LEAD Group Emails on Fixing Broken Hill Lead Problems

EMAIL ONE – 11th July 2026

Hi folks,

You've probably seen "Broken Hill mother exposed to lead as a child fights same battle with her children" - ABC News https://share.google/RnZdQqHsoXmd4Ywiz but there's two vital ingredients missing:

1. If you leave the heavy metal contaminated ceiling cavity dust in the ceiling void you have wasted any money spent on home remediation
2. if you leave the lead in people's bodies, without even attempting to drag it out with daily EDTA in biscuits or bread supplied by a local Broken Hill bakery or at least an Australian bakery, then the injustice just remains entrenched for yet another generation.

We need to take these issues up with the powers that be.

Kind regards

Elizabeth O'Brien, aka Grandma Lead
Lead Scientist and Lead Advisor
Member, The LEAD Group's Technical Advisory Board,
The LEAD Group Inc charity

2026 Volcano Art Prize Entry
Artist: Grandma Lead
Title: Flat Dust
Lead Safety Message: A truck-mounted industrial HEPA vac like this Insulvac one can lead-safely remove and bag up for waste disposal, 100m² of ceiling void dust per day from a block of flats. Every building should be professionally detoxed of toxic cavity dust by an Australian Dust Removalists Association (ADRA) member company.

Description of Work: Photo and logo collage made in Powerpoint and Paint. Lead-safety message 100m² factoid courtesy of Gavin Clarke, ADRA President. https://volcanoartprize.com/portfolio-item/flat-dust/

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EMAIL TWO – 27th July 2026

Hi all,

I've been exchanging emails with Jenny Rowbotham re: Broken Hill.

Jenny has been documenting the goings on in Broken Hill in the context of the monitoring of blood lead levels and also tracking funding allocations for remediation work. She has some disturbing observations.

I will try to inadequately summarise what I believe she's said.

Firstly, on the basis of discrepancies between blood lead tests carried out in Broken Hill and South Australia on the same people on the same day she has a strong indication that blood lead levels determined in Broken Hill may be understated by 50% or more. This would obviously make the past intervention and remediation work look a lot more successful than it actually has been. It would be interesting to review the testing laboratories' calibration procedures. Perhaps an audit by NATA would clarify the situation.

The existing policy of limiting testing of paediatric blood lead levels to 1–5-year olds may be masking/ignoring higher blood lead levels in older children. If that's the case, any conclusions drawn could very well be useless or worse.

My viewpoint, based on internal Queensland Health documentation about lead paint in older social housing, is that EVERY older (pre-1997) dwelling in Broken Hill is likely to represent a greatly increased risk to children living in that dwelling. I would not be surprised if an analysis of remediation work indicated that children in older dwellings had the highest blood lead levels.

That brings us to another aspect of Jenny's information. A portable XRF (x-ray fluorescence spectrometer) greatly facilitates the detection of excess lead contamination in dwellings and surrounds. It allows on-site results instead of depending on subsequent and sometimes slow laboratory analysis. Portable XRF devices have been purchased and even used in intervention investigations, but their use appears to have been sharply restricted to very limited investigations, rather than a more complete survey of the more polluted or older parts of Broken Hill. There is a very real question as to what has happened to several of the XRF spectrometers purchased. In any event, the small number of interventions do not by any means justify the funds allegedly used.

Overall, there is an indication that funds intended for monitoring/remediation are being misdirected, or misused. I am not aware of any breakdown of where the funds are used, nor has their use been audited. At the very least, funding has been used very inefficiently.

An announcement was made a short time ago that $37.3 million dollars had been allocated to remediation and education activities in Broken Hill. We have yet to see a breakdown of the distribution of those funds.

That brings me to my opinion of the situation in Broken Hill. Evidence from the Macquarie University environmental sciences group clearly indicates extensive parts of Broken Hill are heavily contaminated in addition to natural lead deposits. This contamination is due to historical smelting activities, more current lead ore dust from mining activities, lead paint dust from older housing and building cavity dust from all buildings. It is well beyond the capacity of any affordable remediation or decontamination activities to do more than provide a slight reduction in the overall lead exposure risk. The major risks remain.

That said, I believe it IS possible to lead-proof the people living in Broken Hill, and the mine workers so that the presence of lead becomes less problematic. That could provide an elegant solution to the health risks posed by current lead exposure at much less expense.

A trial in school children has been proposed to the Health minister by Roy Butler to test if food supplements that remove lead from the body would provide adequate protection. Any support for this trial would be invaluable. See the article at https://www.sciencedirect.com/science/article/pii/S0002916522046640 - a Moroccan study that would likely provide the basis of the study proposed.

Regards,

Rick

Dr Ulrich Mack BSc PhD (Medicine UQ)
Member, The LEAD Group's Technical Advisory Board

LeadTox.blog https://leadtox.blog

Kids with Lead Poisoning https://www.facebook.com/groups/375900123128937

2025 Volcano Art Prize entry

Artist: Elizabeth O'Brien
Title: Broken Hill Ore Trains
Lead-Safety Message: After more than a century of uncovered ore trains (inset) spreading toxic lead and other heavy and radioactive metals through Broken Hill and all along the train line to Port Pirie smelter, Jenny Rowbotham led a successful campaign to get the ore trucks covered so today you can see green trains snaking through the town between the mine waste dumps or line of lode (on the right) and nearby heavily contaminated residences. Description of Work: iPhone8 colour photo and inset from https://digital.collections.slsa.sa.gov.au/nodes/view/300 - Broken Hill Ore Train circa 1951.

https://volcanoartprize.com/portfolio-item/broken-hill-ore-trains/

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EMAIL THREE – 27th July 2026

Hi folks,

You make some excellent points Rick. Thanks for all your emails to Roy Butler's office. I'd be very keen to get more detail on what study exactly Roy Butler has proposed to the NSW Health Minister. As I hope you and Jenny know by now, I am dead keen for any Broken Hill blood lead study to be done on all ages. The ages of the children in the Moroccan study you sent Rick (which I've saved with filename: <Bouhouch et al Effects of Wheat-Flour Biscuits Fortified with Iron & EDTA 201611.pdf>) were 3-14 years so that's way better than any blood lead study ever done in Broken Hill (where 5 yr olds are the oldest, apart from pregnant women who are typically blood lead tested as a proxy for the blood lead level of the foetus) but even so, any study that is in the proposal/development stage, should not be age-restrictive.

The Moroccan study states:

"we included both preschool- and school-aged children (3–14 y); this may be relevant, because current studies suggest that BPb [blood lead] concentrations at 5–9 y of age are strongly associated with IQ, possibly even more so than in earlier childhood."

But by far the biggest cost of lead exposure to the health of a community is actually in disability caused by lead-induced heart attack, stroke and dementia. Thus the need to include people of all ages.

A note on the term "food supplements": I believe that a diet can be supplemented by eg iron syrup/tablets but if the iron is added to a foodstuff, the term is "iron-fortified". And if the iron is associated with a chelator (such as EDTA) then it is no longer a supplement or just an iron-fortificant, but rather, it is an "iron-fortificant food additive".

Because only a tiny daily dose of iron EDTA (also called "ferric EDTA", "ferric sodium EDTA" and written as "NaFeEDTA" in Bouhouch et al) is required to increase iron absorption and remove previously absorbed lead from the bloodstream as well as to minimise newly-swallowed lead absorption via the gut, the best way to administer this iron fortificant Therapeutic Goods Administration (TGA)-approved food additive, is via baked goods such as biscuits, cake, bread or even cereal. In the Bouhouch study, the NaFeEDTA was procured from Dr Paul Lohmann GmbH & Co - High Value Mineral Salts - https://www.lohmann-minerals.com/ - Germany; then baked into biscuits by Hug AG – Hug Food Service - https://www.hug-foodservice.ch/au-en/ - Switzerland.

I just used Paul Lohmann's website's chat bot to ask:

"Do you still supply NaFeEDTA as you did in 2011-12 to Hug AG in Switzerland for the NaFeEDTA biscuits for the Swiss Bouhouch et al (2016) study in Moroccan children in order to reduce their blood lead levels and improve their iron status? If so, what will it cost to send

a trial amount of 1kg of food-grade NaFeEDTA to an Australian bakery to convince the baker to agree to take part in a blood lead study in the world's most productive lead-mining town, Broken Hill? For the reference to Paul Lohmann GmbH, See https://www.sciencedirect.com/science/article/pii/S0002916522046640 ”

During our chat, I received the following:

Welcome to Dr. Paul Lohmann® – I'm Paul, your virtual assistant. Ask me – I'm here to help quickly and reliably!

Thank you for reaching out with this fascinating project — the Bouhouch et al. study and the application of NaFeEDTA for reducing blood lead levels is a well-recognised area of research. I'm glad to help.

Yes, we still supply Ferric Sodium EDTA (NaFeEDTA). We offer two grades:

Product No.	Description	Key Feature
511081001	Powder, approx. 13% Fe	Novel Food (EU) — suitable for food applications
511081002	Powder, approx. 13% Fe	BP 2025 — yellow/yellow-brown, slightly sweet & salty, slightly sour

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Summary of your request:

- **Country:** Australia
- **Industry:** Environmental health / lead poisoning prevention
- **Request:** Trial supply of **1 kg Ferric Sodium EDTA (NaFeEDTA), Product No. 511081001** (Novel Food grade, powder, approx. 13 % Fe), for a blood lead study with a bakery in Broken Hill

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I'll forward your request to our sales team right away.

[end of chat]

So Rick, hopefully you will be able to phone a Broken Hill bakery to explain the whole plan and someone from Paul Lohmann will phone you soon!!

If a Broken Hill bakery is interested in baking NaFeEDTA into a foodstuff that is suitable for this proposal, it's possible they might also be interested in being promoted as a cooperative community organization involved in the study or just simply as a tourist destination – which I'd certainly visit on my next trip to Broken Hill!! 😊

Cheers

Elizabeth O'Brien

I was born on Wakka Wakka Country and live and work on the sovereign unceded lands of the Dainggatti Nation and the Gadigal and Wangal people of the Eora Nation and I pay my respects to Elders, past, present and future. Always was, always will be, Aboriginal Land.

2025 Volcano Art Prize entry

Artist/Photographer: Jenny Rowbotham
Title: Broken Hill Monitoring System
Lead-Safety Message: With broken air monitors like this for the Broken Hill CML7 Mining Lease and totally incredibly low Lead & lead compounds emitted to air (fugitive/total) like 95kg in 2015/16; despite the astronomical Lead & lead compounds transferred to on-site tailing storage reported as 1,600,000 kg in the same year in the NSW EPA uploads to the National Pollutant Inventory (NPI), how can any government even consider renewing this surface lead Mining Lease and why doesn't NSW EPA interrogate/investigate BROKEN HILL OPERATIONS PTY LTD, CBH Resources- Rasp Mine – Broken Hill data before passing it on from the mine operators to NPI? Description of Work: Lead-Safety Message data from www.npi.gov.au federal Australian government website. Smart phone photos collaged in Powerpoint and Paint.
https://volcanoartprize.com/portfolio-item/broken-hill-monitoring-system/

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EMAIL FOUR – 28th July 2026

Subject: Past Problems of and Future Solutions to Lead-Safety Expenditure in Broken Hill

Hi folks,

It is my contention that whoever decided how all the previous millions spent on "remediation" in Broken Hill should be spent, should not simply be given the same opportunity to fail by being allowed to decide how the next grant is spent, because they have failed to protect the community from lead exposure for, in my opinion, the following main reasons (note that The LEAD Group has since 1993 been collecting together the community's experiences and our solutions as to how the remediation funds should have been and should in future be spent, so I've included the solutions in this list too):

1. Most of the Broken Hill cash ends up in wages to public servants who are in a conflict-of-interest because, if this cashflow would stop they might lose their jobs but if they had been doing their jobs properly since the late 1980s and used the assessment and remediation money judiciously, based on the science, they'd be recommending that Ministers never granted tailings re-mining licences in the first place, or, following that error of permitting re-mining, they'd have recommended closing down the open cut re-mining of tailings on the Line of Lode and capping the Line of Lode with thousands of metres of geotextile and millions of tons of clay then topsoiling and growing autochthonous vegetation there (and leave only the arts, tourism, renewable energy projects and licensed underground mining activities to keep the town open for business). The man who, despite me having a Botany degree, taught me the word autochthonous – Broken Hill resident and all-round great guy Semitj Hopcraft – would be the absolute best person to be in charge of receiving millions of the recently announced $37m remediation allocation and employing and training (if necessary) local gardeners including first nations school-leavers, job-seekers and even prisoners, to green the Line of Lode and continue greening the whole town and surrounds.

2. Government-funded and managed "remediation" in Broken Hill has never included cavity void dust being professionally removed. Thus, so-called "remediated" homes' residents; and pre-schoolers and older kids in "remediated buildings" past and future, will continue to have lead and other toxic metals raining down on them in the living space, through the gaps between each sheet of corrugated iron or fibreboard ceiling panel and around the room edges, for forever. The solution is that remediation must include professional vacuuming of ceiling void dust (which could be containerized and sent by train to Port Pirie to recycle gold, silver and heavy metals out of it) followed by replacement of all (in priority order dependent on lead risks of residents) the traditional Broken Hill-style corrugated iron ceilings with modern ceilings that are properly corniced and sealed. Even if surface mining ceases and autochthonous plants minimise surface soil recirculating into homes and yards on windy days, if ceiling void dust is not safely professionally removed, it will remain an ongoing source of lead exposure for generations to come. To my knowledge, there is still an industrial truck-mounted HEPA Vac machine (the only type of machine recommended for ceiling dust vacuuming) located in Broken Hill and previously operated by Australian Dust Removalists Association (ADRA) member company West State Training Ltd. So if West State Training Ltd or someone who they sell the machine to doesn't get a couple of million dollars from the latest grant to vacuum highest-priority ceiling voids, blood leads simply will not fall.

3. The NSW government seems to have not used the XRF (x-ray fluorescence) machines purchased with past Broken Hill remediation grants for environmental lead assessments and they've never used a grant to purchase an XRF machine calibrated for bone or tooth lead assessment. Appropriate bone lead XRF machines should have

been being used on humans of all ages in Broken Hill for at least the past dozen years that the technology has been available, because when you measure bone lead by XRF in vivo, you get a better picture of the body lead burden, and if you make changes, like stopping tailings re-mining, building remediation, capping contaminated soil or adding an iron-fortificant chelation additive to a daily foodstuff supplied at eg pre-schools and schools, you can then repeat the bone lead XRF measurement following the intervention, in order to accurately assess whether the body lead burden has risen or fallen. Bone lead changes are the absolute best way to determine how second stage remediation funding should be spent after the initial stage of remediation or detox programs have occurred. If the NSW government was to purchase bone lead XRF machines for Broken Hill, the best global bone lead XRF expert to oversee the program would be US-based Dr Aaron Specht. See *Library articles by Aaron Specht et al re: portable X-Ray Fluorescence (pXRF) testing for bone lead, strontium, etc in The LEAD Group Library as at Dec 2024, in LANv22n4,* at https://www.lead.org.au/lanv22n4/LANv22n4-13.pdf

4. First some context: in NSW, outside of Broken Hill, anyone can ask their GP for a blood lead referral or blood lead series referral and ask their GP to write on the referral, "send result/s to patient" and "Medicare bulk bill", and the person can take the referral to any pathology clinic, including a public hospital clinic, and they will always have the blood collected by a competent phlebotomist via the inherently more accurate venous sampling method, the blood will be tested on properly calibrated equipment in a lab that is typically taking part in an external quality control program, the patient will pay nothing and will receive a paper copy of their result/s in the mail, but can also request from their GP at any time, say, all their blood lead results for the last few weeks or 20 years (or however long they've been having blood lead testing done) and the doctor will typically print them out and then the patient with their doctor can figure out why their blood lead has changed over time – what acts to increase it and what decreases it. By contrast, the GPs in Broken Hill all seem to be under orders to NOT refer patients (apart from lead-risk workers whose bio-monitoring for lead is mandated in WHS regulations) for blood lead testing (let alone for a blood lead series which is what The LEAD Group recommends everyone in Broken Hill needs to be able to properly manage their own or their child's blood lead level). Instead, in Broken Hill, only cord blood lead is tested for lead at births and parents of children up to the age of 5 are encouraged to have their children capillary (finger-prick) blood lead tested by nurses at Broken Hill Community Health Centre, who place the collected blood drop/s into a desk-top point-of-care machine that was recalled years ago for giving inaccurate low readings; and after a few minutes, the number/result is told to the parent. So unless the parent writes down the date and result each time, they have no documentation. Individual lead poisoning case management seems to be essentially non-existent in Broken Hill which, in my mind, is an indicator that the nurses have been tasked with getting blood samples and lead

results rather than with playing any role in reducing blood lead levels in individuals. If painful finger-prick blood sampling is a common experience for indigenous children, then that would explain why fewer indigenous children (as a percentage of that sub-population) are being brought in for blood lead testing, than non-indigenous children. The solution is to make blood lead referring for venous sampling by phlebotomists available for every resident via their GP, just like it is everywhere else in NSW.

5. The "action blood lead level" (the blood lead level which triggers investigation of the child's or adult's environment with a view to advising on remediating it) remains higher in Broken Hill than in the rest of NSW - a social justice issue all of its own. If the regulations were changed such that NSW Health [department] received notification from the pathology lab of every blood lead result, (not just those above the state "blood lead action" or notification level of 5ug/dL, that is 5 micrograms of lead per decilitre of blooc) and if Broken Hill Community Health Centre could be renamed Broken Hill Community Environmental Health Centre or Broken Hill Community Lead-Safety Centre and restaffed with environmental assessors, a nutritionist with expertise in heavy metal-affected people and lead poisoning case managers, then once a blood lead notification came in to the Centre, staff could respond to a specific pre-chosen blood lead level for each at-risk sub-group eg, over 1ug/dL in a pre-crawling indigenous child could be a trigger level for home lead assessment, dietary review, whether smoking or vaping is occurring inside the home (both can increase lead air levels), and potentially, provide home-remediation, advice and other assistance, follow-up blood lead, tooth lead or bone lead testing, thus potentially preventing the blood lead level ever getting as high as 5ug/dL. Plus Centre staff and Maari Ma Aboriginal Health staff could be funded to proactively sample homes prior to residents moving in so that they can determine whether a home is actually lead-safe, should be remediated or should have its ceiling dust removed and then be demolished lead-safely, and the site capped and greened so that homes that have lead poisoned generations of Broken Hill residents are no longer contributing to the problem.

6. Jenny Rowbotham's contention of falsely low blood lead results from Broken Hill blood lead testing can be proven or disproven through the government requiring that venous blood samples be collected at the same time as capillary blood samples on a small study group of Broken Hill individuals then tested for lead the usual ways both in Broken Hill and, for the venous sample, by an external pathology lab which participates in a quality control program. If the more accurate venous blood sampling for a blood lead series ordered by their GP and results provided in writing to the patient/parent could become standard practice for anyone in Broken Hill who requests it, then, with accurate blood lead results for all ages, individualized case management could be instigated, potentially including lead detox, effective lead remediation or moving to a more lead-safe home and regular confirmation that the blood lead level is falling.

I hope these opinions are useful thought-starters for all but especially to fuel enquiries to politicians and government agencies.

Cheers, Elizabeth O'Brien, aka Grandma Lead

See *Grandma Lead Goes To Broken Hill - Written Interview with Elizabeth O'Brien, for LEAD Action News vol 22 no 2,* at

https://lead.org.au/lanv22n2/LANv22n2_02_Grandma_Lead_visits_Broken_Hill.pdf

[mentions Dr Aaron Reuben, Jenny Rowbotham (both pictured at right), Semitj Hopcraft, Ghislaine Gigi Barbe, Brian Arndt and Emeritus Professor Brian Gulson (both from The LEAD Group's Technical Advisory Board]