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Dust and Silica: The Facts

What the evidence says about dust and silica at the Fish Creek quarry · 29 October 2026

63-66% CRYSTALLINE SILICA IN THE ROCK. NOBODY HAS TESTED THE AIR.

63-66%
crystalline silica in FCQ's rock, on its own lab results

0
tests of the air for silica dust, at the existing quarry or any nearby home

18
homes within 500 m of the existing and proposed quarry

3 µg/m³
EPA Victoria's community criterion for silica, annual average



A truck raising dust on Meeniyan-Promontory Road. Note the pale fines already coating the road surface. Photo: PCG.

The bottom line

On the evidence from other quarries, Fish Creek has every ingredient of a serious silica problem: rock with more silica than any of the hard-rock quarries we compared (about three times typical shale), homes as close as anywhere, and not one test of the air for silica. Reassurance without measurement is not evidence.

Nobody has measured respirable silica at the existing quarry, on its haul road, or on any farm track spread with its rock.

No dust exposure is healthy, and crystalline silica dust is among the worst. The World Health Organization's 2021 air quality guidelines found harm from fine particles even at the lowest levels studied, with no safe threshold identified. Crystalline silica is classed as a known cause of lung cancer (IARC Group 1), and it causes silicosis. The UK Health Security Agency says there is no "safe" level of exposure to it. FCQ's own product sheets warn the dust from this rock can cause silicosis and lung cancer.

At the 23 and 24 October drop-ins, residents were told that dust from farm tracks, roads and trucks is probably not where the high silica is, and that farm dust will be studied. No monitoring data or modelling was shown.

The system is catching up with old quarries, and making new ones do the studies before their proposal is even considered

We have found no case where a quarry next to homes was allowed to simply claim the dust was no concern.

New and expanding quarries: studies required before any decision

- **Montrose (Boral, Vic):** 12 months of silica monitoring at the nearest homes (Jul 2022 to Jul 2023, location agreed with EPA), modelling of 33 homes and a toxicologist's health risk assessment (Feb 2024). Then sent to a full Environment Effects Statement (Feb 2026).
- **Langwarrin (Heidelberg, Vic):** EPA required 12 months of silica monitoring to justify homes closer than 500 m. Refused by the Planning Minister, 7 Oct 2026.
- **Bunyip North (Heidelberg, Vic):** full EES, including a public health assessment of respirable silica and background air monitoring to EPA's satisfaction. Hearing from 30 Nov 2026.

Old quarries: government now catching up

- **White Rock (Hanson, SA):** operating for decades. After community dust concerns, EPA SA brought in monitoring from 2021 and put a 3 µg/m³ silica limit in the licence. Still current.
- **Sellicks Hill (Adbri, SA):** operating for decades. After years of complaints, a new dust plan with tighter triggers (2025) and a six-month government air study with independent silica testing (2024 to 2026). Still current.
- **Redlands, Luscombe and Oxenford (Qld):** long-running quarries where the government ran air monitoring at homes, including silica, after residents complained (2008, 2015-16, 2019-21).

The old quarries show what happens when a quarry is allowed to operate without proper studies: residents live with the dust, and the health risk that comes with it, for years, while government is left monitoring after the fact.

Fish Creek has both, and both need action

- **The existing quarry** is in the same position as the old quarries above: it has operated for decades without any silica monitoring, residents are complaining about dust, and EPA has now issued an Improvement Notice. It should be required now to monitor silica dust and report the health risk to workers and neighbours publicly, on an ongoing basis. Having held its work authority since 1996 doesn't make the risk any smaller.
- **The new quarry proposal** should be assessed to the highest best-practice standard, given the risk to the homes around it: a full year of independent silica monitoring at the homes nearest the existing quarry (same rock, same operator and same methods, so it is the best real-world evidence of what a new pit would produce), modelling of every home around the proposed pit, and a health risk assessment, all before any decision.

The only plan on the table so far is to model it (FCQ drop-in leaflet, Oct 2026), with no measured silica data from the existing quarry or the homes to feed or check that model. A model built on assumptions instead of measurements is a guess with numbers on it, and **people's health shouldn't be put at risk on a guess.**

The Act that governs quarries says the same. One of its objectives is that risks "to members of the public" from quarry work "are identified and are eliminated or minimised as far as reasonably practicable" (MRSDA s 2(1)(b)(i)). Parliament also intends regard to be given to the precautionary principle: "if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation" (MRSDA s 2A(1) and (2)(g)).

What the rock is

FCQ's own product sheets, sent to customers on 13 October 2026, say Yellow Rock contains 66% crystalline silica and Black Rock 63%. The sheets say inhaling the dust can cause silicosis and lung cancer.

- **Source of the figures:** the operator's own lab report (Sharp & Howells 25-0349, 4 July 2025), released to PCG under a WorkSafe FOI. It measured crystalline silica (as quartz) in two bulk rock samples, not in airborne dust.

- **FCQ's own advice to customers:** keep the product damp, do not store it where it may dry out, avoid activities that generate airborne dust, avoid dry sweeping, wear a respirator when exposed to dust.
- **What the rock is used for:** Accent's 2025 letter says the aggregate is valued locally as farm track sheeting. Farmers report it breaks down quickly in use, which is why it suits tracks.

Fish Creek's rock has the highest silica of every hard-rock quarry in this fact sheet, and about three times typical shale

Quarry or rock type	Crystalline silica	Source
Fish Creek (FCQ), mudstone/shale	**63-66%**	**FCQ's own lab results and product sheets**
Granite (e.g. Bunyip North)	typically 20-45%	Lung Foundation
Montrose (Boral), rhyolitic tuff	16-33%	Boral's own consultant (SLR 2024)
Typical shale	about 22%	Lung Foundation
Limestone (e.g. Sellicks Hill)	about 2%	Lung Foundation

Boral's proposal to quarry 12.5 ha of new land at Montrose has been required to go through a full Environment Effects Statement before it can even be considered, with rock a quarter to a half as rich in silica as ours.

Sand quarries (Langwarrin, Devenish, the US frac sand mines) are mostly crystalline silica too, but they dig loose, rounded grains. Fish Creek rock is ripped, crushed and screened, then ground down again on every track it's spread on. Crushing and grinding is what turns silica into breathable dust.

What a credible quarry and surrounds dust monitoring program looks like

Proper monitoring covers three places: inside the quarry (workers), at the fence (dust leaving the site), and at the homes (what neighbours breathe). At Fish Creek, none of the three has been done.

Where	What best practice requires	Who it answers to
Inside the quarry	Personal sampling of respirable crystalline silica in workers' breathing zones, for each job (crusher, screens, loaders, drill rig, truck drivers), analysed for respirable crystalline silica (quartz, plus cristobalite and tridymite if present) at a NATA-accredited lab. A baseline spread over at least 12 months, so it captures dry, windy, busy days, not wet or water-cart days, and not only when the operator chooses. Then repeated for the life of the operation, at a frequency set by the results, and redone whenever the rock, equipment, work practices or pit change.	WorkSafe
At the fence	Continuous real-time PM10 and PM2.5 monitors upwind and downwind, with an on-site weather station. Trigger levels that slow or stop work when dust rises (Boral proposed a 1-hour PM10 trigger of 80 µg/m³ at Montrose). Filter samples analysed for silica.	EPA
At the homes	Silica measured in the PM10 fraction, as EPA Victoria now recommends, at the most exposed homes chosen with residents and EPA, plus a background site. At least 12 months, covering every season, before any decision. Results published monthly. Monitoring continues for the life of the quarry, with stop-work triggers.	EPA

What a credible quarry and surrounds dust study needs

1. A baseline of at least 12 months at the nearest homes and a background site, measured from the existing quarry, before any decision on the new pit.
2. Silica measured in the PM10 fraction against EPA's 3 µg/m³ annual criterion, with crystalline silica analysed by X-ray diffraction or infrared at a NATA-accredited lab.
3. Continuous real-time PM10 and PM2.5 at the fence, upwind and downwind, with an on-site weather station to capture the easterlies residents report.
4. Worker breathing-zone sampling for each job in the existing quarry, on dry, windy, busy days.
5. The silica content of the airborne dust itself, measured, not assumed from the rock or from other sites.
6. Modelling built on that measured data and local weather, covering the existing quarry, the new pit, crushing, blasting, haul roads and trucks together.
7. Worst-case conditions modelled (dry summers, strong winds, peak production), not just averages.
8. A health risk assessment for the nearest homes, independently peer reviewed.
9. Trigger levels that slow or stop work, and monitoring that continues for the life of the quarry.
10. Run by a NATA-accredited firm reporting to the regulator and the community at the same time, with chain of custody, the community able to observe, and full results published.

This is not a new demand. EPA Victoria's air guideline calls for 12 months of continuous PM10 and PM2.5 monitoring, with silica analysis, for higher-risk proposals (as Boral's consultant described it for Montrose). Boral did exactly that at Montrose. Fish Creek's rock has two to four times the silica, and 18 homes within 500 m.

Track and road dust

The claim that track dust is "probably not" high in silica was offered with no data, and it runs against WorkSafe's own guidance and FCQ's own product sheets.

- **WorkSafe Victoria itself lists mobile plant on unsealed roads as a source of silica dust** in the extractive industry.
- **Wheels and hooves grind the rock down, and farmers who use it say it breaks down fast.** Respirable silica is made when silica-bearing material is broken into fine particles. A track of 63-66% crystalline silica rock, ground by traffic and dried out, is that process happening every day, across every farm and road the product goes onto.
- **Lower silica in the dust is untested.** The rock also holds clay and mica, which can concentrate in the finest dust, so it may be argued the airborne dust is lower in crystalline silica than the rock. Even if it were half, that would still match the top of Montrose's range. They haven't tested it. Until they do, it's a guess.
- **"Visible dust" is the wrong test.** The particles that reach deep into the lungs are too small to see. Clear air is not proof of safe air, and a visible cloud is not proof of silica.

What a credible farm dust study needs

1. Airborne samples of the respirable and PM10 fractions, not scrapings off the track.
2. Crystalline silica (quartz and any other forms) measured by X-ray diffraction at a NATA-accredited lab.
3. At least 12 months, including summer and dry windy days, not just summer when it suits them.
4. Named tracks and roads using FCQ rock, plus a control site without it.
5. Chain of custody, with the community able to observe or take split samples.
6. Full results released to the community.

What has been measured so far

No respirable silica monitoring has ever been done at the existing quarry, on the job site or at any home, as far as any regulator has told us.

Date	Who	What they said or found
23 Oct 2026	EPA Victoria	An Improvement Notice requires extra dust controls at the existing quarry, with compliance due February 2027. Terms not yet released.
23 Oct 2026	FCQ drop-in leaflet	Dust will be modelled to understand the silica risk to neighbours. No measured baseline mentioned.
21 Sep 2026	WorkSafe inspection (DHR-402067)	Rock damp after rain, no visible dust, dry conditions not seen. Site committed to worker exposure monitoring in summer. No results recorded. WorkSafe will reinspect in dry conditions.
28 Jul 2026	WorkSafe FOI (FOL/26/5589)	WorkSafe holds no respirable silica air monitoring for the quarry.
21 May 2026	EPA Victoria	No air monitoring or analysis was done at its April site attendance.

WorkSafe's role stops at the fence: it covers the workers. EPA covers air outside the fence, where the homes are.

What the standards say

The limit for neighbours is about 17 times lower than the limit for workers, and it is averaged over a whole year.

Standard	Applies to	Limit
Workplace exposure standard (Safe Work Australia)	Workers, 8-hour shift	0.05 mg/m³ (50 µg/m³)
WorkSafe Victoria recommendation	Workers, 8-hour shift	below 0.02 mg/m³ (20 µg/m³)
EPA Victoria criterion (Publication 1961.2, Feb 2025)	Community air, annual average, PM10	3 µg/m³
EPA separation distance (Publication 1949)	Quarry with respirable crystalline silica	500 m to homes

- **Units matter.** Workplace limits are in milligrams (mg/m³); community criteria are in micrograms (µg/m³). 1 mg = 1,000 µg.
- **The silica workplace limit does not change on 1 December 2026.** The new national exposure limits start then, but silica was held back for further review.
- **500 m is a guideline, not a ban.** A closer quarry needs a risk assessment showing the risk is low, and the onus is on the proponent (the "agent of change"). There are 18 homes within 500 m of the existing and proposed quarry. Without monitoring data there is nothing to base a low-risk finding on.

Fish Creek against other quarries near homes

Each of these quarries had lower-silica rock than Fish Creek and was still made to measure, model and assess. Fish Creek has the most silica, homes as close as any, and no data at all.

	Montrose (Boral, Vic)	Sellicks Hill (Adbri, SA)	Fish Creek (FCQ)
Silica in the rock	16-33% crystalline silica (rhyolitic tuff)	Low: limestone, dolomite, marble, shale	**63-66% crystalline silica** (FCQ's own figures)
Nearest homes	About 55 m (existing pit)	About 500 m north of the nearest trafficked area	About 74 m to the consultant's 2025 pit boundary; 18 homes within 500 m
Silica measured before any decision	12 months at the nearest homes, agreed with EPA	Six-month government study with independent silica testing, plus EPA dust monitoring	**None, ever**
Crushing and screening	Enclosed plant under negative pressure, with sprays	Not checked	Not disclosed
Regulators' response	Planning Minister required a full Environment Effects Statement (Feb 2026)	SA EPA criterion of 3 µg/m³ and monitoring	EPA Improvement Notice on dust at the existing quarry, due Feb 2027. No EES.

- **Montrose has a quarter to a half of our silica, and still had to measure for a year, model 33 homes, get a toxicologist's assessment, and go to a full EES.** Fish Creek should face at least the same.
- **The SA Chief Public Health Officer's reassurance (Dec 2024) was about Sellicks Hill, a limestone quarry,** and gave no data. SA's own EPA still sets a limit and makes quarries measure against it. It says nothing about rock that is two-thirds crystalline silica.
- **Distance matters, and our homes are close.** Near Mount Cotton (Qld), silica turned up in 90% of fine dust samples within 300 m of the quarry, but under half at 1.5 km (as reported in a consultant's assessment; primary report still to be read). At Fish Creek, 18 homes are inside 500 m.

Quarries refused or sent back over dust and silica

When homes were close and the dust evidence was missing or thin, Victorian decision makers refused quarries or sent them back for more work. Fish Creek has closer homes than all but Montrose, more silica than any of the hard-rock sites, and less evidence than any of them.

Quarry	Rock and nearest home	What happened
Langwarrin proposed expansion (Heidelberg), Vic	Sand, wet-dredged; nearest home 165 m	**Refused by the Planning Minister, 7 Oct 2026.** EPA had said in 2022 there was not enough information to justify a reduced distance and required 12 months of silica monitoring. The department found the silica risk not compatible with nearby homes. Council had already refused it in 2023. Resources Victoria had endorsed the work plan in 2022.
Freeburgh stone extraction, Vic (Gibson v Alpine SC [2019] VCAT 1979)	Houses about 101-140 m from the work area	**Refused by VCAT.** EPA warned the risks to nearby homes were significant and incompatible. VCAT would not leave dust to permit conditions.
Devenish sand quarry, Vic (BCA v Benalla RCC [2024] VCAT 330)	Nearest house 132 m	**Refused by VCAT.** The shortfall against EPA's separation distance raised the bar, and the lack of testable dust evidence was fatal.

Quarry	Rock and nearest home	What happened
Montrose, proposal to quarry new land (Boral), Vic	16-33% crystalline silica; nearest home about 55 m	Council rejected an earlier proposed expansion in 2007. **In Feb 2026 the Planning Minister required a full Environment Effects Statement**, even with a year of silica data.
Bunyip North (Heidelberg), Vic	Granite; nearest house about 220 m	Sent to a full EES. Its scoping requires a public health assessment of respirable silica and background air monitoring to EPA's satisfaction. Hearing from 30 Nov 2026.
White Rock (Hanson), SA	Urban fringe	After community dust concerns, EPA SA required a dust monitoring system (2021), added a dust management plan to the licence, fined the operator for not delivering it (Apr 2022), and holds it to a 3 µg/m³ silica limit.
Sellicks Hill (Adbri), SA	Limestone; homes about 500 m	After years of complaints, the regulators required a new dust plan (Jan 2025) and a revised one with tighter dust triggers (by Apr 2025), and the state ran a six-month air study before rezoning nearby land.

To be clear: none of these turned on measured silica above the limit. They turned on homes being too close and the proponent not proving the risk was low. That is exactly Fish Creek's position: crushed rock richer in silica than any of the hard-rock sites, homes as close as any, and no evidence at all.

What overseas studies show

Overseas the rule is the same: quarries and mines near homes were monitored, often for months. Some of these studies found low results. Every one of them is weaker than Fish Creek's situation in at least one way: softer or lower-silica material, homes further away, no crushing, or simply a measurement Fish Creek doesn't have.

Study	What it found	Why it doesn't let Fish Creek off
Peters et al. 2017, frac sand mines, Wisconsin (Science of the Total Environment)	At 17 homes within 800 m, respirable silica was below detection (0.4 µg/m³). But **at a Minnesota facility's fence line, 7 of 212 daily samples exceeded 3 µg/m³, each time the wind blew from the site** towards the sampler.	Our homes are at the fence. The exceedances happened exactly where Fish Creek's nearest homes sit, downwind, and residents report strong, frequent easterlies here.
Richards & Brozell 2015, frac sand fence lines, Wisconsin (Atmosphere)	Average silica at fence lines under 10% of 3 µg/m³.	Rounded sand grains, measured for months. Industry-funded authors. Not crushed, ground rock.
Yaldhurst quarries, Christchurch NZ (2018, reviewed at CASANZ 2024)	Silica not at a level of health concern; PM10 caused nuisance at times, with little difference from background beyond 160 m. **Health NZ revised its view in 2024: dust exposure could affect health more substantially than previously understood.**	Four months of monitoring, not a year. The health authority has since moved towards more caution, not less. Our nearest homes are within 160 m.
Lea Castle Farm quarry appeal, Worcestershire UK (5 May 2023)	Appeal **dismissed** (on Green Belt grounds). The Inspector saw no compelling silica risk, partly because the site would only screen, **not crush** (para 115).	FCQ crushes and screens. The UK has no ambient silica standard at all; Victoria does (3 µg/m³).
Andraos et al. 2018, gold mine tailings, Johannesburg (as reported in Kootbodien et al. 2019)	Elevated respirable silica in communities near tailings, linked to raised health risk. Residents about 200 m from tailings had about twice the TB prevalence of a distant community (not statistically significant).	Shows community silica can exceed limits where fine, silica-rich material sits close to homes. Reported in a review; treat as indicative.

Study	What it found	Why it doesn't let Fish Creek off
Mbuya et al. 2024, tanzanite mining town, Tanzania (PLOS Global Public Health)	No silicosis among non-miners about 5 km away; some impaired lung function, which the authors say needs further research.	Five kilometres away. Fish Creek's homes are within 500 m.

The pattern overseas matches Australia. Nowhere was a quarry next to homes let off without study. Where it went over the limit, it was close to the source and downwind. The UK Health Security Agency told the Bourbles quarry inquiry (Lancashire, Nov 2023) that silica is classed as a carcinogen with no "safe" level of exposure.

Sources

PCG holds copies of the documents without links (FOI releases, correspondence, FCQ sheets). Ask at info@promcoastguardians.org.

1. FCQ Product Information Sheets, Yellow Rock and Black Rock, emailed to customers 13 Oct 2026
2. Sharp & Howells report 25-0349, 4 Jul 2025 (via WorkSafe FOI FOL/26/5589)
3. WorkSafe inspection report DHR-402067, 21 Sep 2026 (via WorkSafe IROI, 6 Oct 2026)
4. EPA Victoria to PCG, 23 Oct 2026 and 21 May 2026
5. FCQ drop-in leaflet "Information on Testing Required", 23 Oct 2026
6. Accent Environmental letter to local stakeholders, 15 Apr 2025
7. Mineral Resources (Sustainable Development) Act 1990 (Vic), authorised version 134, ss 2(1)(b)(i), 2A
8. WorkSafe Victoria, Dust containing crystalline silica in the extractive industry
9. EPA Victoria, Guideline for assessing and minimising air pollution in Victoria, Publication 1961.2, Feb 2025
10. EPA Victoria, Separation distance guideline, Publication 1949, Apr 2025
11. Lung Foundation Australia, Silica Dust
12. WHO global air quality guidelines, 2021
13. SLR for Boral, Montrose Air Quality Impact Assessment, Feb 2024
14. SLR for Boral, Public Health Risk Assessment, Montrose, Feb 2024
15. Yarra Ranges Council, Montrose Quarry (EES required 4 Feb 2026)
16. DTP, Langwarrin PA2503956, refused 7 Oct 2026
17. Gibson v Alpine SC [2019] VCAT 1979; BCA Asset Management v Benalla RCC [2024] VCAT 330
18. Planning Victoria, Bunyip North Granite Quarry EES
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20. EPA SA, interim RCS criterion
21. EPA SA, Adbri Sellicks Hill FAQ (SA CPHO advice)
22. Qld Parliament, Question on Notice 282-2008 (Redlands)
23. Qld Government, Oxenford air monitoring
24. SLR, Grass Valley Quarry AQIA, 2019 (cites Mount Cotton)
25. Peters et al. 2017, Science of the Total Environment 609
26. Richards & Brozell 2015, Atmosphere 6
27. CASANZ 2024, quarry dust impacts in Canterbury
28. Lea Castle Farm appeal decision, 5 May 2023
29. Kootbodien et al. 2019, IJERPH 16:1867
30. Mbuya et al. 2024, PLOS Global Public Health
31. UK Health Security Agency, Bourbles quarry response, 1 Nov 2023

Information current at 29 October 2026. No work authority application has been lodged for the new quarry (Resources Victoria, May 2026). Prom Coast Guardians · info@promcoastguardians.org · promcoastguardians.org/handsoffthehoddle
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