

# LEAD Action NEWS

LEAD Action News vol. 16 no. 2, March 2016 ISSN 1324-6012

The newsletter of The LEAD (Lead Education and Abatement Design) Group Inc.

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Editor-in-Chief: Elizabeth O'Brien. Editorial Team: Carol Bodle and Mamun Bhuiyan

## Lead Safe World Posters now available!

Thanks to the excellent design-work of Thomas Massey (see examples below), The LEAD Group has a new product! You can now choose any graphic and its lead-safety message from the Volcano Art Prize (VAP) archives and VAP 2016 entries, and we'll put the two elements into a Lead-Safe World Poster, colour-print it, laminate it and post it to you – all for \$15. At this initial bargain price we're hoping you'll buy several so you can give one to your local doctor, one to your vet, one to your childcare centre, hardware store, zoo, etc! Order your posters at

<http://volcanoartprize.com/purchase-poster/> but be sure to copy and then paste the URL of your chosen VAP entry into the Order Notes section at Checkout.

<p>The most important lead test at any age, is a blood lead test – ask your doctor</p>	<p>You can test for many possible sources of <b>lead</b> in a pet's environment with a LEAD Group lab kit <a href="http://www.leadsafeworld.com/shop">www.leadsafeworld.com/shop</a></p>
	
<p>For more information</p>  <p>1800 626 086 <a href="http://www.lead.org.au">www.lead.org.au</a></p>	<p>For more lead-safety information:</p>  <p>1800 626 086 <a href="http://www.lead.org.au">www.lead.org.au</a></p>

URL of Green poster VAP entry: <http://volcanoartprize.com/portfolio-item/our-children-heading-for-a-lead-free-society/> Title: Our children heading for a lead-free society. Lead-Safety Message: The most important lead test at any age, is a blood lead test – ask your doctor.. Artist: Philippa Bolton.

URL of Purple poster VAP entry: <http://volcanoartprize.com/portfolio-item/dont-let-animals-health-go-down-like-a-lead-balloon/> Title: Don't Let Animals Health Go Down Like a Lead Balloon. Lead-safety Message: You can test for many possible sources of lead in a pet's environment with a LEAD Group lab kit. Artist: Harla (Harry & Carla)



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## Editorial

By Elizabeth O'Brien, Editor-in-Chief, *LEAD Action News*

This *LEAD Action News volume 16 number 2* starts with two solutions The LEAD Group has on offer: Lead-Safe World Posters and information on the use and benefits of LEAD Group Kits. These DIY-sampling lab analysis LEAD Group Kits are currently only available in Australia but by transcribing the 4 YouTube videos about the Kits and translating them



in to two of the six United Nations languages (a big thanks to Orlando Aguirre-Lopez for his expert pro bono Spanish and French translations) we hope to kick off the process of finding other volunteers to translate the Kit Video Transcripts into other languages and do the time-coding that is necessary to upload sub-titled versions of the videos on YouTube.

Then you'll find the latest media release from the World Health Organisation, with whom The LEAD Group works as an Ally of the Global Alliance to Eliminate Lead in Paint (GAELP) but we also support all the other environmental health education initiatives of WHO which involve lead exposure, such as elimination of contaminated water and of smoking.

Again in 2016, The LEAD Group's major contribution to GAELP will be to encourage as many people as possible to enter their art / photo / film into Volcano Art Prize before the Monday 25th July 2016 deadline, and to convince governments and other NGO's to mark the International Lead Poisoning Prevention Week of Action in October with activities. Our activity will again be the VAP Awards so please donate to boost the prize pool.

The best news to come out of Broken Hill in the last 6 months is that West State Training has become the newest member of the Australian Dust Removalists Association (ADRA) so we hope to see more government-resourced ceiling dust removal being done by locals working for the company.

I'd also like to thank the several long-term colleagues and community watchdogs for their contributions to this edition of *LEAD Action News* and to especially acknowledge the extensive contribution to lead research of Dr Paul Mushak.

Some of the articles in this issue are a plea for help, notably – from Broken Hill:

“Can someone help our town as the government on one hand are granting leases for the removal of chemical mill reagent dams and then on the other hand, granting \$13 Million for studies to be done to find where the contamination is coming from.”

The article about Leura rifle range lead contamination and Queenstown Tasmania heavy metal contamination calls for notification of heavy metal contamination to potential renters and buyers of residential property prior to signing of contracts.

Gregory Jon Bell calls for other NGOs to support his objections to Western Sydney Airport, (so please let me know if your group can help) and his article also states:

“If your group [The LEAD Group Inc] has stopped the use of lead in fuel I congratulate your group whole-heartedly.”

In reply, I emailed the following to Gregory: I thank you for noticing because I do believe that although The LEAD Group was not founded until 1991, and unleaded petrol had already been introduced into the Australian market in 1985 and become a requirement in



new vehicles sold from 1986, the government and refiners in Australia seemed pretty content for the actual phase-out of lead to occur at the natural attrition rate for pre-1986 vehicles being removed from service. The LEAD Group played a major role in both convincing some petrol refiners like BP to reduce the amount of lead in leaded petrol, and in convincing the government to introduce the 2 cent per litre price rise for leaded petrol via the Leaded Petrol Roundtable meeting run by federal Environment Minister Roz Kelly in 1993 in Canberra. The only failure of our campaign to speed up the phase-out of leaded petrol was that only a tiny fraction of the 2 cent per litre price rise (which netted the federal government well over \$1bn) was ever used on lead clean-up (from leaded petrol use since 1935 in Australia) or even education campaigns to let service station operators know that they should promote switching from leaded to unleaded petrol by owners of pre-1986 cars (as long as the octane and valve lubrication was adequate), and that this switch would actually extend the life (reduce maintenance costs) of both the engine and the exhaust system.

The only lead dust clean-up money that we ever extracted out of the federal government was, interestingly, to pay for professional removal by ceiling dust contractors of the ceiling void dust that builds up under roofs and above the ceiling in buildings under the flightpath of Sydney airport, before installing noise insulation in the Sydney Aircraft Noise insulation Project (SANIP). They spent an extra \$10-12m on dust removal prior to installing the insulation batts and also dust removal for all the buildings that were demolished due to excess flight path noise. The service station and petrol-buyer lead petrol phase-out education campaign was run in 1994 and cost a pittance (less than \$1m) by comparison.

After that, our campaign had to focus on getting one petrol refining company to agree to spend money on refinery upgrades to raise the octane at their refineries for unleaded petrol so that a non-lead octane enhancer would not be required to replace the lead additive. I've ever since associated this one Australian refinery's unwillingness to upgrade their refineries as the reason, to the best of my knowledge, why it took 17 years (from 1985 to 2002) to phase out leaded petrol in Australia. By comparison, the US lead petrol phase-out was begun in 1970 and took 25 years (it was completed in 1995), whereas, in countries like Bangladesh, once the World Bank set the phase-out of leaded petrol as the number one transport priority in underdeveloped countries, the phase-out was achieved in weeks to months.

I joined the United Nations Environment Programme's Partnership for Cleaner Fuels and Vehicles (PCFV) in 2002, shortly after it was formed, and have overseen (with the other PCFV Partners) a further 80 countries going fully unleaded since then, and I've ensured that the phaseout of leaded AvGas is on the Agenda at the PCFV. Tragically, since 2011, there have remained 6 countries in the world still using leaded petrol for road motor vehicles (MoGas), despite the continuing efforts of the PCFV in those countries. I have proposed that the PCFV just go straight to the MoGas lead additive manufacturers and ask them to stop making the product, but the PCFV only approaches governments so I've had to request this of the manufacturers directly. They have not answered my requests or responded to the petition I organised and web-published and sent to Innospec.

We have a saying at The LEAD Group: The LEAD Group is as persistent as lead.

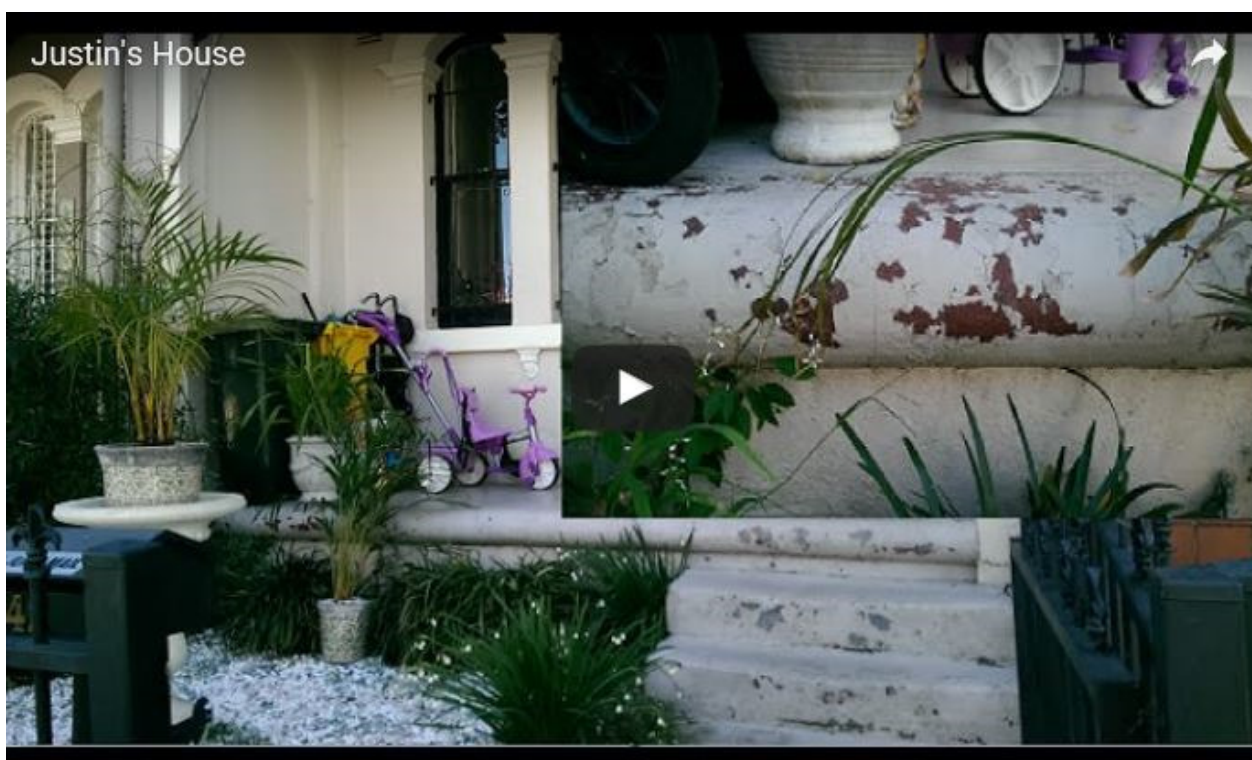


Thus my desire to web-publish these any articles which link the leaded MoGas and leaded AvGas phase-outs.

To end this issue, after reading the wonderful lyrics of Dreams and Visions, I really hope you will get hold of a copy of the CD – the best Australian-composed music I’ve heard for decades!

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## Transcripts of 4 YouTube Videos about LEAD Group Kits



URL of this VAP entry: <http://volcanoartprize.com/portfolio-item/lead-needs-my-attention-for-my-daughters-sake-video/>. Title: Lead Needs My Attention for My Daughter’s Sake. Lead-safety Message: “Following this Skype session with Elizabeth O’Brien of The LEAD Group, I will use a LEAD Group kit to have soil, paint, and dust analysed at the lab, then I’ll follow the kit report clean-up recommendations, so my daughter is never lead poisoned at our inner city terrace house. Artists: Justin Lloyd, Yiru Rocky Huang (Editor)



**Firstly in the original language: English**  
**Secondly, translated into Spanish**  
**and Thirdly, translated into French**

LEAD Group Kit YouTube videos comprise:

### **YouTube Kit Video 1 - Introduction**

The LEAD Group - Introduction of Lead Poisoning and DIY Sampling Kit, at <http://www.youtube.com/watch?v=85HoFGV5qCU&feature=channel>

### **YouTube Kit Video 2 – Instruction Part 1**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Instruction - Part 1/2, at <http://www.youtube.com/watch?v=s4WzzUcBdCg&feature=channel>;

### **YouTube Kit Video 3 – Instruction Part 2**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Instruction - Part 2/2, at <http://www.youtube.com/watch?v=VVbB8wcvlV4&feature=channel>

### **YouTube Kit Video 4 – Results**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Result, at <http://www.youtube.com/watch?v=L25RTdpKdRo>

## **YouTube Kit Video 1 - Introduction – TRANSCRIPT**

Hi, I'm Elizabeth O'Brien from The LEAD Group. The LEAD Group is a charity dealing specifically with the prevention of lead poisoning.

Lead is a highly toxic metal and lead poisoning is very prevalent.

In Australia, we estimate there is a high risk for the majority of the population with an elevated blood-lead level.

The risk is of loss of IQ points and early death from lead poisoning.

The same applies in the rest of the world but the figures go up as you get to more developing countries.

We aim to eliminate lead poisoning by raising awareness about where lead uptake happens.



If your blood-lead level is above 2 micrograms per decilitre [2 µg/dL], you need to know where the lead's coming from.

You can do that via The LEAD Group's kit.

These kits are set up so that you can collect samples from various places in your home or your work place.

Samples would include: water, or dust, or paint, or soil, or ceiling dust, toys and ceramic ware.

You can use the gloves and dust wipes and the sample bottles –there're eight of them in this comprehensive kit.

You collect each one of the different samples and post it to a NATA accredited lab.

The alternative size of kit is this small one which is just two samples - called the Basic Kit.

Again you can use it for dust or water or soil or paint or toys...

The third type of kit that we have is just for Water –it's a basic kit as well (two samples).

You can collect a first flush sample with one bottle and a flow sample with the other to determine whether the lead is in the taps or pipes or in your general water supply.

So we hope that you can now keep watching for how to sample your home for likely sources of lead.

## **YouTube Kit Video 2 – Instruction Part 1 – TRANSCRIPT**

Hi, I'm Elizabeth O'Brien from The LEAD Group.

A family in Sydney has kindly offered to allow us to use samples from their home to demonstrate to you the types of samples that can be collected using The LEAD Group's DIY lead test

Laboratory analysis kit. For the first sample,

I asked the residents where their child plays.

So, we're going to take soil samples.

We have these Chain of Custody forms.



They come out of the email and we've printed it out so we can see the sample numbers for this particular kit.

We've got the instruction sheet from the box we know that it requires us to fill in the type of sample on this Chain of Custody.

We're going to type all the information and email it to The LEAD Group,

But, for the moment while we're out in the field we're writing by hand.

The sample location is just off the back deck, and this is the place where the child mostly plays.

What we need to do is collect a small amount of soil in this sample bottle, so we'll do that now.

We'll collect the soil like this and put the lid back on.

I'll have to wash my hands before the next sample which will be from these pots in the garden soil.

The sample number goes on the bottle.

The soil source here is play soil.

The next soil we're going to take is from vegetable pot plants. They're near play soil.

So we've got a description, the bottle needs a label, so what is written is: soil and the number.

I'm aiming to get any evident paint flakes.

Wash hands again now.

We will be bringing the kit inside for the other things.

We need the tape for our next sample, a floor dust wipe, scissors and the measuring tape are also needed here.

The next sample will be paint flakes; it will be taken from an obvious potential source in which this child may pick up just by playing in that area.

We need enough paint to cover approximately a 50c piece.

Again we write the number on the sample bottle and label it; get as much as we can using a sharp scraper

The older layers of paint are the ones to take care to source for higher lead content.





Although all of the paint layers here look old; that's hopefully enough.

This family also has the excellent habit of leaving their shoes at the door, and so I will do likewise.

The next sample will be old paint from an old part of the house.

It's more than a century old.

This paint is flaking onto the floor, as well as from the wall.

Getting any paint from the original surface is always better than the new paint on top.

There's a very clever technique used in the US where a problem like this is temporarily and immediately dealt with: simply get sticky tape and stick it onto this paint to remove anything.

That's loose enough to come away with that method. So, I've got very much older paint from underneath.

There should now be a sufficient sample of all layers. Thanks.

## **YouTube Kit Video 3 – Instruction Part 2 – TRANSCRIPT**

This is from the original part of the house

Showing labelling again now.

Clean scraper again.

We're aiming for the bottom most layers, so there's a sufficient sample ready to go.

The dust wipe is possibly the most important sample to take.

There's a standard attached to paint testing; you can take action depending on the result.

So again, with a brief description of the sample type and the sample number, label the bottle.

Then measure out the area and then tape it, so we know exactly the area of the entire window sill just getting the tape measure.



So, that's 85cm and also across here: 20cm, perfect; that is just a little bit more than the minimum area required.

Dust wipe the child's bedroom.

So, that's: window sill 25x85cm.

So, we need to put on gloves; one glove is sufficient on one hand; they're quite hard to put on.

And these dust wipes come out; these ones need to be opened up, so they can be done with one hand; it's a bit tricky.

Try to wipe the smoothest surface area first, back and forth, then the rougher area; then fold that in on itself, and try to wipe it again in the other direction.

Get as much dust as possible onto the dust wipe; this is meant to be the kind of dust that a child is likely to pick up if they put their fingers on the sill.

So, we're turning it over to any empty side to dust getting as much as we can, and put it in the sample bottle just so, and again, take off the glove and throw it away.

Start afresh on the next sample.

We think this is the most active play area in the child's bedroom.

We're needing a dust wipe for the floor; it's 40cm.x40cm.

I'm going to measure that out then tape it.

Use masking tape so that it gives the perfect area.

Try not to wipe onto the masking tape; wipe everything within the area.

Once we've wiped in one direction we fold the wipe in on itself and wipe with the outside in the other direction.

We're attempting to get every speck of dust that we can onto the dust wipe and again we close it to get a new wipe area and go back the other way; so we've hopefully cleaned the floor, and collected all the dust and that goes in here.



Again, discard the glove and wash the hands.

We carefully chose these last dust wipes from here underneath the vent that's in the ceiling; there is a possibility that some of the ceiling dust is coming down onto the child's play floor.

The final sample: we're near the front door at the rug; it runs along the hall where the child plays, and we've put in the dust wipe samples.

We've measured out the 40cm x 40cm on the rug.

Again wiping with the open cloth so you get as much dust as you can from the area; always folding over and inside wipe the clean side in the other direction; basically mimicking what a child picks up while at play.

Of course, carpet is a popular place for children's play, therefore, it's a good choice for a dust wipe.

Use any amount of wipe that is still clean to collect the dust.

Our final bottle is labelled dust wipe cleaning.

We've got the set of eight samples ready to go to the lab.

That's all we need as long as we label with sample numbers

So, the box is closed and we have the label ready

The box will now be posted to the lab.

Of course you need to apply stamps and tape.

So, that's a kit! Thanks.

## **YouTube Kit Video 4 – Results – TRANSCRIPT**

Hi. I'm Elizabeth O'Brien from The LEAD Group.

We've returned to the place of soil sampling at a child's play area. The soil was originally much more covered with flakes of paint.

We've advised that the flakes of paint be picked up with a shovel. Put the flakes into plastic, double-bagged. Then cover the area of the play soil so that it will not be play soil. For the



future we recommend that it is replaced with sand, so the child will have a covered sandpit of clean sand.

The sandpit area will overcome the issues of the test result. The returned result of the play soil was unacceptable. The reading was 5 times higher than the allowed level.

We're now going to the paint area of the cane chairs.

The chairs look very old, which is very deceptive. As old as they look they can't have been made prior to 1970, because the lead in the paint is at 0.01% which is acceptable.

We now go back inside to the next paint sample.

The other pot sample that we took was a herb. The recommendation is that the herb is washed before use. That's the usual problem with lead contaminated soil used for growing vegetables or herbs.

We're in the hall now where we sampled some paint. This paint, due to the thickness, looked very old. In fact, it was deceptive. This is why we say the area being sampled is not necessarily representative of the whole area.

If I had sampled up further than the rising damp, this may well have shown high lead levels in the paint. Down here it was all new paint clearly and so less than 0.01% lead.

Now outside to the exterior paint on the original building.

Where we sampled here the result is 36.6% lead. The Australian standard says that if paint is more than 1% lead, it is hazardous. So this is 36 times that. This paint continues up the wall to the child's bedroom.

We'll now go inside and see the result there on the window sill.

So we're in a 3 year old's bedroom here and this window sill is potentially accessible to that child. So we've sampled a combination of the internal window sill and the external window sill and the result is 1,650 micrograms per metre squared ( $\mu\text{g}/\text{m}^2$ ) for a dust wipe.

The paint that is visible (the yellow paint) is possibly not that old but the blue and white paint covering obviously paint that is up to 125 years old which is the age of the house. So every time the window is opened or closed you'll get some friction where the paint comes off the surfaces. It will then fall as dust onto this area.

With such a high dust wipe result we highly recommend the whole window frame either be replaced or at least have the paint stripped off it. The safe method for stripping paint from wood is use of a low temperature heat gun or a special infrared gun which is designed for lead paint removal.



It must be done at low temperature by a person wearing a respirator, no children present, no pregnant women present in the building. And that way is the only way to get that sort of problem cleaned up.

We'll go now to the floor now that we tested underneath the area of the vent here and this floor is clearly a great cleanable surface. It's returned a result of 18 micrograms per metre squared ( $\mu\text{g}/\text{m}^2$ ). This is actually an acceptable level, and if that was the only floor that was accessed for play, would probably result in a blood lead level below 2 micrograms per decilitre ( $\mu\text{g}/\text{dL}$ ).

The other result that we got however is on carpet and carpet is notoriously harder to clean and we took the result here near the front door where you get some tracking in of street dust as well.

It's basically impossible to vacuum all of the lead out of carpet so when we wiped that little square of carpet we found 75 micrograms of lead per metre squared ( $\mu\text{g}/\text{m}^2$ ).

The research in the United States recommends that if you want to keep a child's blood lead level below 10 micrograms per decilitre ( $\mu\text{g}/\text{dL}$ ), you need to keep all your dust-wipe lead levels below 120 micrograms per metre squared ( $\mu\text{g}/\text{m}^2$ ) and the aim would have to be reduced if you were wanting to get a lower blood lead level.

So I would say, just by simple maths, you need to aim for dust-wipe lead levels to stay below 20 ( $\mu\text{g}/\text{m}^2$ ) to get a result of blood lead levels below 2 micrograms per decilitre ( $\mu\text{g}/\text{dL}$ ).

I know that's very stringent but there's so much impact from a high blood lead level that it's not worth testing it on your child.

Basically the only way to make a house of this age safe, with this much lead in the paint, is to completely strip the lead paint.

The method for a wall like this would be to use a chemical stripper, or a combination of chemical strippers and to get back to a surface that has no lead in it.

For an area like this it's even better to use a chemical stripper because it's not flat, and again, for the woodwork, just as with the window, the best method is a low temperature heat gun or infrared gun.

Once a place is stripped and re-painted with lead-free paint, then no future tenant or resident ever has to be concerned about lead in the paint and nobody has to be cautious every time somebody comes to repaint, whether they sand or not is much less relevant, whereas here someone coming in and sanding could immediately contaminate the whole building, especially for the young residents.



# **Transcripts of 4 YouTube Videos about LEAD Group Kits (Spanish translation)**

*original language: English, translated into Spanish by Orlando Aguirre-Lopez*

*lengua original: Inglés, traducido al Castellano por Orlando Aguirre-López*

LEAD Group Kit YouTube videos comprise:

## **YouTube Kit Video 1 - Introduction**

The LEAD Group - Introduction of Lead Poisoning and DIY Sampling Kit, at

<http://www.youtube.com/watch?v=85HoFGV5qCU&feature=channel>

## **YouTube Kit Video 2 – Instruction Part 1**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Instruction - Part 1/2, at

<http://www.youtube.com/watch?v=s4WzzUcBdCg&feature=channel>;

## **YouTube Kit Video 3 – Instruction Part 2**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Instruction - Part 2/2, at

<http://www.youtube.com/watch?v=VVbB8wcglV4&feature=channel>

## **YouTube Kit Video 4 – Results**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Result, at

<http://www.youtube.com/watch?v=L25RTdpKdRo>

## **YouTube Kit Video 1 - Introduction – TRANSCRIPT**

## **Conjunto de Videos You Tube, 1. – Introducción - TRANSCRIPCION**



Qué tal, soy Elizabeth O'Brien de "The LEAD Group". "The LEAD Group" es una fundación que trata específicamente con la prevención del envenenamiento con plomo.

El plomo es un metal altamente tóxico y el envenenamiento con plomo es muy común.

En Australia, estimamos que hay un alto riesgo para la mayoría de la población con un elevado nivel de plomo en la sangre.

El riesgo es la pérdida de puntos del C.I. y muerte temprana a causa de envenenamiento con plomo y lo mismo se aplica al resto del mundo, pero las cifras aumentan a medida que consideramos los países en desarrollo.

Nuestro objetivo es eliminar el envenenamiento con plomo mediante la concientización acerca de qué fuente está usted recibiendo el plomo.

Si su nivel de plomo en la sangre está por encima de 2 microgramos por decilitro [2 ug/dL], usted requiere entonces descubrir de dónde viene el plomo.

Usted puede hacerlo por medio del botiquín de "The LEAD Group".

Estos botiquines se establecen de tal modo que usted puede recoger muestras de varios sitios en su casa o en su lugar de trabajo, muestras por ejemplo, de agua, polvo, pintura, suelo, o polvo del cielorraso, juguetes, artefactos de cerámica, etc.

Puede usted usar los guantes, limpiones de polvo y las botellas para muestras -hay ocho de ellas en el botiquín integral.

Puede recoger cada una de las diferentes muestras y enviarlas por correo a un laboratorio acreditado por NATA.

El tamaño alterno del botiquín es este pequeño el cual es de solo dos muestras – llamado Botiquín Básico. De nuevo, usted puede usarlo para polvo, agua, suelo, pintura o juguetes...

Y el tercer tipo de botiquín que tenemos es solo para Agua – Es un botiquín básico también (dos muestras). Usted puede coleccionar una primera muestra rápida con una botella y una muestra de flujo con la otra, para determinar si el plomo está en los grifos, las tuberías, o está en su suministro general de agua.

En esta forma usted puede ahora observar siempre cómo muestrear su casa para posibles fuentes de plomo.



## **YouTube Kit Video 2 – Instruction Part 1 – TRANSCRIPT**

### **Conjunto de Videos YouTube, 2. – Instrucción Parte 1 - TRANSCRIPCION**

Qué tal, Soy Elizabeth O'Brien de "The LEAD Group".

Una familia de Sydney nos ha permitido amablemente utilizar las áreas de su casa para mostrar a ustedes los tipos de muestras que pueden recogerse mediante el uso del equipo de análisis de laboratorio en la prueba de plomo, DIY, de "The LEAD Group".

Para la primera muestra, pregunté a los residentes dónde juega su niño.

Así, vamos a tomar las muestras de suelo.

Tenemos estas formularios "Cadena de Custodia". Vienen del correo electrónico y las hemos impreso; así, podemos ver los números de la muestra para este botiquín en particular.

Hemos obtenido la hoja de instrucciones a partir de la casilla que sabemos es necesario llenar en el tipo de muestra en esta "Cadena de Custodia".

Vamos a teclear toda la información y a enviarla a "The LEAD Group", pero, por el momento, mientras estamos en el terreno, estamos escribiendo a mano.

La ubicación de la muestra se encuentra junto a la terraza de atrás y este es el lugar donde el niño más juega.

Lo que tenemos que hacer es recoger una pequeña cantidad de suelo en esta botella de muestras; entonces haremos eso ahora.

Recogeremos el suelo como éste y colocaremos la tapa de nuevo.

Tendré que lavarme las manos antes de la siguiente muestra que será de estas macetas en el suelo del jardín.

El número de la muestra va en la botella.

El origen de la muestra es suelo donde se juega.





El siguiente suelo que vamos a tomar es el de macetas de legumbres, están cerca al suelo donde se juega

Entonces, tenemos una descripción, la botella necesita una etiqueta

Así, lo que se escribe es: el suelo y el número.

Mi objetivo es obtener algunas evidentes escamas de pintura.

Me lavo las manos de nuevo ahora.

Llevaremos el botiquín adentro para las otras cosas.

Necesitamos la cinta para nuestra próxima muestra, un limpiador de polvo del piso , tijeras y también se necesita aquí la cinta métrica.

La siguiente muestra será de escamas de pintura; será tomada a partir de una obvia fuente potencial en la cual este niño puede impregnarse solo por estar jugando en dicha área.

Necesitamos suficiente pintura para cubrir una moneda de medio dólar.

De nuevo, escribimos el número en la botella de muestras y la etiquetamos.

Obtenemos tanto como podamos usando un raspador afilado.

Las capas más antiguas de pintura son las que se deben tener en cuenta como fuente de mayor contenido de plomo.

Aunque todas las capas de pintura aquí parecen antiguas.

...Esto es posiblemente suficiente.

Esta familia tiene también la excelente costumbre de dejar sus zapatos en la puerta, y así haré yo lo mismo.

La siguiente muestra será pintura vieja de una parte antigua de la casa; que tiene más de un siglo.

Esta pintura está desconchando en el piso y también en el muro.

Siempre es mejor obtener cualquier pintura de la superficie original que de la pintura nueva de encima.

Hay una técnica muy inteligente utilizada en EE.UU. donde un problema como éste se trata temporal e inmediatamente.



Simplemente, consiga cinta pegante y péguela en esta pintura, para quitar toda la que está lo suficientemente suelta para aplicar ese método.

Así, he obtenido pintura mucho más antigua de lo inferior.

Habría ahora una muestra suficiente de todas las capas. Gracias.

## **YouTube Kit Video 3 – Instruction Part 2 – TRANSCRIPT**

### **Video 3 de los Botiquines, en YouTube – Parte 2 de la Instrucción – TRANSCRIPCIÓN**

Este es a partir de la parte original de la casa.

Muestro ahora etiquetado de nuevo.

Limpio el raspador otra vez.

Nuestro objetivo son las capas más inferiores, así, hay suficiente muestra para proceder.

El limpia polvo es posiblemente la más importante muestra para tomar.

Hay un estándar asociado a la prueba de pintura; usted puede tomar acción de acuerdo con el resultado.

Así, de nuevo, con una breve descripción del tipo de muestra y el número, etiquetamos la botella.

Luego medimos el área y entonces le colocamos cinta; así conocemos exactamente el área de todo el reborde de la ventana con solo tener la medida de la cinta.

Entonces, eso es 85 cm, y también aquí a través: 20 cm, perfecto, eso es justo un poquito más que la mínima área requerida.

Limpiamos de polvo la habitación del niño.

Entonces es: reborde de la ventana 25x85cm.; necesitamos colocarnos los guantes, un guante es suficiente, en una mano; son muy difíciles de colocar, y se salen estos sacudidores de polvo; éstos necesitan ser abiertos, lo que puede hacerse con una mano; es un poquito complicado.



Tratamos de sacudir la superficie más suave primero, atrás y adelante; luego el área más áspera; luego lo doblamos, y tratamos de sacudir de nuevo en la otra dirección.

Obtenemos tanto polvo como sea posible en el limpiador, este sería el tipo de polvo que un niño probablemente recoge si pone sus dedos en el alféizar.

Lo volteamos hacia un lado vacío para obtener tanto polvo como podamos, y lo colocamos en la botella de muestras, así, y, de nuevo, nos quitamos el guante y lo desechamos.

Y empezamos, como nuevos, con la próxima muestra.

Creemos que ésta es el área más active de juego en la alcoba del niño.

Necesitamos un limpiador de polvo para el piso; esto es 40cmx40cm.

Voy a medir y luego le coloco cinta; usamos cinta de enmascarar para que nos dé el área perfecta.

Tratamos de no sacudir sobre la cinta de enmascarar; limpiamos todo dentro del área; una vez que hayamos sacudido en una dirección doblamos el frotador y limpiamos con la parte de afuera en la otra dirección.

Intentamos tener todas las motas de polvo que podamos dentro del limpiador de polvo y lo cerramos para obtener una nueva área y regresamos en la otra dirección.

Así, hemos limpiado con suerte el piso y recolectado todo el polvo, el que va aquí; nuevamente, desechamos el guante y nos lavamos las manos.

Escogemos cuidadosamente estos últimos limpiadores de aquí debajo de la abertura que se encuentra en el techo; es posible que algún polvo del cielo raso esté cayendo sobre el piso donde juega el niño.

La muestra final: estamos cerca de la puerta principal, en la alfombra; ésta va a lo largo del vestíbulo donde el niño juega, y lo hemos colocado en las muestras de limpia polvo, hemos medido 40cmx40cm de la alfombra.

De nuevo, limpiando con paño abierto, de tal modo que se obtenga tanto polvo como pueda de esa área.

Siempre plegando hacia el interior frote el lado limpio en la otra dirección, imitando básicamente lo que un niño recoge mientras juega.

Por supuesto, la alfombra es un lugar favorito para el juego de los niños, por tanto, es una buena escogencia para un limpia polvo.



Utilice cualquier cantidad de paño recogedor que esté aún limpio para recolectar el polvo.

Nuestra botella final está etiquetada “pañó de limpieza de polvo”.

Hemos obtenido el conjunto de ocho muestras listas para ir al laboratorio.

Esto es todo lo que necesitamos en tanto que las enumeremos.

Así, la caja se cierra y tenemos la etiqueta lista.

La caja será ahora enviada por correo al laboratorio.

Por supuesto necesitamos colocar estampillas y cinta.

Entonces, eso es un botiquín! Gracias.

## **YouTube Kit Video 4 – Results – TRANSCRIPT**

### **Conjunto de Videos YouTube, 4. – Resultados - TRANSCRIPCION**

Que tal. Soy Elizabeth O’Brien de “The LEAD Group”.

Hemos regresado al lugar de la muestra de suelos en un área donde juegan los niños.

El suelo estaba originalmente mucho más cubierto de escamas de pintura.

Hemos aconsejado que las escamas de pintura sean recogidas con una pala, colocar las escamas en plástico, con doble bolsa; luego cubrir el área del suelo donde se juega de tal modo que no sea suelo de juego.

Para el futuro recomendamos que sea reemplazado por arena, de tal modo que el niño tenga una caja cubierta de arena limpia.

La zona de arena superará los problemas del resultado de la prueba.

El resultado obtenido del suelo de juego fue inaceptable.

La lectura fue 5 veces mayor que el nivel permitido.

Vamos ahora al área de pintura de las sillas de caña.

Tan antiguas como parecen no pueden haber sido hechas antes de 1970, porque el plomo está en 0.01% lo cual es aceptable.



Vamos ahora al interior para la siguiente muestra de pintura.

La otra muestra de olla que tomamos era una hierba. La recomendación es que la hierba se lave antes de ser usada. Es una precaución ya que el riesgo de contaminación con plomo en el suelo es alto. Ese es el curso normal de acción con suelo contaminado de plomo, pues es utilizado para cultivar legumbres o hierbas.

Estamos ahora en el pasillo donde muestreamos un poco de pintura

Esta pintura, debido a su espesor parecía muy vieja; de hecho, fue engañoso, por esto decimos que el área que está siendo muestreada no es necesariamente representativa del área total.

Si yo hubiera muestreado más arriba de la humedad ascendente esto puede bien haber mostrado altos niveles en el resultado.

Aquí abajo era todo pintura nueva claramente y, entonces, menos de 0.01

Ahora, afuera, hacia la pintura exterior en el edificio original, donde tomamos muestras, aquí, el resultado es 36.06% plomo.

El estándar Australiano es que si la pintura tiene más del 1% de plomo es peligroso; entonces ésta es 36 veces ese nivel.

Esta pintura continua muro arriba por fuera de la alcoba del niño.

Vamos ahora adentro y vemos el resultado allí en el alféizar de la ventana

Estamos entonces aquí en una alcoba de tres años, y este alféizar de la ventana es potencialmente accesible a ese niño.

Hemos muestreado una combinación del alféizar interno de la ventana y el alféizar externo de la misma, y el resultado es 1,650 microgramos por metro cuadrado ( $\mu\text{g}/\text{m}^2$ ) de paño limpiador de polvo.

La pintura que es visible (la pintura amarilla) es posiblemente no tan antigua, pero la cubierta de pintura blanca y azul es hasta de 125 años de antigüedad que es la edad de la casa.

Así, cada vez que la ventana se abra o se cierre usted observará alguna fricción donde la pintura sale de las superficies;

Ella caerá entonces, como polvo, en esta área



Con tan alto resultado en la toma de polvo recomendamos encarecidamente reemplazar todo el cuadro de la ventana, o al menos hacerle quitar la pintura.

El método seguro para quitar pintura de la madera es el uso de una pistola de calor, de baja temperatura, o una pistola infrarroja especial diseñada para quitar pintura a base de plomo.

Ello debe hacerse a baja temperatura por una persona usando un respirador, sin niños presentes, sin mujeres embarazadas en la edificación, y esa es la única manera de lograr que esa clase de problema se solucione.

Vamos ahora al piso que probamos en los bajos. El área de la rejilla de ventilación aquí y este piso son claramente una superficie que se puede limpiar.

Ha devuelto un resultado de 18 microgramos por metro cuadrado ( $\mu\text{g}/\text{m}^2$ )

Este es realmente un nivel aceptable, y si ese fuera el único piso asequible para juego, resultaría probablemente en un nivel de plomo en la sangre por debajo de 2 microgramos por decilitro ( $\mu\text{g}/\text{dL}$ ).

El otro resultado que obtuvimos sin embargo es sobre la alfombra y ésta es notoriamente más difícil de limpiar, y hemos tomado el resultado aquí cerca de la puerta principal, donde usted recibe rastras del polvo de la calle también.

Es básicamente imposible aspirar todo el plomo de la alfombra, así, cuando limpiamos ese pequeño cuadrado de la alfombra hemos encontrado 75 microgramos de plomo por metro, llevado al cuadrado ( $\mu\text{g}/\text{m}^2$ ).

La investigación en los EE.UU. recomienda, si usted quiere mantener un niño en un nivel de plomo en la sangre por debajo de 10 microgramos por decilitro ( $\mu\text{g}/\text{dL}$ ).

Debe usted mantener los niveles de plomo del limpia polvo por debajo de 120 microgramos por metro (llevado al cuadrado) ( $\mu\text{g}/\text{m}^2$ ), y el objetivo tendría que ser el reducirlo si usted quisiera alcanzar un nivel más bajo de plomo en la sangre.

Así, diríamos, por simple matemática, que usted necesita lograr que los niveles de plomo en el paño limpiador se mantengan por debajo de 20 ( $\mu\text{g}/\text{m}^2$ ) para obtener niveles por debajo de los 2 microgramos por decilitro ( $\mu\text{g}/\text{dL}$ ).

Sabemos que esto es muy riguroso pero hay tanto impacto por un nivel alto de plomo en la sangre que no vale la pena probarlo en su niño.

Básicamente, la única forma de mantener una casa de esta antigüedad segura con tanto plomo en la pintura, es arrancar completamente la pintura de plomo.



El método para un muro como éste sería el usar un limpiador químico, o una combinación de limpiadores químicos y obtener una superficie libre de plomo.

Para un área como ésta es aún mejor usar un limpiador químico porque no es plana y, de nuevo, para el trabajo en madera, como en la ventana, el mejor método es, a temperatura baja, pistola de calor o pistola de infrarrojos.

Una vez que un lugar se ha limpiado y pintado con pintura libre de plomo, entonces, ningún inquilino o residente futuro tendrá que preocuparse acerca de plomo en la pintura y nadie tendrá que ser cauteloso cada vez que alguien venga a repintar, se impregnen de arena o no; es mucho menos importante. Mientras, aquí, alguien que venga y se unte de arena podría contaminar inmediatamente toda la edificación, especialmente a los residentes jóvenes.

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## **Transcripts of 4 YouTube Videos about LEAD Group Kits (French translation)**

*original language: English, translated into French by Orlando Aguirre-Lopez*

*langue originale Anglais, traduit en Français par Orlando Aguirre-López*

LEAD Group Kit YouTube videos comprise:

### **YouTube Kit Video 1 - Introduction**

The LEAD Group - Introduction of Lead Poisoning and DIY Sampling Kit, at

<http://www.youtube.com/watch?v=85HoFGV5qCU&feature=channel>

### **YouTube Kit Video 2 – Instruction Part 1**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Instruction - Part 1/2, at

<http://www.youtube.com/watch?v=s4WzzUcBdCg&feature=channel>;

### **YouTube Kit Video 3 – Instruction Part 2**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Instruction - Part 2/2, at

<http://www.youtube.com/watch?v=VVbB8wcglV4&feature=channel>



## **YouTube Kit Video 4 – Results**

Lead Poisoning DIY Lead (Heavy Metal) Test Kit Result, at

<http://www.youtube.com/watch?v=L25RTdpKdRo>

## **YouTube Kit Video 1 – Introduction - TRANSCRIPT**

### **YouTube Vidéo Kit 1 - Introduction- TRANSCRIPT (langue originale Anglais, traduit en Français par Orlando Aguirre-López)**

Salut, je suis Elizabeth O'Brien du «The LEAD Group». «The LEAD Group» est une foundation qui traite spécifiquement de la prévention du saturnisme.

Le plomb est un métal hautement toxique, et l'intoxication au plomb est très répandue.

En Australie, on estime qu'il y a un risque élevé de la majorité de la population avec un niveau élevé de plomb dans le sang.

Le risque est la perte de points de QI et mort précoce à cause du saturnisme.

En va de même dans le reste du monde mais les chiffres montent quand vous considérez plus les pays en développement.

Nous visons à éliminer l'empoisonnement au plomb par la sensibilisation sur l'endroit où l'absorption de plomb se passe.

Si votre niveau de plomb dans le sang est supérieure à 2 microgrammes par décilitre [2 µg/dL], vous avez besoin de savoir d'où le plomb vient.

Vous pouvez le faire via le kit de "The LEAD Group".

Ces kits sont établis de sorte que vous pouvez recueillir des échantillons de divers endroits dans votre maison ou votre lieu de travail.

Les échantillons seraient les suivants: l'eau, ou de la poussière, ou de la peinture, ou le sol, ou de la poussière de plafond, des jouets et de produits de la céramique...

Vous pouvez utiliser les gants et chiffons à poussière et les bouteilles de prélèvement -il y a huit d'entre eux dans ce kit complet.

Vous pouvez ramasser chacun des différents échantillons et l'envoyer à un laboratoire accrédité NATA.





La taille du kit de remplacement est cette petite qui est juste pour deux échantillons – appelé le Kit de Base qui est juste pour deux échantillons – appelé le Kit de Base.

Encore un fois, vous pouvez l'utiliser pour la poussière ou de l'eau, ou de la terre ou des peintures ou des jouets...

Le troisième type de kit que nous avons est juste pour l'eau ; il est un kit de base ainsi (deux échantillons).

Vous pouvez ramasser un premier échantillon, chasse d'eau, avec une bouteille et un échantillon d'écoulement avec l'autre afin de déterminer si le plomb est dans les robinets ou des tuyaux ou dans votre alimentation générale de l'eau.

De cette façon, vous pouvez maintenant continuer à regarder toujours votre maison pour les sources probables de plomb.

## **YouTube Kit Video 2 – Instruction Part 1 – TRANSCRIPT**

### **Kit YouTube Vidéo 2 - Instruction Partie 1 – Transcription**

Salut, je suis Elizabeth O'Brien du "The LEAD Group".

Une famille à Sydney a gentiment proposé de nous permettre d'utiliser des échantillons de leur domicile à vous démontrer les différents types d'entre eux, qui peuvent être collectées en utilisant le Kit d'analyse de laboratoire pour le test de plomb DIY du «The LEAD Group».

Pour le premier échantillon, J'ai demandé les résidents où leur enfant joue.

Donc, nous allons prendre des échantillons de sol.

Nous avons ces formes "Chaîne de Traçabilité. Ils sortent de l'email et nous les avons imprimés ; ainsi, nous pouvons voir les numéros d'échantillons pour ce kit en particulier.

Nous avons obtenu la feuille d'instructions de la boîte que nous savons il est nécessaire de remplir pour le type d'échantillon sur cette Chaîne de Traçabilité.

Nous allons saisir toutes les informations et les envoyer à "The LEAD Group", mais, pour le moment, alors que nous sommes sur le terrain, nous allons écrire à la main.

L'emplacement de l'échantillon est juste à côté de la terrasse arrière, et ceci est le lieu où l'enfant joue la plupart des temps.



Ce que nous devons faire est de recueillir une petite quantité de sol dans cette bouteille d'échantillon, donc nous allons faire maintenant.

Nous recueillons le sol comme celui-ci et mettrons le couvercle à nouveau.

Je vais me laver les mains avant de l'échantillon suivant qui sera à partir de ces pots dans le sol du jardin.

Le numéro de l'échantillon va sur la bouteille.

La source ici du sol est le sol de jouer.

Le prochain sol que nous allons prendre est de plantes en pots de légumes; Ils sont près du sol de jeu .

Oui, nous avons une description, la bouteille a besoin d'une étiquette; donc, ce qui est écrit est: le sol et le nombre.

Je vise maintenant pour obtenir des écailles évidentes de peinture.

Nous allons apporter le Kit à l'intérieur pour d'autres choses.

Nous avons besoin du papier collant pour notre prochain échantillon, un racleur, des ciseaux et du ruban de mesure sont également nécessaires ici.

L'échantillon suivant sera d'écailles de peinture; Il sera pris à partir d'une source potentielle évidente dans lequel cet enfant peut le ramasser en jouant dans ce domaine ; nous avons besoin de suffisamment de peinture pour couvrir une pièce de 50 cents.

Encore une fois, nous écrivons le numéro sur la bouteille d'échantillon et nous l'étiquetons ; nous l'obtenons autant que nous pouvons en utilisant un grattoir forte;

Les anciennes couches de peinture sont ceux aux soins à la source pour un teneur plus élevé de plomb.

Bien que toutes les couches de peinture, ici, ont l'air vieux ;

Qui est assez, espérons.

Cette famille a aussi l'excellente habitude de laisser leurs chaussures à la porte, et je vais donc faire de même.

L'échantillon suivant sera la vieille peinture à partir d'une partie ancienne de la maison ; elle est âgée de plus d'un siècle.

Cette peinture est écaillée sur le sol, ainsi que de la paroi.



Il est toujours préférable d'obtenir toute peinture de la surface d'origine que de la nouvelle peinture sur le dessus.

Il existe une technique très intelligente utilisée aux États-Unis où un problème comme celui-ci est temporairement et immédiatement traité; tout simplement, vous obtenez du ruban adhésif et vous le collez le cette peinture pour enlever tout qui est assez lâche pour appliquer cette méthode.

Oui, je l'ai obtenu peinture beaucoup plus âgé de dessous.

Il devrait maintenant y avoir un échantillon suffisant de toutes les couches. Merci.

## **YouTube Video Kit 3 – Instruction Partie 2 – TRANSCRIPT**

**Langue Originale: Anglais (traduit en Français par Orlando Aguirre-López).**

Ceci est de la section originale générale de la maison.

Je montre à nouveau l'étiquetage maintenant.

Je nettoie le grattoir à nouveau.

Notre buts sont les couches que sont plus loin de sorte qu'il existe un échantillon suffisamment prêt à commencer.

Le racleur peut-être l'échantillon le plus important à prendre; il existe une norme fixée à peindre tests.

Vous pouvez prendre des mesures en fonction du résultat; encore un fois, avec une brève description du type d'échantillon et son nombre nous étiquetons la bouteille.

Puis, nous mesurons la zone et ensuite nous allons mettre la bande; ainsi on sait exactement l'aire de la zone de rebord de la fenêtre juste de la mesure de la bande.

De sorte qu'il est 85cm et également à travers ici: 20cm, parfaite; qui es juste un peu plus que la superficie minimale nécessaire.



Nous nettoyons la poussière dans la chambre de l'enfant; de sorte que qu'il est: 25x85cm rebord de la fenêtre.

Donc, nous avons besoin de mettre des gants; un gant est suffisant, en une main; ils sont très difficiles à mettre.

Et ces racleurs de poussière sortent; celles-ci doivent être ouvertes, et cela peut être fait d'une seule main; il est un peu difficile.

Nous essayons de nettoyer la surface la plus lisse premièrement, d'avant en arrière, puis la zone plus rugueuse; alors, pliez cela sur lui-même, et nous essayons d'essuyer à nouveau dans l'autre sens.

Nous obtenons autant de poussière que possible sur le chiffon à dépoussiérer; ce serait le genre de poussière qu'un enfant est susceptible de capter si 'ils mettent leurs doigts sur le rebord.

Alors nous tournons le racleur à aucun côté vide pour obtenir autant de poussière que nous pouvons, et nous allons le mettre dans la bouteille d'échantillon, comme ceci, et encore, je prends le gant et le jette.

Je commence à nouveau sur l'échantillon suivant.

Nous pensons que cette aire est la zone la plus active pour jouer dans la chambre de l'enfant.

Nous avons besoin d'un chiffon à dépoussiérer pour le plancher; c'est 40cm x 40cm.

Je vais mesurer cela et mettre le ruban adhésif; nous utilisons du ruban adhésif afin qu'il donne l'endroit parfait.

Nous essayons de ne pas essuyer sur le ruban de masquage; nous allons essuyer tout dans la zone.

Une fois que nous avons essuyé dans un sens, on plie la lingette, et nous essuyons avec l'extérieur dans l'autre sens.



Nous tentons d'obtenir chaque grain de poussière que nous pouvons sur le chiffon à dépoussiérer et encore, nous le fermons afin d'obtenir une nouvelle zone d'effacement et retournons dans l'autre sens.

De sorte que nous avons, espérons, nettoyé le sol et avons rassemblé tous le poussière et qui va ici.

Encore une fois, je jette le gant et me lave les mains.

Nous avons soigneusement choisi ces dernières lingettes de poussière d'ici sous l'évent qui est dans le plafond.

Il y'a une possibilité que certains de la poussière du plafond descendent sur le plancher de l'enfant.

L'échantillon final: nous sommes près de la porte d'entrée, au tapis; il va longe la salle où l'enfant joue, et nous avons mis dans les échantillons de racleur.

Nous avons mesuré le 40cm x 40cm du tapis.

Encore une fois, en essuyant avec le chiffon ouverte afin d'obtenir autant de la poussière que vous pouvez de la région.

Toujours, nous plions de l'extérieur vers l'intérieur, nous essuyons le côté propre dans l'autre sens, essentiellement, imitant ce que l'enfant ramasse alors qu'il joue.

Bien sur le tapis est un endroit populaire pour un jeu d'enfants, donc, il est un bon choix pour un chiffon à dépoussiérer; nous utilisons quelqu'une quantité de chiffon à poussière, cela qu'est encore propre à recueillir la poussière.

Notre bouteille final est étiqueté "chiffon de la poussière».

Nous avons obtenu l'ensemble des huit échantillons prêts à aller au lab.

Voilà, ce tout que nous avons besoin, autant que nous les étiquetons avec des numéros d'échantillons.

Ainsi, la boîte est fermée et nous avons l'étiquette prête.



La boîte va maintenant être affichée au laboratoire.

Bien sûr, vous avez besoin d'appliquer les timbres et le ruban.

Donc, voilà un kit! Merci.

## **YouTube Kit Video 4 – Results – TRANSCRIPT**

### **YouTube Kit Video 4. – Résultats - TRANSCRIPT**

Salut. Je suis Elizabeth O'Brien du "The LEAD Group"

Nous sommes retournés à l'endroit de l'échantillonnage du sol sur l'aire de jeu d'enfants.

Le sol a été beaucoup plus recouvert d'écailles de peinture.

Nous avons conseillé que les écailles de peinture être ramassés à la pelle.

Nous mettons les flocons en plastique, de sacs doubles

Ensuite, nous couvrons la zone du sol de jeu, de sorte qu'il ne sera pas sol de jouer.

Pour l'avenir, nous recommandons qu'elle soit remplacée avec du sable, afin que l'enfant aura un bac à sable couvert de sable propre.

La zone du bac à sable permettra de surmonter les problèmes de résultat de l'essai.

Le résultat renvoyé du sol de jeu a été inacceptable.

La lecture a été 5 fois plus élevée que le niveau autorisé.

Nous allons le domaine de la peinture des chaises en rotin.

Les chaises ont l'air très vieux, qui est très trompeur.

Aussi vieux que leur apparence elles ne peuvent pas avoir été faites avant 1970, parce que le plomb est à 0.01%, ce qui est acceptable.

Nous revenons maintenant à l'intérieur pour le prochain échantillon de peinture.

L'autre échantillon de pot que nous avons pris était une herbe. La recommandation est que l'herbe est lavée avant utilisation. Il est une précaution car le risque de contamination par le plomb du sol est élevé. Qui est le cours normal de l'action avec le sol contaminé par du plomb, que celui s'utilise pour les légumes ou herbes en pleine croissance.

Nous sommes dans le hall maintenant où nous avons testé un peu de peinture.



Cette peinture, en raison de l'épaisseur, a l'air très vieux, en fait, il a été trompeur.

Voilà pourquoi nous disons que la zone échantillonnée n'est pas nécessairement représentative de l'ensemble de la zone. Si je l'avais échantillonnée jusqu'à plus loin que les remontées d'humidité, ce qui peut bien avoir montré des niveaux élevés dans le résultat.

Ici, bas, il était toute nouvelle peinture clairement et si moins de 0.01.

Maintenant, en dehors de la peinture extérieure sur le bâtiment d'origine où nous avons testé, ici le résultat est 36.06%.

La norme Australienne est que si la peinture est supérieure à 1% de plomb il est dangereux. Donc, cela est 36 fois ce niveau.

Cette peinture se poursuit jusqu'à la paroi extérieure de la chambre de l'enfant.

Nous allons maintenant à l'intérieur et verrons le résultat là sur rebord de la fenêtre

Nous sommes donc ici dans la chambre d'un enfant de 3 ans et le rebord de la fenêtre est potentiellement accessible à cet enfant.

Nous avons échantillonné une combinaison du rebord intérieur de la fenêtre et le rebord externe de la fenêtre, et le résultat est de 1650 microgrammes par mètre carré ( $\mu\text{g}/\text{m}^2$ ) pour un chiffon à dépeussier.

La peinture qui est visible (la peinture jaune) est, peut-être, pas si vieux, mais le revêtement blanc et bleu de la peinture est vieux évidemment; il a 125 ans qui est l'âge de la maison.

Ainsi, chaque fois que la fenêtre est ouverte ou fermée, vous obtiendrez quelques frictions où la peinture se détache des surfaces. Il tombera alors comme de la poussière sur ce domaine.

Avec une telle poussière, nous recommandons fortement que l'ensemble du cadre de la fenêtre soit remplacé, ou au moins avoir la peinture dépouillée.

La méthode sûre pour le décapage de la peinture à partir de bois est l'utilisation d'un pistolet à air chaud à basse température ou un pistolet spécial qui est conçu pour l'enlèvement de la peinture au plomb.

Il doit être fait à basse température par une personne portant un appareil respiratoire, pas d'enfants présents, pas de femmes enceintes présents dans le bâtiment. Et de cette façon est le seul moyen d'avoir le problème nettoyé.

Nous allons maintenant passer à l'étage que nous avons testé, en dessous.



La zone de l'événement ici et cet étage est clairement une grande surface à nettoyer.

Il est retourné à la suite de 18 microgrammes par mètre carré ( $\mu\text{g}/\text{m}^2$ ).

Ceci est en fait un niveau acceptable, et si tel était le seul étage qui était accessible pour le jeu, se traduira probablement par une plombémie inférieure à 2 microgrammes par décilitre ( $\mu\text{g}/\text{dL}$ ).

L'autre résultat que nous avons obtenu est cependant sur le tapis, et le tapis est notoirement difficile à nettoyer, et nous pris le résultat ici près de la porte d'entrée où vous obtenez un certain suivi dans la poussière de la rue ainsi.

Il est pratiquement impossible de passer l'aspirateur sous la tête sur le tapis; alors quand nous avons essuyé ce petit carré de tapis, nous avons trouvé 75 microgrammes de plomb par mètre carré ( $\mu\text{g}/\text{m}^2$ ).

La recherche aux États-Unis recommande que si vous voulez garder le niveau de sang d'un enfant de moins de 10 microgrammes par décilitre ( $\mu\text{g}/\text{dL}$ ), vous avez besoin de garder tous vos niveaux de plomb de la poussière essuyer dessous de 120 microgrammes par mètre carré ( $\mu\text{g}/\text{m}^2$ ), et l'objectif devrait être de réduire si vous étiez désireux de gélifier une plombémie.

Donc je dirais, juste en mathématiques simples, vous avez besoin de viser les niveaux de plomb de la poussière d'essuyer de rester en dessous de 20 pour obtenir un résultat des niveaux de plomb dans le sang en dessous de 2 microgrammes ( $\mu\text{g}/\text{dL}$ ).

Je sais qu'il est très rigoureux, mais il y a tellement d'incidence d'un taux sanguin élevé de plomb qu'il ne vaut pas le tester sur votre enfant.

Fondamentalement, la seule façon de tenir une maison de ce coffre-fort de l'âge, avec plus de plomb dans la peinture, est de supprimer complètement la peinture au plomb.

La méthode pour une promenade comme ce serait d'utiliser un décapant chimique, ou une combinaison de décapants chimiques et de revenir à une surface qui n'a pas de plomb.

Pour une région comme cela, il est même préférable d'utiliser un décapant chimique, car il n'est pas plat, et encore une fois, pour le travail du bois, comme avec la fenêtre, la meilleure méthode est d'un pistolet thermique à température basse ou un pistolet infrarouge.

Une fois un lieu est dépouillé et peint avec de la peinture sans plomb, alors aucun futur locataire ou résident n'a jamais à se préoccuper de plomb dans la peinture et personne n'a à faire preuve de prudence chaque fois que quelqu'un vient de repeindre, qu'ils se sablent ou non est beaucoup plus pertinente, alors que ici quelqu'un qui vient et se ponçage





pourrait immédiatement contaminer l'ensemble du bâtiment, en particulier pour les résidents jeunes.

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## Household Action Level for Lead in Drinking Water

*The following interesting contributions were emailed by Dr Tom Neltner (in March 2016). Tom has kindly given permission for them to be reprinted in LEAD Action News.*

EHP published an impressive article that looked at the relationship between blood lead levels and drinking water lead levels. Ref: *Use of a Cumulative Exposure Index to Estimate the Impact of Tap Water Lead Concentration on Blood Lead Levels in 1- to 5-Year-Old Children (Montréal, Canada)*, by Gerard Ngueta, Belkacem Abdous, Robert Tardif, Julie St-Laurent and Patrick Levallois - at <http://ehp.niehs.nih.gov/1409144/>.

They adjusted for the common factors such as lead-based paint hazards and season. Lead levels in drinking waters go up in the summer. They concluded that 1 ppb (part per billion) in water (1 microgram per Litre, 1 ug/L) corresponds to 0.35 ug/dL in blood in children aged 2 to 5.

The two key assumptions were 50% absorption of the lead and 1 month half-life for lead in blood. The former seems low for young children and my understanding is that the half-life is likely longer. The water lead level (WLL) is about three times greater in summer versus winter based on the following quote from the article:

"The geometric means of WLL ( $\pm$  SE) were  $2.7 \pm 2.2$   $\mu\text{g/L}$  during winter and  $8.1 \pm 1.5$   $\mu\text{g/L}$  during summer." The study was done in Montreal – where it is pretty cold in the winter.

Check out the latest story in the excellent series from USA Today on lead in drinking water at <http://www.usatoday.com/story/news/nation/2016/03/25/epa-household-action-level-lead-drinking-water/82209520/>.

The headline is "EPA delay releasing danger level for lead in water sparks concern, questions".

Also, if you are interested in the issue, check out my latest blog at <http://blogs.edf.org/health/2016/03/25/lead-hal/>.> [blog text follows]



## **Environmental Defense Fund (EDF, USA) Blog Post 25<sup>th</sup> March 2016**

### **Household Action Level for Lead in Drinking Water; EPA Needs to Release Health-based Estimate**

*[Tom Neltner, J.D.](#)*, is Chemicals Policy Director.

A [new article in USA Today's series](#) on lead in drinking water shines a light on the Environmental Protection Agency's (EPA) delays in releasing a health-based "household action level" for lead. EPA's National Drinking Water Advisory Council ([NDWAC recommended](#)) that the agency develop this number to help parents, in consultation with their pediatrician and public health agency, decide whether to invest in a filter for the water they use to make up their child's infant formula.

Without a health-based number, people are mistakenly using EPA's current "lead action level" of 15 parts per billion (ppb) as the level below which no action is needed. The problem is that this level has no relation to the health risk. It is based on a provision in the drinking water rule that requires utilities to undertake corrosion control and, potentially, lead service line replacement when at least 10% of worst-case sample results exceed that level.

A year after committing to develop a household action level, it appears tied up in the agency's long overdue overhaul of its broken 1991 regulation designed to protect people from lead in drinking water. Communities all across the country are raising legitimate concerns about the safety of their water and need proper public health guidance. They should not have to wait on rulemaking for this important information. I know EPA is a regulatory agency that thinks in terms of rulemaking. But first and foremost EPA is a public health agency with responsibility to consumers for the safety of drinking water.

I also understand the challenge of developing an estimate given that there is no safe exposure to lead — people may misconstrue the levels below the number as completely safe. On the other hand, in the absence of such a number, they are already mistakenly using the 15 ppb current lead action level to mean the water is safe and no action is needed.

There is precedent for setting health-based numbers for different lead hazards. The agency has done it for lead in soil and for lead in dust on floors or window sills. For lead in dust, EPA established 40 micrograms of lead per square foot of the floor of homes and child-occupied facilities as the [definition of a hazard](#) that must be eliminated. This is equivalent to one gram - the same amount of sugar in a packet we add to our tea - spread evenly over about 1/2 of a football field. The agency set this level because it would "result in a [1 to 5% probability](#) of an individual child's exceeding a blood lead level of 10 µg/dL" (the definition of elevated in 2001 when the rule was promulgated). While subsequent research showed that the risk of lead in dust was much



greater and, [in 2009, EPA committed to revising the number](#), it still shows the value of providing people with a level at which a household should act.

These measurements help public health officials, housing agencies, and parents better assess the risk from lead hazards, determine what they should do to reduce the risk, and guide how they set priorities. A health-based number empowers people to make informed choices. The agency has done it for dust and soil. It needs to do it for water.

In February 2015, [NDWAC's workgroup](#) asked EPA to develop an estimated value for a household action level to help guide the workgroup's development of its [recommendations](#). The agency agreed and provided updates in [April 2015](#) and reaffirmed its commitment in [June 2015](#). No number has been released.

Given the developments in Flint and the evidence of lead in water systems throughout the country (as explained in a compelling [USA Today series](#)), delay is untenable. EPA must not wait on a proposed rule to act. It must focus its scientific expertise to developing a sound estimate, make it public, and use an external peer review process to ensure the science is strong.

For more information on the [Household Action Level for lead in drinking water](#). See also [www.edf.org/leadpipes](http://www.edf.org/leadpipes).

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## **LEAD Group Comment on EDF Blog Post: Household Action Level for Lead in Drinking Water**

COMMENT SUBMITTED AT:

<<http://blogs.edf.org/health/2016/03/25/lead-hal/comment-page-1/#comment-10704>>

What an excellent blog post Tom!

As I spend most of my time advising parents and others on lead action levels to keep themselves and their families safe from lead, I have been waiting for soil, water, paint, dust wipe, etc "lead action levels" to be revised downwards in line with the "blood lead action level" drop from 10ug/dL (micrograms per decilitre) to 5 ug/dL in the US, and with the proposed drop to a blood lead goal of less than 1ug/dL in Canada.

Being an un-resourced but impatient scientist parent myself, my while-waiting-for-the-US-EPA-to-act-solution has been to search the globe for the lowest "lead action levels" in the various environmental media, and then take simple arithmetic ratios depending on the "blood lead action level" at the time the dust- or soil- or water- etc "lead action level" was recommended or set. For instance, Australia has a drinking water "guideline" (action) level of 10 ppb (10 ug/L) which I re-set to 1 ppb (ie 1/10) the moment my Technical Advisors Professors Chris Winder, Mark Taylor and Bruce Lanphear wrote that the new goal for all blood lead levels should be less than 1 ug/dL (ie 1/10 of Australia's then 10 ug/dL "blood lead action level").



In other words, I would recommend that a parent only use water containing less than 1 ppb lead to make up infant formula and that if their mains water or rainwater contains more lead than that, they determine the source of the lead and accordingly complain to the Water Authority or replace the house taps or pipes, the rainwater pump or roof or tank or get rid of lead flashing etc.

Filtration in my view is the last line of defence in the hierarchy of controls and should be used as a last resort if eradication of the lead source proves impossible.

Similarly, I recommend that child-accessed window sills and play floors all have dust wipe lead levels below 12 ug/m<sup>2</sup>.

Here's how I calculated that: "Levels of PbD [lead dust] on floors between 6 ug/ft<sup>2</sup> [approx. 60 ug/m<sup>2</sup>] and 12 ug/ft<sup>2</sup> [approx. 120 ug/m<sup>2</sup>] can be expected to protect most children living in pre-1978 homes from having a blood lead level greater than or equal to 10 ug/dL. Protection at lower blood lead levels would require lower PbD." Reference: *U.S. Children's Exposure to Residential Dust Lead, 1999-2004: II. The Contribution of Lead-contaminated Dust to Children's Blood Lead Levels* at <http://www.ehponline.org/members/2008/11918/11918.pdf> (14/11/08).

In light of The LEAD Group's blood lead recommendation (see above), I have applied a simple factor of 1/10 to the above EHP Reference conclusion and arrived at The LEAD Group dust wipe lead level recommendation for Australia (where 1997 is the closest equivalent to the US lead paint standard of 1978):

"Levels of PbD [lead dust] on floors between 6 ug/m<sup>2</sup> and 12 ug/m<sup>2</sup> can be expected to protect most children living in pre-1997 homes from having a blood lead level greater than or equal to 1.0 ug/dL. Protection at lower blood lead levels would require lower PbD."

With my pragmatic maths-based lead action levels, I maintain that parents can achieve non-detectable blood lead levels while their young children's brains are still developing, rather than waiting for government-set action levels which may not happen until their children are already at school (and struggling).

Regards

Elizabeth O'Brien, Lead Advisor, Lead Safe World Partnership, The LEAD Group Inc, Australia

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## **Broken Hill children under 2 have blood lead levels as high as 35 in February 2016!**

*By a parent and former long-term resident of Broken Hill*

Our town of Broken Hill has been poisoned for the second time.

In the late 80s and early 90s the town had 90% of its children above the poisoning level of lead (greater than 10 micrograms per decilitre) because permission was granted to excavate and treat



the old mill reagent ponds. Millions of dollars of government money was put into the town to lower the blood lead levels.

Huge decontamination of the town following the exposure from these dams did stop the town from further contamination.

In 2007 the same leases (dams) were integrated into the new owners' licences, this included the same areas that poisoned the town in the 1980s/1990s.

The NSW government has allocated \$13 million to find out where the contamination is coming from.

The government departments already know where the contamination is coming from and they are just duplicating previous environmental studies - even purchasing an XRF machine - stating that this machine will help them find out where the contamination is coming from.

The machine was purchased back in the 90s and documents state where the contamination is coming from. We have children under 2 with blood lead levels as high as 35 micrograms per decilitre (35 µg/dL) – in February 2016 – yet the Lead Centre staff are telling parents “that’s fine” and giving them no referral to medical treatment.

The manager of the Lead Centre is making statements saying the blood lead levels are going down and yet talking to the parents whose children’s blood lead levels have risen.

The now Manager of the Lead Centre is the manager at the Broken Hill City Council who Granted the retreatment removal of the same areas that caused the Lead Poisoning in the 80s/90s.

This manager has sat on the Working Group Board since then.

I cannot understand why the Tax payers of NSW have to fund another witch hunt when the government already know the outcome because the NSW Tax payers had to fund millions to decontaminate the town in 1994. They waited for that mine site to close before any abatement work was started and again they have been granted millions over the next 4 years to find out where the contamination is coming from.

This is the same thing as happened previously. They are re-testing what they’ve tested before and the NSW Tax payers are paying another \$13million for the same testing to be redone. That money could have gone to the hospitals or schools in the town to help deal with the problems caused by the mining. Then the \$50,000 that will likely be paid to an environmental consultant to again write up the test results and make conclusions, could simply go to the school system to help the kids with cognitive impairments.

In four years time (in 2020) is when the mining leases granted run out. So by the time the government release their findings, the mining company will have exposed the townspeople to all this hazardous waste (which has been re-classified as non-hazardous waste) and released contaminants into the air, yet the mining company will by then be allowed to closedown. The mining company will not then be responsible for decontamination because the leases will be up in 2020.



We have children having chelation treatment (chelation is the name of the medical treatment for heavy metal poisoning) through private doctors, because the children have high levels of arsenic, cadmium, lead, mercury, etc - 29 toxic heavy metals/poisonous elements come out of the lead mining waste ponds and dumps– not just lead.

This does not include the mill reagents in the dust that the town is being blanketed in during the filling of some 140 shipping containers per week (which are sent by train for shipping overseas for processing, without the payment of any mining royalties). There is no independent monitoring or community consultation in regards to all the hazardous materials being released currently.

When I took my three year old granddaughter into the Lead Centre to have a blood lead test, there was another boy aged 18 months in there, who had a blood lead level over 20 ug/dL, yet all he would have got was a home visit and his parents would have been told to do more cleaning. It doesn't matter how much cleaning you do. Your white shelf tops will always appear black with dust from the mill reagent dumps from which millions of tons have been allowed to be carted away, with no air monitoring. The high velocity air monitors are supposed to be linked up to a computer but one of them had the glass sample collection jar broken and sitting on the ground during the major time when the dumps were being shifted. The glass jar is now fixed and back in the correct position with filter paper in it but even when it was broken CBH was giving results for their air monitors, as if the glass jar collecting the dust was not broken.

The mining company CBH Resources has monitors that 7 people witnessed were not operational for 6 months while the dumps were being excavated.

The collection jar at the bottom air monitor was broken. We watched and took photos for 6 months. Children are covered in a rash that is so bad it leads to Staph infection. These children have to be hospitalized and put on a drip and yet they do not test for the heavy metals or mill reagent chemicals that are poisoning them.

Also we have a slag dump from historical BHP Mining company. CBH mining company has done the same thing - excavating the slag heap and turning the top into fine powder. This material is being wind-blown all over the town. This heap is Heritage listed yet is now half the size it was 10 years ago.

Can someone help our town as the government on one hand are granting leases for the removal of chemical mill reagent dams and then on the other hand, granting \$13 Million for studies to be done to find where the contamination is coming from.

There are kids with very poor motor skills and who are 3 and 4 years behind where they should be in developmental milestones. We need medical treatment by toxicologists not paid government doctors to brush aside the serious matter of our children being poisoned.



## Please be more responsible and transparent with Lead Contamination. Lives Matter!

*By Michael Peter Galvin, Owner-Builder of small five sided Art Studio and Garden Folly in Queenstown, Tasmania, with experience in Environmental engineering, Science, Conservation, Land and Water Management, M.Sci(EnvMan), B.Eng(Env), Cert.3.NRM, PDC*

Test for **lead** and other heavy metals with a LEAD Group Kit before you buy property  
[www.lead safeworld.com/shop](http://www.lead safeworld.com/shop)



For more lead-safety information:

Artist: Isla MacGregor  
[www.volcanoartprize.com](http://www.volcanoartprize.com)



1800 626 086  
[www.lead.org.au](http://www.lead.org.au)

URL of this VAP entry: <http://volcanoartprize.com/portfolio-item/entropy-1/>. Title: Entropy 1 (slide show), this photo title: For Sale. Lead safety message: test for lead and other heavy metals with a LEAD Group Kit before you buy property. Artist: Isla MacGregor.



In 2007 I was confronted with the most shocking environmental engineering situation of my career. Faulty road and drainage works at Leura in the Blue Mountains west of Sydney in New South Wales, created a drainage problem on a resident's property, flooding his driveway regularly, his garage, carpets, electrical fixtures, gutters and eaves from sediments - an estimated \$30,000 in damages (ref: Carr Vs BMCC). The residence was within 200m of a rifle range, and the resident was disturbed by noise - however no noise tests had ever been undertaken - and he was concerned about the lead contamination from over 70 years of rifle range use. He asked me to prepare an Environmental Impact Assessment addressing a range of issues he felt had been neglected in his catchment. I prepared a Public Environment Report which was open for community consultation at the time.

I was in the best position to respond to this resident's needs having previously sampled urban streams as part of the urban water sampling program, and prepared a Stormwater Action Plan based on over 100 community feedback forms in Kedumer River Catchment. I had got the green light from the Tribal Council at the time to manage a culturally sensitive drain adopting a soft engineering approach of planting local provenance natives behind drainage eddies in a zigzag to slow down and spread urban drainage over a larger recharge area and regenerate the swamp on the valley floor and was confidentially seeking Council approval for this.

### **The lead contamination of Wentworth Creek and destruction of an Aboriginal Place**

While it is really the government to blame for not finding a more appropriate modern site for rifle range activities rather than right on Leura's doorstep, within 200m of housing (the noise can be heard kilometers away in Wentworth Falls let alone the crematorium next door where people are paying respects to the dead). Also it is in a supposedly protected Blue Mountains Swamp on Valley that makes it World Heritage.

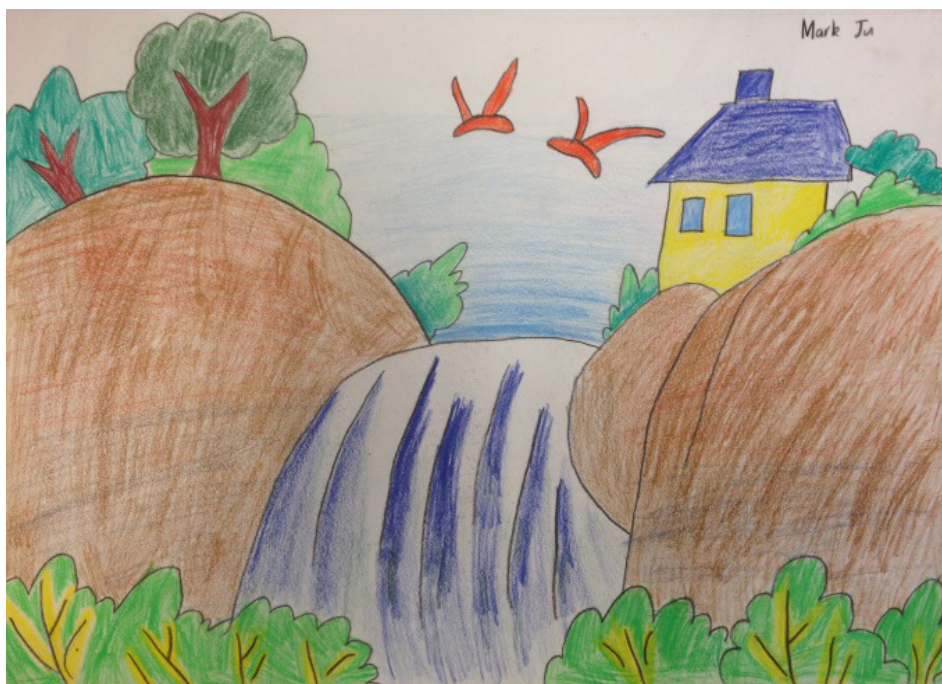


URL of this VAP entry: <http://volcanoartprize.com/portfolio-item/environments-pollution/>. Title: Environment's Pollution. Lead-Safety Message: Let the public know about pollution. Artist: Liam Hutchinson Age: 10 years.





I brought a Senior Archeologist to the site who had published the Aboriginal Dreaming books of the Blue Mountains and he said he would include the site in his new publication. He told me it is one of two Ochre Mines in the Greater Blue Mountains, probably used for trading for thousands of years, and put a Potential Archeological Deposit on the site.



URL of this VAP entry: <http://volcanoartprize.com/portfolio-item/house-near-a-waterfall/>. Title: Lead-safety Message: No lead in our water! No lead in our house. Artist: Mark Ju. Age 9.

Council finally did some water and soil samples, as did National Parks, while these individuals wanted to protect the site I struggled to get support from their supervisors with a comment there is plenty of other sites that are higher priority to protect. The Department of Lands said their license had expired at the time, and the EPA instructed Council to Assess and take responsibility for serious lead contamination. It is in a swampy hillside that is clay of different colours that experiences subsurface drain within 20m of the creek and the target mounds only 10m from the creek. The Council hand-balled responsibility to the unassuming Rifle and Pistol Clubs to do two separate reports, and I am told the Police don't use the site, they use modern facilities. I am not sure what happened after that, they do use bauxite and some filtration system however I believe the contamination of the hillside groundwater and the creek bed itself still exists and the range is currently operational.

Being the longest running club in the Blue Mountains, over 100 years, with past sites at Kedumba and Mini Haha, perhaps the government would consider finding them a more suitable site.



We should be more responsible about preserving Aboriginal Places and High Conservation Swamps on Valley Floors if people are going to create a City with a World Heritage. It is ironic I now live in Gormanston, near Queenstown – a lead and copper mining area in Tasmania. I only recently discovered that we are potentially next door to where the Oates Family lived and have been attempting to grow vegetables with little success.

While we wait for our lead results, people I spoke to at the Council and the Hospital appeared unaware of the risk of heavy metals around Queenstown. More needs to be done to warn property purchasers and renters, of heavy metal contamination issues BEFORE they move in to a property.

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## **Leaded AvGas emissions from air traffic/land contamination at the proposed Western Sydney Airport**

*This article is an email to The LEAD Group from Gregory Jon Bell, March 2016  
(with online referencing by Elizabeth O'Brien, Editor)*

I've been a resident of Sydney for most my life and can remember as a small boy a view of the top of the Harbour Bridge from my doctor's surgery. One could see the air pollution in the mid-1960s just around the CBD (Central Business District). Later as a resident of Campbelltown City during the 1980s, in a meeting with the local MP (Member of Parliament) regarding council rates, he said there is a planned extension in a triangle from Campbelltown to Douglas Park and across to Camden.

He said there were concerns due to the area being a 'sink' for Sydney's air pollution. At that time I was employed as a mechanic on Sydney's buses and whilst picking up a bus in the Eastern suburbs noticed how Sydney's air pollution had expanded. I now live in the Illawarra where I have a vantage point from my house and can see right to Wollongong & Port Kembla (industrial towns on Australia's east – Pacific Ocean – coast, south of Sydney).



In my current employment as a Contracted NRMA (National Roads and Motoring Association) Patrolman, our area, even as far south as Shellharbour, is classed as Metropolitan Sydney - not a country area. That is probably right as we share the same air pollution that reaches here at Thirroul (a northern seaside suburb of the city of Wollongong) and further south combining with Port Kembla's emissions.

I was born in Waverley in Eastern Sydney yet grew up in Como in Southern Sydney from 1959, and during that time buses replaced trams (last tram 1961) and with that so did Sydney's air pollution worsen. We all grew up in an era where cars were mainly powered by leaded fuels and typically, in Australia, unleaded fuel was not even required to be used in new vehicles sold until 1986. Compared to most places in the USA where I believe unleaded fuel was introduced in the early seventies.

If your group has stopped the use of lead in fuel I congratulate your group whole-heartedly. I have been campaigning myself recently contacting local MPs, the NSW EPA (Environment Protection Authority) and the Western Sydney Airport. I feel I'm a lone voice expressing my concerns regarding the construction and operation of the Western Sydney Airport.

My local MPs sent me links to the Western Sydney Airport's Environmental impact statement.

[*Editor's note:* The Western Sydney Airport [draft Environmental Impact Statement \(EIS\)](#) was released for public exhibition on Monday 19 October 2015, along with the [draft Airport Plan](#). The public exhibition period closed on Friday 18 December 2015 and comments are currently being incorporated, with finalization of the EIS expected by June 2016. Ref: <http://westernsydneyairport.gov.au/environment/index.aspx> -see selected quotes re: leaded AvGas from the Western Sydney Airport (federal government) website, below this article.]

At first my state MP who at the time was Shadow Minister for Transport and Infrastructure, said it was a federal issue. I also contacted the Cancer Council who said whilst air pollution is bad for you there is no link between aircraft emissions and cancer.

When I contacted the NSW EPA they said it's a federal government project and for me to pass on my concerns to the Western Sydney Airport team at the Australian Government Department of Infrastructure and Regional Development. Now for me that's not the correct response for a state government Authority, especially as I pointed out the project is in the state of New South Wales (NSW).

I'm wondering if you can point me in the right direction with my concerns about the construction and operation of the Western Sydney Airport, or if there is another group that has similar concerns against this project? I feel this Airport - more aircraft, air pollution and congestion - is the last thing Sydney needs.

**Statements about leaded AvGas from the Western Sydney Airport website – plus leaded AvGas risks not considered in the EIS**



The following quotes re: leaded AvGas are taken from the Western Sydney Airport (federal government) website:

“Under the National Fuel Quality Standards Act 2000, the Australian Government announced a phaseout of leaded petrol in Australia. On 1 January 2002, that phase-out was completed. The sale of leaded petrol in Australia is now prohibited, except in cases specifically authorised by the Minister.

“One exception to this relevant to airport operations is the allowance for lead within Aviation Gasoline, or Avgas. Avgas is used in small piston engine powered aircraft within the General Aviation community. Predominately activities such as private pilots, flight training, flying clubs and crop spraying. Piston engines operate using the same basic principles as spark ignition engines of cars, but they have a much higher performance requirement.

There are two main Avgas grades available in Australia - 100 and 100LL low lead. The former is permitted to contain lead up to 1.12 g/litre of fuel and the latter 0.56 g/litre. This is compared with 0.005 g/litre for all conventional grades of petrol.

Notwithstanding the above, the proportion of small piston aircraft servicing the WSA is anticipated to be low (less than 5% of total aircraft). The resultant lead emission inventory associated with Avgas use at the airport is not considered significant and this air quality metric has not been considered further within the assessment.” Ref:

[http://westernsydneyairport.gov.au/resources/deis/files/2015/volume-4\\_appendix-f1\\_local-air-quality-and-greenhouse-gas.pdf](http://westernsydneyairport.gov.au/resources/deis/files/2015/volume-4_appendix-f1_local-air-quality-and-greenhouse-gas.pdf)

“Aviation fuel is currently supplied to airlines at major Australian airports by a consortium of fuel companies who operate a storage facility. The storage facility is usually supplied by road tanker for smaller user airports and supply pipeline for larger user airports. AvGas would be supplied for piston engined aircraft which is mainly for general aviation and regional airlines...

“Road delivery presents a public risk with regard to accidents on the road because of the number of daily deliveries required...

“The supply of Avgas would be limited and therefore delivery to the airport by road tanker, as for Bankstown Airport and Sydney Airport, would be the most cost effective. Avgas is manufactured in Geelong, Victoria and would be road tanked to Sydney along routes specified by the NSW Roads and Traffic Authority.” Ref:

[http://westernsydneyairport.gov.au/resources/deis/files/Draft\\_Environmental\\_Impact\\_Statement\\_1997\\_Second\\_Sydney\\_Airport\\_Proposal\\_Technical\\_Paper\\_2\\_Planning\\_Land\\_Use.pdf](http://westernsydneyairport.gov.au/resources/deis/files/Draft_Environmental_Impact_Statement_1997_Second_Sydney_Airport_Proposal_Technical_Paper_2_Planning_Land_Use.pdf)

“Sep 8, 2015 - bulk storage of **avgas** or diesel for aircraft use is proposed.” Ref:

[http://westernsydneyairport.gov.au/resources/deis/files/2015/volume-4\\_appendix-](http://westernsydneyairport.gov.au/resources/deis/files/2015/volume-4_appendix-)



[h\\_hazard-and-risk.pdf](#) - NB the above Volume 4 (2015) *Western Sydney Airport EIS Hazard and Risk Review* lists the “credible threats” of “Contaminated land”, “Aircraft fire (on ground)” and “fuelling fire” presumably in relation to all fuels used, whereas the “credible threats” of “storage fire and explosion” and “transport of dangerous goods” are only listed in relation to A1 jet fuel.

*Editor’s question:* How can leaded AvGas possibly be considered exempt from the risks of storage fire and explosion and transport accidents?

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## **Phasing Out Leaded AvGas - Not as Easy as it Sounds**

*By Tim Connor, Chemistry savant and wannabe helicopter pilot.*

*Article commissioned for LEAD Action News and written in February 2016.*

Removing the use of leaded aviation fuel from the market is not the same exercise as phasing out the use of leaded automotive petrol in the road transport fleet.

The situation is made far more complex because there are more critical engineering problems and also legal/compliance problems involved. There is also a complicating factor that leaded AvGas is getting harder to obtain, especially with Shell and Caltex shutting down their refining capabilities in Sydney. [*Editor’s note:* the lead additive for making leaded AvGas has always been mixed into the fuel refined at refineries in Australia, but has always itself been manufactured overseas. Currently, the leaded AvGas additive is only made by US company Innospec in the United Kingdom, and by one or more Chinese fuel additive manufacturers in China and possibly some other manufacturers in a couple of other countries.]

To understand some of the complexities it is necessary to know the types of engines used in civil aviation. For large passenger jets and even small private jets there is no problem with leaded AvGas, because they do not use it. They use AvTur (Aviation Turbine fuel) also known as Jet A-1 which is essentially kerosene. So the problem is actually for the civil light aircraft fleet including fixed wing and rotary wing (helicopters) aircraft.

For light aircraft there are two types of engines used. The first is known as a gas turbine, which is essentially a small jet engine, but instead of using the jet thrust to fly the aircraft the gas turbine is used to turn the propeller on a plane (Turbo Prop) or the main rotor and anti-torque rotor of a helicopter (Turbo Shaft). These engines also use Jet A-1 fuel and so it does not have lead in it. The other type of engine is the more familiar reciprocating piston engine, essentially a four stroke piston engine and it is these that need the leaded AvGas.



So the next question is, why do the aircraft piston engines need the leaded fuel and why do we persist with using it? The answer to that rests in history, some technical engineering problems and the aviation regulations that must be followed.

It seems hard to believe but specifications for AvGas stretch back over 70 years to World War 2, when great advancements in piston engines for aircraft occurred at a rapid rate. Back then the need was for the war planes to have as much available power as possible at all altitudes and be able to climb to high altitudes rapidly.

Now for a bit of chemistry, automotive petrol and AvGas are not a single compound but a complex mix of hydrocarbon compounds of differing carbon chain lengths. It can also contain compounds like benzene, toluene, ethyl benzene and xylene. Generally the more highly “branched” the hydrocarbon is, or if it is aromatic (benzene like compounds) the higher the RON (Relative Octane Number) it has. The problem is if you boost the RON by having more of these compounds the volatility increases as these compounds tend to have lower boiling points.

The problem with high volatility in aviation fuel is two-fold. Firstly, because of the design of carburettors and fuel injection systems. The fuel passes through a small orifice which causes a cooling effect, which can cause water vapour in the air to freeze and block the orifice with ice causing lack of fuel to the engine. This is overcome in modern small piston engined helicopters by having a duct that takes waste heat from the exhaust manifold and directs it onto the carburettor. Or having heated fuel injectors on those piston engines that have fuel injection on them. The other problem is high volatility runs the risk of “vapour lock” occurring especially on hot days of 35 degrees Celsius or more. Vapor lock is when the ambient temperature the aircraft is flying in is so high the liquid fuel turns to vapour in the fuel lines and so insufficient fuel gets into the engine.

The solution to all these problems was to add tetraethyl lead to the fuel, it raised the RON to 100 and still left a sufficiently low volatility fuel so that icing and vapour lock were less likely.

The final part of the story is the regulatory structure that controls the rules and safety procedures that must be followed. Aircraft go through an approval process called type certification. Where all the performance characteristics of the aircraft under various conditions are sent to the regulator (in Australia CASA - Civil Aviation Safety Authority) and the aircraft type (make and model) finally gets approved to be given a registry number. The complication for the elimination of leaded AvGas is that the specification to use it in a certain aircraft forms part of its type certification. Meaning it is against the rules to fly it with anything else but what is approved in the type certificate that has been granted. So phasing out leaded AvGas is not going to be the same as the swap to unleaded automotive fuel was.

And in fact there may be other technical problems, as aviation piston engines are not quite the same as car engines.

The other issue with type certification is that if you want to earn income, i.e. do flying activities where you need a commercial pilot’s licence and get paid for it, the aircraft used must have a type certificate.



Now we get to my favourite topic, helicopters. I have always been fascinated by helicopters, but never got to get my licence as I went and spent my money on opening a business to assess lead in houses and got myself a mortgage instead. But I have read very widely about them and have come to realise trying to phase out leaded AvGas use in them may create some problems, especially for the aircraft fleet in Australia.

To understand the intricacies of the problems in trying to phase out leaded AvGas for helicopters we need a little history and some facts about the Australian helicopter fleet.

Generally there are six manufacturers who build or have built a number of models of piston engined helicopters that have type certification in Australia these are;

1. Bell (USA and made under licence by Agusta of Italy and Kawasaki of Japan) 47G (the one seen in the TV show “Skippy”) is a modified design from 1948 and has not been made since 1973, so those still flying are over 40 years old;
2. Hughes/Schweizer/Sikorsky (USA) 269 and 300 are modified designs from the 1960's and some of these still flying are over 40 years old as well. But the new owner of the 300C and 300Cbi design Sikorsky, continue to build new versions with more modern fuel injected piston engines;
3. Hiller (USA) UH12E is a 1950's or 60's design and went out of production, so many of these are over 30 or 40 years old;
4. Enstrom (USA) F28 and F280 Shark are still in production but they are not widely used in Australia;
5. Robinson (USA) R22 and R44 are more modern designs (late 1970's and 1990's respectively) and are still in production. In fact the R22 and R44 are the most popular and widely used piston-engined helicopters in the world and constitute over half the Australian registered piston-engined fleet;
6. Guimbal (France) G2 Cabri has only been on the market for about 5 years and is the most modern of the helicopters, having a plasma ignition system, composite main rotor blades that never need replacing and “glass cockpit” (touch screen computer instruments). Being a new model there are only a few in Australia at the moment.

So why is all this worth mentioning? Well three of the models still flying are 30 or 40 years old or more and so have 40 year old engine technology. And as mentioned before, helicopter engines are not like car engines. For helicopters it is better to have a high torque (turning effect) engine than a high powered one. To achieve this they run at very different RPM and compression ratios to a car and so there may be technical difficulties in swapping over to say 95 or 98 RON automotive fuel? The power/torque performance is more important in a helicopter, a small loss of power or torque in a car doesn't matter that much to its safety. But a loss in performance in a helicopter at a critical moment can lead to an accident.

This is where we hark back to the type certification problem. To change a helicopter over to



unleaded fuel an application for variation to the type certificate would have to be made to CASA. To do this a number of actual tests would have to be done. And in the application it would have to prove no loss of power/performance and also that there is no chance of vapour lock with the new fuel. This is also where my knowledge runs out, as I am not sure whether CASA will accept one application as applying to all helicopters of that type certificate. Or whether each individual aircraft has to have an application made to CASA and approved. If it is the latter then phasing out of leaded AvGas will be a complicated and expensive process.

The other problem with leaded AvGas removal is an economic one. Australia has an almost unique use for the helicopter in cattle mustering in Queensland, Northern Territory and parts of Western Australia. If leaded AvGas was removed abruptly with no approved replacement on the type certificate it would ground the entire helicopter fleet used for mustering. Along with this it would also shut down the more traditional uses like helicopter flight/pilot training and tourism/sight-seeing, as most operators run the R22 and R44 respectively for these activities.

So why don't they just design a helicopter that runs on unleaded fuel? Well a couple of companies have done that and one company started designing a helicopter that had a turbo charged diesel engine.

Aerokopter, a small start-up company in the Ukraine designed a small 2-seat helicopter, the Sanka AK1-3, that looks very much like a Hughes/Sikorsky 269/300 and uses the 2.5 L 4 cylinder laterally opposed "Boxer" engine used in Subaru Liberty cars.

Another company Kazan of Russia (who make the Mil Mi helicopters for the Russian Army) has made a 3-seat helicopter, the Aktai, that uses a Lada (Lada is a Russian car manufacturer, you might remember the Lada Niva was sold in Australia many years ago) car engine.

Unfortunately CASA will only let these two helicopters be registered as experimental aircraft and will not give them a type certificate. As someone quipped on an online helicopter forum that I once read; "CASA won't approve a helicopter unless it has a Lycoming brand engine."

Another small company called Delta from Australia started to design and build a small 2-seat helicopter with the outback farmer in mind. The design had a 3-bladed fully articulated main rotor so as to avoid the "mast bumping" problems that occur with the R22 when it is put through tight banking turns when cattle mustering. It was to feature a turbo-charged diesel engine, being the first diesel helicopter in the world. It also had nifty things like a large internal cargo area (something missing on small helicopters) and cup holders and pockets for clip boards and mounts for mobile phones. They got to the stage of testing the aircraft and creating performance data graphs for type certification and then either ran out of money or couldn't get approval from CASA. No one is quite sure what happened. So it is never going to be a replacement for the aging leaded AvGas using fleet.

In summary, we have part of the operating helicopter fleet which is aging and most of the piston-engined fleet has an inherent aging engineering design of its engines that may not be able to be swapped over to unleaded fuel. And if it can be swapped over, it may not be a simple or cheap process.





Add to this the complication that those operating helicopters have millions of dollars tied up in their already-operating aircraft, so it is not just a simple matter of buying a new helicopter that can use unleaded fuel even if one was on the market.

There is the possibility that some of the newer aircraft may be able to be swapped over to unleaded fuel.

The Guimbal G2 Cabri has been tested by the manufacturer and approved by EASA (European Air Safety Authority) to run on 98 RON unleaded automotive fuel, but it remains to be seen if CASA will give type certification for this.

Interestingly, I just recently found out that a company called Scott's Bell 47 Inc has bought the Type Certificate for the Bell 47G and intend to build a new version with modern materials like composite blades and a glass cockpit instrument panel but it will have a gas turbine engine instead of the piston engine. But will operators pay US\$800,000 for a Bell 47G when the piston-engined R22 only costs US\$288,000?

Also basic pilot training is usually done on piston-engined aircraft and then the trainee pilot goes on to get a turbine rating once they have their licence. So the new Scott's Bell 47G may have no appeal for flight training schools as a basic trainer and be too expensive for cattle mustering. Which is a shame as a trusted design like the Bell 47G that doesn't need leaded AvGas could have a huge potential for sales if the price was lower.

So in conclusion, there are a number of complications in trying to phase out leaded AvGas.

These being: technical/engineering reasons, administrative/regulation reasons and just plain expensive economic reasons. As well as there being no real alternative piston-engined aircraft available that can use unleaded fuel and has a type certificate to do so. Perhaps that's why it hasn't been done yet? It keeps on getting put in the all too-hard basket?

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## Lead and the European Commission

### Ammo Shouldn't Kill Twice

*Preface by Emeritus Assoc. Prof. Mark Pokras, DVM, Wildlife Clinic & Center for Conservation Medicine, Cummings School of Veterinary Medicine, Tufts University, N. Grafton, MA 01536 U.S.A., March 2016*

These two articles (below) are posted from the most recent Birding Community e-bulletin published in the first week of March 2016 at <<http://myemail.constantcontact.com/Birding-Community-E-bulletin---March-2016.html?soid=1106822336233&aid=sWI6OqEIi10>>. Reprinted with kind permission from Paul Baicich. Paul notes that all Birding Community e-bulletins are available at the archive at <<http://refugeassociation.org/news/birding-bulletin/>> and from the Contact Us section at the bottom of the page you can request to be put on the **National Wildlife Refuge Association's** monthly E-bulletin mailing list.



The issue about lead shot ban over water in the US and Canada is NOT entirely correct as a great deal of lead shot is put into aquatic systems every year by such non-hunting activities as skeet, trap and sporting clays shooting.

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## **Lead and the European Commission**

Lead is highly toxic to both people and animals, and lead consumption by birds can be lethal. Last month, the European Commission announced that it would continue to allow lead's use in ammunition. The Commission had focused in the past on lead shot over wetlands, where a waterfowl-oriented ban is already supposed to have been in place for many years. (Fortunately, a lead-shot ban over water has been in effect in the U.S. since 1991 and in Canada since 1999.) In the UK, however, while lead shot has been banned at wetlands, as many as 70% of the ducks harvested in England still contain lead shot. On the other hand, several EU member states, such as Denmark and the Netherlands, have phased out the use of lead ammunition.

Across the EU there are frequent cases of lead poisoning in raptors. White-tailed Eagles, for example, are recorded every autumn with signs of serious lead poisoning. Not unlike Bald Eagles in North America, they regularly eat the carcasses of game species that still have lead shot or bullets in them. The consequences are deadly.

Responding to the EU Commission's announcement, Ariel Brunner, Head of Policy at BirdLife Europe and Central Asia, said, "Alternatives to lead ammunition, such as steel shot and modified bullets, are readily available and there is no reason to delay banning lead in ammunition."

You can access more information on the EU decision here:

<<http://tinyurl.com/EUleadDecision>> or <[http://www.birdlife.org/europe-and-central-asia/news/failure-ban-toxic-ammunition-putting-bird-lives-risk?utm\\_source=BirdLife+International+News+Notifications&utm\\_campaign=3a2e004e8c-Summary\\_news\\_notification&utm\\_medium=email&utm\\_term=0\\_4122f13b8a-3a2e004e8c-133842345&goal=0\\_4122f13b8a-3a2e004e8c-133842345](http://www.birdlife.org/europe-and-central-asia/news/failure-ban-toxic-ammunition-putting-bird-lives-risk?utm_source=BirdLife+International+News+Notifications&utm_campaign=3a2e004e8c-Summary_news_notification&utm_medium=email&utm_term=0_4122f13b8a-3a2e004e8c-133842345&goal=0_4122f13b8a-3a2e004e8c-133842345)>



## **Ammo Shouldn't Kill Twice**

Meanwhile, back in the U.S., a parallel debate continues. In November, we reported on a proposal from the Minnesota Department of Natural Resources (DNR) that would require hunters to use nontoxic shot on state Wildlife Management Areas (WMAs) in Minnesota's farmland zone. This is not a complete ban at WMAs in the region, but it could cover about 46% of the state's 1.3+ million acres of WMAs. If approved, the lead-shot ban will begin in 2018:

<<http://refugeassociation.org/2015/11/birding-community-e-bulletin-november-2015/#Limited>>

A decision is still pending, amid an onslaught of misleading opposition to the proposal. These objections are well addressed in an Op-ed by Carrol Henderson in the Twin Cities Pioneer Press: <<http://www.twincities.com/2016/02/21/nontoxic-ammo-doesnt-kill-twice-its-the-right-thing-to-do/>> [the Op-ed is reprinted below].

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## **Comments relating to a Proposal to Require Nontoxic Shot on Minnesota's Wildlife Management Areas**

*By Carrol Henderson, March 10, 2016.*

My name is Carrol Henderson, and I am commenting on this proposal as a private citizen and as a lifetime hunter. I have hunted pheasants for over 50 years, and I own half of our family century farm in Iowa which I manage for farmland wildlife and pheasants with a mix of cropland, CRP, shrub plantings, and corn food plots.

Pheasant hunting has been an important part of our Henderson family traditions for over 50 years. On the first weekend of November each year we celebrate our annual Henderson family reunion called "Pheasgiving"—a combination pheasant opener and early Thanksgiving. We gather at our farm near Zearing for a morning pheasant hunt and at the local American Legion in the afternoon for a potluck supper which includes pheasants taken in the morning. Our reunion typically includes over 60 members of the Henderson family.

I have been using steel shot for pheasant hunting for over 20 years in Iowa and for duck and pheasant hunting in Minnesota at the Lac qui Parle Wildlife Management Area and on Wildlife Management Areas in the Marshall area. During the Iowa hunts I provided steel shot for my son Craig, my brothers, and my nephews. They never complained about the performance of the steel shot. It was totally noncontroversial, readily accepted without comment, and never affected the quality of our hunts. In fact, I believe that hunting with steel shot both for waterfowl and pheasants gives better results than if one were switching back and forth between lead and steel because the higher velocity of steel shot requires a different lead than for lead shot.

Over the past several years, I have observed that nontoxic steel shot is readily available and that many pheasant hunters have already switched to steel shot. However, it is unfortunate that lead



shot advocates have created misleading and inaccurate excuses about why use of lead shot should be continued.

The first misconception is an attempt to link the Second Amendment to an imaginary right to use lead ammunition. The Second Amendment is an important part of our Bill of Rights. I am a gun owner and support efforts to protect this vital part of our national heritage. However, the right to keep and bear arms says nothing about what kind of ammunition we use or that we need to protect an imaginary “right to use lead ammo.”

The second misconception is that advocacy for nontoxic ammunition is part of an anti-hunting conspiracy. That is ridiculous. If you are hunting with nontoxic ammunition, you are still hunting, and you are still killing game. I am not an anti-hunter. I have been a proud and avid hunter for over 50 years and resent the insinuation that use of nontoxic ammunition somehow has anti-hunting implications.

A third complaint made by lead ammo proponents is that the steel shot is too expensive and that the cost of the ammo will drive Minnesota’s pheasant hunters to other states. That excuse demonstrates how poorly those people are informed. Current pheasant grade 12 gauge 2¾ inch lead shotgun shells at Cabela’s and Gander Mountain average \$16.99 per box and comparable boxes of 25 nontoxic steel shells average \$11.99. That is \$5.00 less per box for steel.

A fourth excuse used by lead ammo proponents is to say “Where’s the proof that this is a problem?” Such proof is well-documented in the literature. A total of 130 different species of wildlife have been documented to die from poisoning by lead ammunition. There are comprehensive reports in the proceedings of the 2014 Oxford Lead Symposium and in Volume 237 of the 2016 *Review of Environmental Contamination and Toxicology*. It appears, however, that lead ammo zealots are too myopic to read the literature about the effects of lead on wildlife.

A fifth excuse is that if the loss of wildlife ranging from mourning doves to bald eagles from secondary lead poisoning is brought to the attention of lead ammo supporters, they claim they do not need to worry about such problems unless the wildlife is poisoned to the extent that it reaches a population level decline! That ridiculous claim is a unilateral decision by them and an excuse to ignore the toxic effects of their lead ammo on wildlife protected by state and federal laws. They are poisoning nongame wildlife, upland game, waterfowl, and even our national bird, the bald eagle.

The Bald and Golden Eagle Protection Act of 1940 prohibits poisoning of eagles, even a single eagle. This law, originally passed in 1940, provides for the protection of bald and golden eagles by prohibiting the take of any bald or golden eagle (16 U.S.C. 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, **poison**, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.3). The law does not differentiate between primary and secondary lead poisoning. Now that we know the toxic effects of secondary poisoning by lead ammunition on eagles, it appears that use of lead ammunition on lands utilized by eagles would be a violation of this federal law.



There are, of course, two other largely unstated excuses that trump all other excuses—"I don't want to change" and "I don't want to be told what to do." Amid all these excuses, there is not a single valid reason why lead ammo use should continue.

Broader public opinion favors phasing out lead in our environment, including lead ammunition. A state fair survey by Minnesota Senate research in 2015 (4,353 respondents) showed that 73% of the public believed lead ammunition should be phased out on all public lands, and 64% supported phasing out lead ammunition on both public and private lands. The recent DNR public input survey about eliminating use of lead shotshells on WMAs was supported by 60% of 3,743 respondents. And that was before the disaster involving lead pollution in Flint, Michigan. Lead is toxic whether it is in water supplies, in our wetlands, or in the soil of our farmlands and WMAs. It has been banned from gasoline and paint, and the US Army has undergone a switch to nontoxic ammunition. Hunting preserves and trap and skeet shooting ranges are shifting to nontoxic shot. The last lead smelter in the United States closed in Missouri in December of 2014 because of the air pollution it was causing.

The DNR has estimated that 57,590 pheasant hunters harvested 152,800 pheasants in 2014 — an average of 2.65 pheasants per hunter. If about 5 shots were fired per pheasant harvested, a hunter would need about 15 shots per season—less than a box of shells annually. At just over one ounce of lead per shell, that is about a pound of lead fired per hunter. About 58,000 pheasant hunters would spread 30 tons of lead across Minnesota's farmland and WMAs annually. Who supports continuing the cumulative pollution of our outdoors with lead when cheaper, effective, and nontoxic steel shot is readily available?

The worst consequence of efforts by persons and groups who blindly defend the use of lead ammunition is that they are shooting themselves in the foot by throwing American hunters under the bus! How? They are despoiling the image of hunters as hunter-conservationists. They appear to care only about the game they shoot and they are basically declaring that continuing the use of lead ammunition is more important than wildlife conservation and stewardship of our natural resources. If they continue to use lead, knowing of its toxic effects on wildlife, they are not conservationists. They have been lured to the dark side by intentional misleading national efforts to confuse gun-rights advocates who are encouraged to defend the 2nd amendment and defeat anti-hunters by responding to imaginary threats caused by a transition to nontoxic ammo. It is a red herring effort without basis in fact.

Do hunters want to be known as polluters of the land and poisoners of wildlife, or do they want to preserve their image as hunter-conservationists? I have always been proud to be a hunter and of the many conservation achievements that can be attributed to hunters. In fifth grade I learned that conservation means "wise use, without waste." That simple definition provides an important lesson for hunters. Don't waste our wildlife while pursuing game. Good ammo should not kill twice.

It is important to remember that our WMAs are publicly owned by all Minnesota citizens—not just hunters. Since the 1950s, dedicated conservationists like Dave Vesall, Roger Holmes, Hiram Southwick, Joe Alexander and others worked to establish and build the "Save the Wetlands



Program” -- a nationally known system of WMAs that we should all be proud of. They have all passed on, and now we share a stewardship responsibility to take care of those areas in perpetuity.

I sincerely believe most hunters care about Minnesota’s outdoors, all wildlife, and about preserving their image as hunter-conservationists. The era of lead ammunition is dying. It is no longer necessary for hunting, and it has become socially and ecologically unacceptable. Adapting to nontoxic ammo is not a threat to hunting traditions. It does not threaten the 2<sup>nd</sup> amendment, and it is not part of an anti-hunting conspiracy. It is an opportunity for hunters to take a leadership role in reclaiming their image as America’s conservationists by switching to nontoxic ammo and supporting the proposal to require nontoxic shot on our WMAs. As Roger Holmes would have said, “It’s the right thing to do.”



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## Obituary: Dr Paul Mushak

*Preface by Elizabeth O'Brien, The LEAD Group Inc*

Many *LEAD Action News* readers will know of Dr Paul Mushak and you have probably all read his important publications. Paul did not wake up on 2nd February 2016.

Paul was a personal friend and mentor of Emeritus Professor Brian Gulson, (the Head of the Technical Advisory Board of The LEAD Group) and when Brian notified me of Paul's death, Brian wrote:

"If it wasn't for his perceptiveness early on (and Kate Mahaffey), Pb isotopes would never have been such a success in environmental health."

Brian Gulson is one of the world's foremost lead (Pb) isotope researchers so Paul's and Kate's work lives on.

Paul's widow, Betty Mushak, has provided the following URL where you can read the Obituary: <http://www.hallwynne.com/?s=mushak> (text also pasted in below) and you can also offer condolences and make comments on that webpage.

Alternatively, if anyone wants to email me their thoughts, I'm happy to pass them on to Brian Gulson, who I'm sure would pass them on to Betty Mushak.

With sadness

Elizabeth O'Brien The LEAD Group Inc, Australia

## **Text of OBITUARY of Dr Paul Mushak**

Paul Mushak, 80, died suddenly Feb. 2, 2016. He was an internationally known expert in the toxic metals that are human health hazards, with a focus on lead, and was a fierce advocate of justice for all.

Surviving are his wife, Betty Mushak, two brothers, Michael Mushak of New Jersey and Peter Mashok of Pennsylvania, three sisters-in-law, Marge Mushak, Mary Elizabeth Mashok, and Virginia Mushak, 11 nieces and nephews, 13 great nieces and nephews, 7 great-great nephews and one great-great niece. He was a native of Pennsylvania and was the son of the late Stefan and Mary L. Mushak. He was a magna cum laude graduate of the University of Scranton and earned his Ph.D. in metalloorganic / organic chemistry and biochemistry at the University of Florida. He did his postdoctoral work as a fellow in the Department of Molecular Biophysics and Biochemistry in the School of Medicine at Yale University.

He was a recognized Oriental rugs and textiles scholar, specializing in natural dyes, and was the author of a number of publications on the topic.



Dr. Mushak was on the faculty of the University of North Carolina School of Medicine in the Department of Pathology from 1971 to 1985 and was an adjunct professor from 1985 to 1993. From 1995 to 2010, he was a member of the Montefiore Medical Center-Second Medical University of Shanghai, China Collaborating Centers for Prevention of Childhood Lead Poisoning and a visiting professor of Pediatric Environmental Health, Department of Pediatrics, Albert Einstein College of Medicine, Bronx, NY. From 1992 until his death, he was a co-principal in PB Associates, a toxicology consulting firm.

He authored or co-authored more than 200 articles, abstracts, and public health documents and authored a book, *Lead and Public Health: Science, Risk and Regulation*. He served on three committees of the National Academy of Sciences and four committees of the World Health Organization. He served on the North Carolina Child Lead Poisoning Advisory Committee, and a number of committees of the U.S. Environmental Protection Agency, U.S. Consumer Products Safety Commission, and Health Canada. He also consulted in various roles for the Occupational Safety and Health Administration, National Institute of Environmental Health Sciences, and the Ontario, Canada, Ministry of the Environment. He provided expert services to the U.S. Department of Justice in a number of Superfund cases and testified twice before Congress on lead hazards. He was included in Who's Who in American Science and Engineering, Who's Who in Medicine and Healthcare, Who's Who in America, and Who's Who in the World.

In Durham, he was a co-founder of the Trinity Heights Neighborhood Association and served a term on the Durham County Environmental Affairs Board. A memorial service will be held in the future.

In lieu of flowers, contributions may be made to the Childhood Lead Action Project, 1192 Westminister Street, Providence, RI 02909 and to the American Civil Liberties Union. Arrangements for the Mushak family are under the care of Hall-Wynne Funeral Service. Online condolences [www.hallwynne.com](http://www.hallwynne.com), select obituaries.

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## Lead in Literature: Dreams and Visions

**A contemporary Australian composition for SATB chorus, mezzo-soprano and baritone soloists, string quartet, and piano**

*\*Editor's note by Elizabeth O'Brien, Editor-in-Chief; The LEAD Group Inc.*

*Editor's note\**: This inspiring musical work by Australian composer John Peterson, warns against burning fossil fuels (a source of toxic air pollution - including lead and other metals - as well as a global warming issue) among other issues facing human societies today. The beauty of the texts and music has provided a stunning pleasure for me on my many drives to and from the hospital since my mother's stroke (possibly due to lead-induced hypertension) on 30<sup>th</sup> April 2015.

I don't have any proof whether it had an influence on my mother or not, but ever since I sang her the song in **Part 3C: *Let Me Rest / Lux Aeterna*** (you can read the lyrics below but I assure you, you will not regret buying the recording even if it is JUST to hear this one fabulous song), she has been sleeping better than she's slept for decades, and appears to be happier - and devoid of chronic pain - than she was pre-stroke. Perhaps this music performed a miracle – but if other people try it on their loved ones, my hypothesis that this music is miraculous, could turn from an anecdote into data!



A superb performance of *Dreams and Visions*, by the Sydney Gay & Lesbian Choir (SGLC) with supporting soloists and musicians, is available for download (released 29 September 2014) for AU\$16.99 from [www.sglc.org](http://www.sglc.org) – where you can listen to samples of the music, or purchase direct from <https://itunes.apple.com/au/album/dreams-visions/id924106496> and read the customer review which I fully concur with: “A masterpiece of choral work. The choir has done a fantastic job on all the songs, but my favourite by far is Lux Aeterna. The soaring voices are hauntingly beautiful. Well done SGLC!” (B. Bearman)

The full musical score is available from the Australian Music Centre for \$181.50 at <http://www.australianmusiccentre.com.au/workversion/peterson-john-dreams-and-visions/26051> or via <http://www.australianmusiccentre.com.au/artist/peterson-john> where you can browse other works by John Peterson.

If anyone hears of this composition being practised-up, in order to be performed, by any Sydney choir in the future, please let me know (Letters to the Editor can be sent via



<http://www.lead safeworld.com/about-us/contact-us/> ) - so that I can join the choir and fulfil on my lifelong dream to perform in my favourite choral masterpieces, preferably in the Sydney Opera House. As soon as I heard **Let Me Rest / Lux Aeterna** on the SGLC CD, I added **Dreams and Visions** to my very short list of favourite choral masterpieces which I've had the pleasure to perform: Beethoven's *Ninth Symphony Choral Movement*, and Carl Orff's *Carmina Burana*.

As anyone who has spoken to me would know, I tend to link anything and everything to lead, so I will finish with a predictable statement, according to my way of thinking: If only Beethoven hadn't died at age 56 (possibly due to his lead exposure), I might have a longer list of favourite choral works than just three!

## **Lyrics / poetry sources in *Dreams and Visions*:**

*Lyrics selected and Music composed by John Peterson, September 2011.*

### **PART 1: DREAMS**

*Oh, my ways are strange ways and new ways and old ways,  
And deep ways and steep ways and high ways and low;  
I'm at home and at ease on a track that I know not  
And restless and lost on a road that I know."*

*And my dreams are strange dreams, are day dreams, are grey dreams,  
And my dreams are wild dreams, and old dreams and new;  
They haunt me and daunt me with fears of the morrow –  
My [brothers] (friends) they doubt me – but my dreams come true*

From *The Wander-Light* (1902), by Henry Lawson (1867-1922)

### **PART 2: THE ENVIRONMENT**

#### **Part 2A: *The Fire of Annihilation***

*When the close of the thousand Aeons has come...  
there befalls a drought of many years    A warming..  
When the close of the thousand Aeons has come...    A warming of the earth;  
Temperatures rising.*

*there befalls a drought of many years  
that drives most of the creatures...  
starving to their deaths.    A warming,  
A warming of the earth;  
Temperatures rising;  
A warming of the earth;*



*The Fire of Annihilation invades...*

Glaciers melting,  
Sea levels rising;

*(the Fire) burns down all that is found on earth....* Rainforests burning,

*Wondrous clouds rise up in the sky...*

*People will ... destroy parks and trees*

*and the lives of the living*

*will be ruined in the world.*

*All countries will equally suffer...*

*when the end of the Aeon is at hand.*

*When the close of the thousand Aeons has come.*

Extracts taken from *The Mahabharata: The Book of the Forest*. Other texts: newspaper headlines.

## **Part 2B. The Song of the Earth**

*Urge and urge and urge,  
Always the procreant urge of the world.*

*Urge and urge and urge,*

*Out of the dimness,*

*Opposite equals advance,*

*Urge and urge and urge,*

*Ever the upward and downward sun,*

*Ever the air and the ceaseless tides,*

*Ever myself and my neighbours,*

*Ever the sobbing liquid of life,*

*And what is love?*

*And what is life?*

From *Song of Myself* [2] and [42], (1855), "Leaves of Grass", by Walt Whitman (1819-1892)

*The loving day, the mounting sun*

*life that is only life after love,*

*the lips of love, the breasts of love,*

*life that is only life after love,*

*the body of my love,*

*the body of the woman I love,*

*the body of the man,*

*the body of my love,*

*the body of the earth.*

From *Spontaneous Me*, (1855), "Leaves of Grass", Walt Whitman

*Who sings the songs of the body,*

*and of the truths of the earth;*

*who sings the songs of the body,*

*(sings) the truths of the earth;*



*Sing on, singers!*

*Sing the words of the earth!*

From *A Song of the Rolling Earth*, (1855), "Leaves of Grass", Walt Whitman

*Sing on, singers!*

*Sing the song of the earth!*

### **PART 3: IN MEMORIAM**

#### **Part 3A: A Dream that was not all a Dream**

*I had a dream, that was not all a dream,  
The bright sun was extinguish'd, and the stars  
Did wander darkling in the eternal space, ...*

From *Darkness* (1816), by Lord Byron (1788-1824)

*a great fear and passion shook my heart....  
It grew so still... as if a soul were drawn away.*

From *My Darling* (1893), by Michael Field [a pseudonym for Katherine Harris Bradley (1846-1914) and Edith Ward Cooper (1862-1913)].

#### **Part 3B: A Litany in a Time of Plague**

*Adieu, farewell earth's bliss,  
This world uncertain is:  
Fond are life's lustful joys  
Death proves them all but toys.  
None from his darts can fly:  
The plague full swift goes by.*

*Brightness falls from the air;  
Queens have died young and fair;  
Brightness falls from the air;  
Queens have died young and fair  
"Come, come!" the bells do cry,.  
The plague full swift goes by*

From *A Litany in the Time of Plague* (1592), by Thomas Nashe (1567-1601)

*The soul has taken its flight –  
Out of the finite dark,  
Into the infinite Light*



From *In Memoriam*, By Louise Chandler Moulton (1835-1908)

### **Part 3C: *Let Me Rest / Lux Aeterna***

*Let me sleep, for my soul is intoxicated with love  
and Let me rest, for my spirit has had its bounty of days and nights;*

From *The Beauty of Death XIV*, by Khalil Gibran (1883-1931)

*For what is it to die but to stand naked in the wind and to melt into the sun?  
Only when you drink from the river of silence shall you indeed sing.  
And when you have reached the mountain top, then you shall begin to climb.  
And when the earth shall claim your limbs, then shall you truly dance.*

From *Death XXVII*, 'The Prophet' (1923) by Khalil Gibran (1883-1931)

*But let your hearts sing with me  
Mourn me not with apparel of black,  
the song of Eternal Life.  
But dress in color and rejoice with me.*

From *The Beauty of Death XIV*, by Khalil Gibran (1883-1931)

*Lux Aeterna, Lux Aeterna.  
Let me sleep, let me rest.  
Lux Aeterna, Lux Aeterna.*

### **Part 4: LOVE AND DESIRE**

#### **Part 4A: *I Sing the Body Electric***

*The overture lightly sounding, the strain anticipating  
... the sight of the perfect body,  
The mystic deliria, the madness amorous.*

From *From Pent-up aching Rivers*, in "Children of Adam" by Walt Whitman

*Touch me,  
Be not afraid of my body.*

From *As Adam Early in the Morning*, in "Children of Adam" by Walt Whitman

*I sing the body electric...  
Love-flesh swelling and deliciously aching.*

From *I Sing the Body Electric*, in "Children of Adam" by Walt Whitman

*... bathing myself, bathing my songs in sex,*



From *Ages and Ages Returning at Intervals*, in "Children of Adam" by Walt Whitman

*Without shame, the man (the woman) I like,  
Avows the deliciousness of his (her) sex.*

From *A Woman Waits for Me*, in "Children of Adam" by Walt Whitman

*But ... now my desire and will were turned, ...  
By the Love that moves the sun and the other stars.*

From *Paradiso* -- Canto XXXIII, 'The Divine Comedy', Dante Alighieri (1265-1321)

## **Part 4B: Love's Pure Flame**

*Where true Love burns  
Desire is Love's pure flame;*

From *Desire* (1830), by Samuel Taylor Coleridge (1772-1834)

*If I speak in the tongues of angels  
But have not love, I am nothing,  
If I have a faith that can move mountains,  
But have not love, I am nothing.  
Love does not delight in evil but rejoices with the truth.  
It always protects, always trusts, always hopes, always perseveres.  
hopes all things, endures all things. Love never ends.*

From 1 CORINTHIANS 13:1-8

*But let there be spaces in your togetherness,  
and let the winds of the heavens dance between you.  
Love one another, but make not a bond of love:  
let it rather be a moving sea between the shores of your souls.*

*Sing and dance together and be joyous.*

From *On Marriage*, by Khalil Gibran (1883-1931)

*Love never fails. Love never ends.*

## **Part 5. COMMUNITY AND EQUALITY**

### **Part 5A: Ours is a World of Love**

*Under different stars, at the beginning of a new millennium,  
in an old land and a young nation,  
we join together in the hope and conviction  
that the future will be kinder and more just than the past.*



*Ours is the world of love, questing to find  
the common links that bind all people.  
We are here because, whatever our sexuality,  
we believe that the days of exclusion are numbered.  
In our world, everyone can find their place,  
where their human rights and human dignity will be upheld.*

Text taken from Justice Michael Kirby's speech at the Sydney 2002  
Gay Games Opening Ceremony - used with Michael Kirby's kind permission.

### **Part 5B: Interlude**

*We began our modern history by denying indigenous people their rights.  
Women could play little part in public life: their place was in the kitchen.  
And as for gays and lesbians, and other minorities,  
they were an abomination. Lock them up. Throw away the key.*

Text taken from Justice Michael Kirby's speech at the Sydney 2002  
Gay Games Opening Ceremony - used with Michael Kirby's kind permission.

### **Part 5C: We are the Dreamers of Dreams**

*We have not corrected all these wrongs.  
But we are surely on the road to enlightenment.  
The changes would not have happened  
if it had not been for people of courage.  
Who taught that variations are normal and universal,  
That they are not going away. That they are no big deal.  
And by our lives let us be an example of respect for human rights.  
Not just for us. For everyone.*

Text by Justice Michael Kirby - used with Michael Kirby's kind permission.

*We are the music makers,  
And we are the dreamers of dreams.  
Yet we are the movers and shakers  
Of the world for ever, it seems.  
From the dazzling unknown shore;  
And things that we dreamt not before;  
A breath of our inspiration,  
Is the life of each generation.  
But we, with our dreaming and singing,  
Of the glorious futures we see,  
We are the movers and shakers  
Of the world for ever, it seems.*

From Ode (1874), by Arthur O'Shaughnessy (1844–1881)



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