haul road sources.
6	The statement that receptors between 250 m and 100 m from a source employing good dust suppression are unlikely to experience a detrimental effect on amenity values is not adequately justified. Please provide further explanation on this point, including by reference to any relevant good practice guide or other supporting document.	As stated in the IAQM and GPG:Dust guidance, amenity dust effects are dominated by coarse-fraction particles which settle rapidly with distance. Section 3 of the IAQM guidance states that the potential for visible deposition and associated amenity impacts reduces sharply beyond the immediate near-field (<100 m). The above site-specific assessment of dust, considering the likely density, identifies that dust is not likely to be transported significant distances before settling out of the air. This is particularly true for the larger particles most responsible for amenity dust effects. While the AQA conservatively references the distances between sensitive receptors and the BOGP project boundaries, it is also notable that the key dust sources within the large site are much further distant from off-site sensitive receptors, typically by more than 1 km also featuring steep ranges. PDP therefore considers that receptors located beyond 100 m of the BOGP site boundaries are unlikely to experience a detrimental amenity effect given the range of dust suppression measures, monitoring and contingency responses detailed by the AQMP.	Of all the potential receptors, Dwelling 3 is the primary concern within the 100-250 m range, with haulage roads posing the most significant risk of amenity detriment. The PDP response is contrary to data presented in IAQM that presents mean dust deposition rates between 100 and 200 m from quarry operations in excess of the proposed 4 mg/m²/30 day trigger values from the AQMP (see Figure below). It can be assumed that these operating quarries have dust suppression in place. Therefore, receptors within 100-200m of a mineral processing facility may be at risk of experiencing detrimental amenity. However, a number of factors are important in interpreting this data. One Otago is not the UK and these monitoring data may not be directly applicable. Two, it is unclear to what degree dust suppression, monitoring and contingency responses have impacted the monitoring data. Three, as the only significant source close to Dwelling 3 is the haul road then this data is not necessarily applicable.

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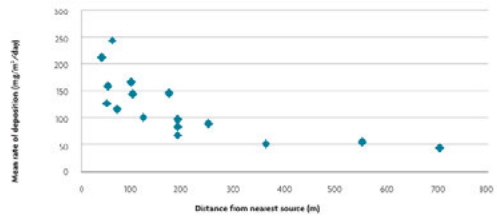
			Table A2-1 Granitic Quarries: Mean Dust Deposition as a Function of Distance from Quarry Operations  With the above in mind SLR has reviewed external data (Bluett et. al. 2015) that supports that receptors located beyond 100m from the haul route at the entrance to the BOGP are unlikely to experience significant impacts. Therefore, I do not see benefit in pushing for additional clarification on this point.
7	The risk associated with arsenic emissions during the handling and storage of overburden soils with naturally elevated arsenic levels has not been explicitly assessed by PDP, although mitigation measures have been proposed to manage potential adverse effects. Please indicate whether MGL agrees to installation of dust deposition gauges at the Lake Clearview and Ardgour Flats monitoring sites for the purpose of monitoring arsenic deposition rates.	The potential risks associated with handling Arsenic-elevated soils (AS) are assessed in the AQA Table 7, which identifies elevated AS concentrations, characterises their dust-generation potential, and specifies As-targeted mitigation measures (segregation, damping, wind-condition controls, stockpile separation). Notably, the proposed AS soil stockpile (AQA Figure 7) is located more than 5 km from the sensitive off-site receptors described at AQA section 8.4 of the AQA. PDP considers this assessment may have been overlooked by the SLR Review, and further assessment is not necessary. Further detailed soils testing data has been obtained to illustrate the scale of AS soils across the BOGP site. The location of these samples is illustrated at Map C.17. The majority of soil samples did not find AS to be elevated above the relevant NES:CS Soil Contaminant Standard (1,485 out of 1,607 samples). No soil samples in the Shepherds Creek area identified elevated AS. The 122 soil samples with AS concentrations elevated above the NES:CS Soil Contaminant Standard	PDP and Matakanui have offered the following solution to this problem: • Ambient air monitoring will measure airborne dust and arsenic using the sampling and analytical methods described in PDP memorandum dated 17 March 2026. • Filters will initially be exposed for 30 days, with exposure duration adjusted if required to ensure sample mass exceeds laboratory detection limits. • Twelve filters will be collected over approximately one year to derive an annual average concentration for comparison against the MfE ambient air quality guideline. • Matakanui Gold's two existing samplers will be used for sample collection. Size fraction of the monitoring (PM_{10} or TSP) will be determined

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	In your answer please also discuss the 4 µg/m^2/day criterion suggested by Mr Starke.	(Industry) were contained within the BOGP site and adjoining Bendigo Scenic Reserve. PDP considers this higher-resolution AS soils testing data further supports the conclusions of AQA Table 7, that disturbance and handling of AS soils are not likely to pose any off-site effects.
		
		The discharges of dust associated with handling of AS soils are limited by the dust limit condition (refer Condition 70 at Fast Track Document D.04). The AQMP includes a range of dust mitigation and monitoring measures, including deposition gauges at Lake Clearview and Ardgour Flats. PDP considers that these general dust measures are also sufficient for AS soils. PDP notes that the 4 µg/m^2/day AS deposition rate trigger suggested by the RFI is not a New Zealand standard or guideline. The SLR Review (page 9) also mis-states this as '4 ug/m^3", which is an ambient air quality concentration and not a deposition rate. PDP has interrogated the potential origin of a 4 µg/m^2/day As deposition rate trigger and found little supporting information within the SLR Review.
		
		Regulations for 'industrial installations' published by the German environmental ministry (TALuft, 2002, non-binding English translation: (https://www.bmuv.de/fileadmin/Daten BMU/Download PDF/Luft/taluft engl.pdf) may be a source of this suggested trigger, but these have no relevance to the control of human health or environmental risks for an earthworks or mining activity in Otago, NZ. The German 'immission value for pollutant deposition' is stated at 4 ug/m^2/day averaged over a one year period for As (i.e. a threshold of 1.46 mg/m^2/year). It appears these German regulations do not apply to earthworks and provides for permitting exceedances of this As trigger for large-scale industrial air discharges, further limiting its relevance to BOGP.
		For an AS deposition rate trigger value to be derived for BOGP, background dust deposition monitoring would be required with XRF analysis of the dust to determine As content. PDP considers that this level of analysis is unnecessary for BOGP given the range of measures to mitigate and monitor total dust concentrations and
			during the process of developing the air quality monitoring plan.
			• Pre-activity monitoring will commence as soon as practical to establish baseline arsenic concentrations in ambient air.
			• A single baseline monitoring site within the valley system is considered sufficient.
			• Once site activities begin, monitoring will be undertaken at two downwind locations:
			  ○ Downwind of the crushing plant.
			  ○ Downwind of elevated arsenic soil stockpiles.
			• After completion of 12 filters (one year of data), ORC and Matakanui Gold will jointly review results to determine whether monitoring should continue or be curtailed.
			• The monitoring approach will be incorporated into the site's Air Quality Management Plan.
			
			SLR believes this approach will adequately address any risk presented by elevated arsenic concentrations in the mining material. The presence or absence of arsenic in the ambient air quality monitoring will be directly analogous to deposited material.

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		deposition and the large separation distances to sensitive receptors. PDP considers that AS soils have been adequately assessed by the AQA and are appropriately controlled by the AQMP.	
8	Please provide an assessment prepared by a suitably qualified and experienced air quality specialist of 'upset conditions' in the context of discharges of gaseous contaminants from the gold processing plant. Upset conditions are conditions that deviate from standard or steady- state operating conditions, such as those which occur under fault conditions at the plant or as a result of ineffective application of mitigation measures. Your response should include the nature and magnitude of these potential effects, including any potential impacts on any sensitive receptor.	Upset conditions within the gold processing plant are unlikely to occur given the range of continuous monitoring and contingency response systems built into the process: • Sodium cyanide (NaCN) is used to extract the gold from the ore in the processing plant CIL circuit. Lime is used to maintain the pH of the CIL circuit slurry to alkaline conditions (pH>l0.5) to prevent the NaCN forming hydrogen cyanide (HCN) gas. The pH is continuously monitored and alarmed prior to the addition of NaCN, so that HCN gas generation cannot occur. A back- up system can add caustic to maintain the alkaline conditions.pH probes are installed in the CIL tanks to measure the pH in the tanks. The probes are installed as a dual (duty and backup) system with both probes monitoring to the control system. The dual probe system ensures that if a probe fails there is always a backup. Further • pH is measured in multiple tanks through the circuit with dual probes used in each. Probe accuracy is checked manually by process operators as part of the standard shift protocol and probes are cleaned and calibrated as part of the regular plant maintenance routine. • NaCN addition can be stopped immediately in the unlikely event of all other systems failing • Continuous ambient HCN gas monitoring is present at the entry points and operating floor of the CIL circuit with both an initial alarm if HCN gas is detected and a second alarm level if HCN rises. The second alarm level to evacuate would typically be at 5-10 ppm.	SLR accepts this clarification.

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		• PDP understands that a similar system exists at the Macraes Gold Processing Facility, with no issues arising. PDP considers that no specific assessment of any hypothetical upset conditions is necessary given the significant range of systems and controls to avoid the instance of such conditions.	
9	Please explain why neither the proposed consent conditions nor the Air Quality Management Plan appear to contain any receiving environment monitoring for gaseous contaminants that may be discharged from the processing plant. It is understood that PDP (Report 8.33) have assessed the external (to the site) effects of these discharges as being 'negligible'. However, the valley terrain is complex, the PDP assessment does not consider upset conditions and is contingent on effective application of the proposed mitigation measures. It is therefore unclear why neither the management plan nor proposed consent conditions require monitoring to confirm the ongoing efficacy of the mitigation measures and to confirm that no offsite effects are occurring.	The processing plant location is detailed at section 5.6 of the AQA. This area is located more than 1.6 km south-east of the nearest off-site sensitive receptor defined at section 8.4 of the AQA (cherry orchard) and more than 2.8 km from Dwelling 3. The discharges and off-site effects of gaseous air discharges are limited by the proposed conditions of consent, in accordance with the recommendations of the Good Practice Guide for Assessing Discharges into Air from Industry (Ministry for the Environment, 2016). Particularly, Condition 70 (Fast Track Document D.04) states that: *There must be no particulate matter or gaseous emissions in any discharge to air that gives rise to objectionable, noxious or dangerous adverse effects (as defined in Section 16.2.9 of the Regional Plan:Air for Otago as at the date of the commencement of this consent) at any location beyond the boundary of the BOGP Consent Area.* This requirement is also stated as the 'key objective' for the AQMP, which is required to detail mitigation and monitoring strategies for all air contaminants (including gaseous contaminants), including proactive adaptive management. Gaseous emissions from the processing plant are largely limited to diesel combustion exhaust from the regeneration furnace, elution heater and smelting kiln. An estimated 810,000 litres of diesel is	SLR accepts this clarification.

#	ORC Request	PDP Response	SLR Response
		predicted to be consumed per year for these stationary heat processes. The diesel exhaust contaminants are discharged from 15 m high stacks at significant distance from the BOGP site boundaries and off-site sensitive receptors. Given the distances involved, these combustion emissions will have negligible impact on off-site ambient air contaminant concentrations. The AQA assesses the discharges of gaseous air contaminant discharges, such as ammonia from the electro-winning cells, as part of the assessment of effects (particularly refer to sections 6.1 and 12.3 of the AQA). As detailed at AQA section 6.1, the emission control measures at the processing plant mean that only minor emissions of these gaseous contaminants are expected. Gaseous discharges of HCN are not expected to occur given the range of measures to prevent HCN gas generation within the CIL circuit. Discharges of ammonia and metals are expected to be low, as assessed by the AQA. Across the significant separation distances to the consent area boundaries and to off-site sensitive receptors, the low levels of contaminants discharged from the processing plant shall reduce to minimal / undetectable levels so that off-site ambient air quality monitoring is not considered to be justified at this point, although the exact monitoring programme shall be refined throughout the project as part of the AQMP's adaptive management review processes.	

Based on the additional information provided by PDP and the further clarifications reviewed, SLR considers that all of ORC's information requests have now been addressed to provide clarity that no risk of adverse impacts from the operation of BOGP remain.

SLR Consulting New Zealand Limited

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Technical Director – Air Quality
[redacted]