

Ontario Drinking Water Advisory Council & Ministry of Environment & Climate Change



Updates

Presentation for NEOWWC - North Bay
May 18, 2017

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Purpose of Today's Presentation

To share information on:

1. Setting Water Quality Standards
2. Bill of Rights Environmental Registry (EBR) on amendments to O. Reg. 169/03 since 2014
3. MOECC Technical Support Document
4. Updates to Disinfection Procedure
5. Ontario Drinking Water Advisory Council
6. Focus on Lead Issue

Drinking Water Quality Standards: National Process

- The Canadian Drinking Water Quality Guidelines form the basis of most ODWQS
- New substances are chosen based on provincial/territorial surveillance programs as well as work carried out by the international community (i.e. World Health Organization, US EPA, European Union, Australia, etc.)
 - Exposure to the contaminant could lead to adverse health effects in humans;
 - The contaminant is frequently detected or could be expected to be found in a large number of drinking water supplies throughout Canada; and
 - The contaminant is detected, or could be expected to be detected, in drinking water at a level that is of possible human health significance
- Focused on developing guidelines on new substances and ensuring that existing guidelines are current with respect to new health effects research and operational/treatment technologies
- Existing guidelines for substances are evaluated every five years to assess new developments in toxicology and treatment technology

Many Players in Drinking Water Safety



Academia



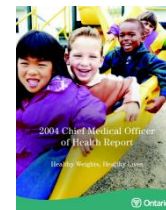
Ministry of the Environment and Climate Change & other Government of Ontario Ministries/Agencies



Provincial Auditor



Ontario First Nations Technical Services Corporation

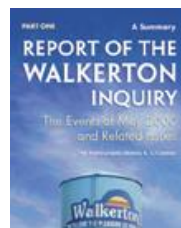


Medical Officers of Health

Chief Drinking Water Inspector



Media



Ontario Legislature



Ontario Drinking Water Advisory Council

Walkerton Clean Water Centre



ecojustice



Environmental Commissioner of Ontario



Owners and Operators



Government of Canada

Gouvernement du Canada



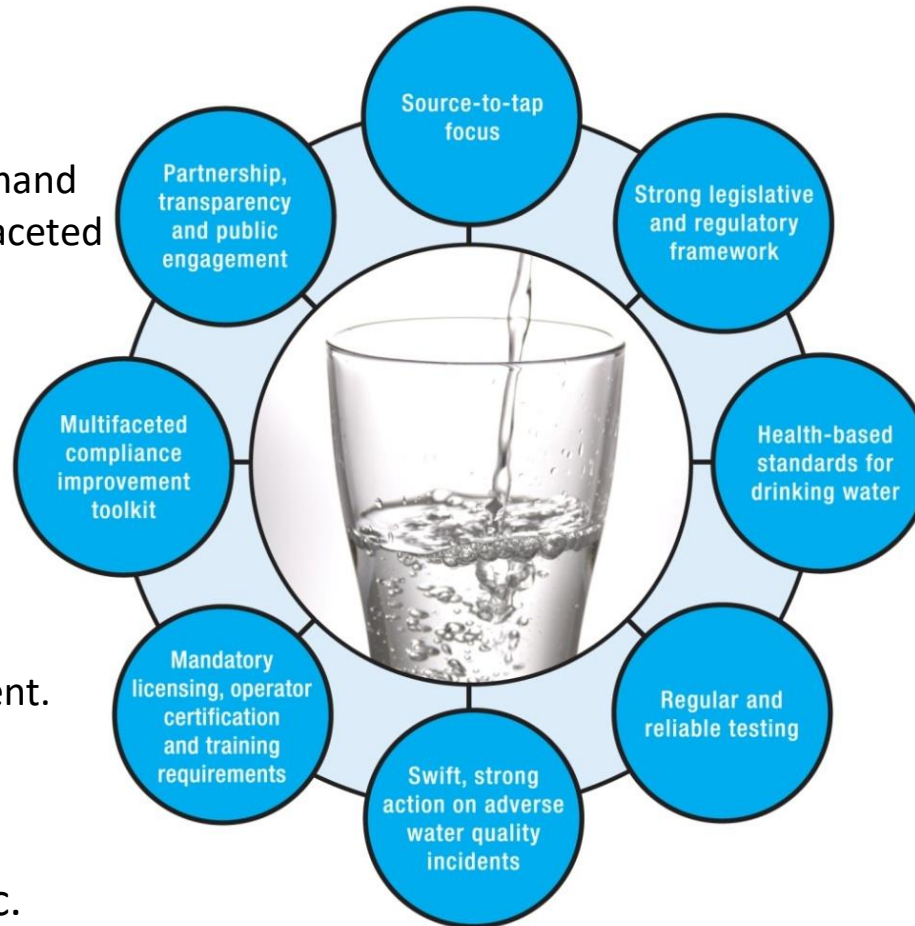
Canadian Environmental Law Association
EQUITY. JUSTICE. HEALTH.

General Public

Ontario's Drinking Water Safety Net

A Multi-Barrier Approach

- Focus on safe drinking water, source- to-tap
- From traditional “command and control” to multi-faceted partnership.
- Shared responsibility.
- Risk-based decisions.
- Checks and balances.
- Continuous improvement.
- Transparent.
- Flexible and pragmatic.



Standards form one part of the multi-barrier system

Amendments to O. Reg. 169/03

- The MOECC has carried out three consultations on the Environmental Bill of Rights Environmental Registry (EBR) for amending the Ontario Drinking Water Quality Standards:
 - December 18, 2014 to February 16, 2015 (EBR 012-1594)
 - August 15, 2015 to September 28, 2015 (EBR 012-4213)
 - August 23, 2016 to October 07, 2016 (EBR 012-8244)

Summary Table of EBR Consultations 012-1594 and 012-4213

Parameter (mg/L)	Previous Standard (mg/L)	Original EBR Consultation 012-1594 (mg/L)	Consequence of Consultation
Arsenic	0.025	0.010	Implementation date extended to January 1, 2018
Benzene	0.005	0.001	Adopted as an ODWQS July1, 2016
Carbon Tetrachloride	0.005	0.002	Adopted as an ODWQS July1, 2016
THMs	0.100	Maintain current standard of 0.100	No Change but clarified calendar quarters and calculations
Vinyl chloride	0.002	0.001	Adopted as an ODWQS July1, 2016
Haloacetic Acids (HAAs)	N/A	0.080	Implementation date extended to January 1, 2020
Chlorate/chlorite	N/A	1/1	Adopted as an ODWQS July1, 2016
2-methyl-4-chlorophenoxyacetic acid (MCPA)	N/A	0.1	Adopted as an ODWQS July1, 2016

Summary Table of EBR Consultations

012- 8244

Parameter (mg/L)	Current Standard (mg/L)	EBR Consultation (mg/L)	Amendment to O. Reg. 163/03 to adopt/revoke these parameters as ODWQS
Selenium	0.01	0.05	July 1, 2017
Nitrate + Nitrite	10	Revoke	Revoked on July 1, 2017
Tetrachloroethylene	0.03	0.01	July 1, 2017
Toluene	NA	0.06	July 1, 2017
Ethylbenzene	NA	0.14	July 1, 2017
Xylene	NA	0.09	July 1, 2017
Methyl-t-butylether	NA	NA	July 1, 2017

Removal of Legacy Pesticides

EBR 012-4213

- Thirteen (13) 'legacy' pesticides proposed to be removed from regulations (O. Reg. 169/03 and O. Reg. 170/03).

- | | |
|--|--|
| 1. Aldicarb | 8. Heptachlor + Heptachlor Epoxide |
| 2. Aldrin + Dieldrin | 9. Lindane (Total) |
| 3. Bendiocarb | 10. Methoxychlor |
| 4. Chlordane (Total) | 11. Parathion |
| 5. Cyanazine | 12. Temephos |
| 6. Dichlorodiphenyltrichloroethane (DDT) + metabolites | 13. 2,4,5-Trichlorophenoxy acetic acid (2,4,5-T) |
| 7. Dinoseb | |

- These 'legacy' pesticides would continue to be monitored as part of pesticide scans done by the ministry (voluntary basis).

Pesticides without Standards

EBR 012-8244

- Currently, the detection of pesticides without standards in drinking water would result in an Adverse Water Quality Incident (AWQI)
- As of July 1, 2017, the detection of these pesticides (i.e. without an ODWQS) will only result in an AWQI if the detected level is above 100 ng/L.
- However, the result (pesticide, level detected) is still uploaded to the ministry so we can assess if a standard is required

Status of Revised Disinfection Procedure

- MOECC is revising the Procedure for the Disinfection of Drinking Water in Ontario (2006)
- Proposed revision topics:
 - ✓ Source water treatment requirements;
 - ✓ Pathogen reduction credit assigned to treatment technologies;
 - ✓ Maintenance/operation requirements for pathogen credits;
 - ✓ General information related to pathogens and current technologies;
 - ✓ Enhanced descriptions of membrane filtration and UV disinfection;
 - ✓ Harmonization with Health Canada with consideration for Ontario DWS.
- MOECC has plans for consultation with you on the proposed Procedure

Proposed Updates for the Disinfection Procedure

- Proposed revision topics (cont'd):
 - ✓ Links to the Design Guidelines for Drinking Water Systems (2008) and the Recommended Standards for Water Works (Ten State Standards, 2012) due to updates in these documents;
 - ✓ “Question & Answer” format to address key concepts, technologies, and expectations to ensure that best practices are followed in the operation of the drinking water system;
 - ✓ Technology is discussed in specific terms for large and small systems;
 - ✓ Examples have been expanded with calculations and diagrams;
 - ✓ Correct minor typographical errors.
- It is a more comprehensive document- 80 pages and growing

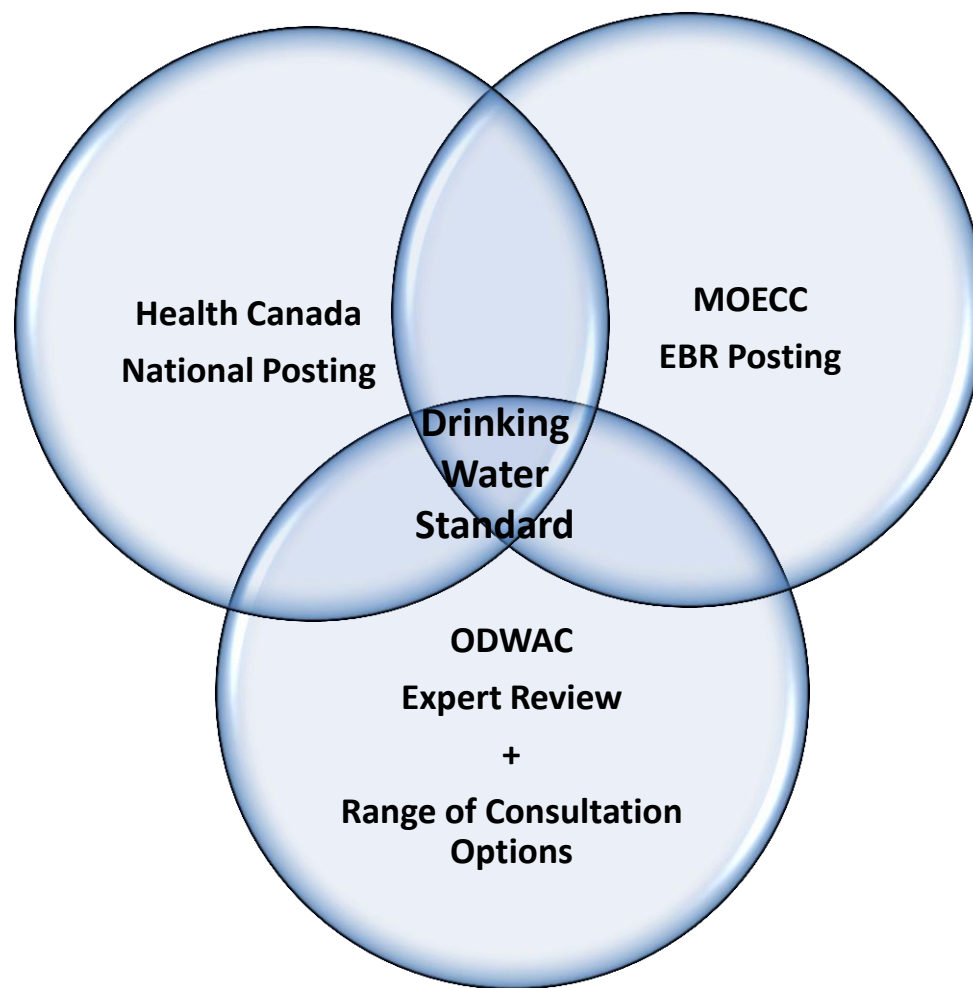
Technical Support Document

- MOECC document (PIBS 4449e01) that summarizes the standards, aesthetic objectives, and operational guidelines;
- It provides a brief description of the parameter (standard, guideline);
- It is the only repository of the Aesthetic Objectives and Operational Objectives;
- It will provide the technical summaries of any new parameters in the future including any protocols;
- The algal bloom protocol has been removed as there is a province-wide 12-point plan

Recent Changes to ODWQSs and AOs

CHEMICAL	NEW ODWQS (mg/L)	OLD ODWQS (mg/L)	DATE	COMMENTS
Arsenic	0.01	0.025	January 1, 2018	
Benzene	0.001	0.005	January 1, 2017	
Carbon Tetrachloride	0.002	0.005	January 1, 2017	
Ethylbenzene	0.14	No Standard	July 1, 2017	
Ethylbenzene-AO	0.0016 (AO)	0.0024	July 1, 2017	
Haloacetic Acids	0.080	No Standard	January 1, 2020	Sampling can start anytime
Methyl-t-butyl ether -AO	Not a standard but an AO of 0.015	NA	July 1, 2017	Already used as AO based on CDWQS
Selenium	0.05	0.01	July 1, 2017	Higher number
Tetrachloroethylene	0.01	0.03	July 1, 2017	
Toluene	0.06	No Standard	July 1, 2017	Current AO is lower
Vinyl Chloride	0.001	0.002	January 1, 2017	
Xylenes	0.09	No Standard	July 1, 2017	
Xylenes -AO	0.02 (AO)	0.3	July 1, 2017	

Public Consultation and Independent Expert Review Processes



Accountability, Transparency, Public Consultation

Ontario Drinking Water Advisory Council (ODWAC)

- Recommendation from Walkerton Public Inquiry called for an Advisory Council on standards to:
“advise the Minister of the Environment and Climate Change on drinking water standards, legislation, regulations, and issues to protect the water that Ontarians drink”.
- ODWAC is enabled through the *Safe Drinking Water Act, 2002*
- ODWAC was established in 2004

Ontario Drinking Water Advisory Council

- ODWAC's role is to ensure that the standard-setting process is transparent
- Membership of ODWAC –up to 15 individuals with expertise in engineering, medicine and public health, toxicology, microbiology, chemistry, hydrogeology, risk assessment, and utility operations
- Members are practitioners in academia, stakeholder associations, municipalities, laboratory testing and analysis, First Nations technical support, and government (MOECC and MOHLTC, Health Canada)

ODWAC Membership

Members:

- Jim Smith, *Chair*
- Dr. Susan Andrews, U of Toronto
- Nick Benkovich, City of Greater Sudbury
- Ian Douglas, City of Ottawa
- Michèle Giddings, Health Canada
- Derek Hill, OFNTSC (First Nations)
- Rod Holme
- Dr. Peter Huck, U of Waterloo
- Dr. Alex Hukowich
- Dr. Robert Lannigan
- Dr. Ken Roberts
- John Rudnickas
- Joanne Thompson

Ministry Support Staff:

- Ministry of the Environment and Climate Change
 - Scott Barrett
 - Iris Biggar
 - Dr. Satish Deshpande
- Ministry of Health and Long-Term Care
 - Cheryl Szikita-Clark

CONTINUING SOCIETAL CONCERN WITH LEAD



GET THE LEAD OUT!



Lead out

Flint, Michigan

GET THE LEAD OUT



Get the Lead Out of Fishing



www.replacelead.com

How often has this happened to you? You're fishing and a line gets caught, or a fish puts up a fight and gets away. You sigh. Be on some new tackle and keep fishing. For you, it's just a little lost fishing gear. For our loons, swans, and eagles, it can mean a death sentence. Every year, up to 52% of loons, up to 20% of trumpeter swans, and up to 25% of bald eagles die from lead poisoning.

What can you do?

Lead-free weights are readily available. Ask for - and buy - only lead-free fishing weights.

Get the lead out of your tackle box! Don't throw it away! Safely recycle your lead at a hazardous waste collection site.

Let's Get The Lead Out, NH!

Protect our Wildlife

GET THE LEAD OUT!

Neighborhood Soil Testing
Registration
Sat. April 23rd, 2016
2pm - 6pm



CITY OF COMMERCE

City of Commerce Teen Center
5107 Alvar Ave, Commerce, CA 90040
Food Provided
Questions: 563.263.2113 / info@cityofcommerce.org

East Yard

GET THE LEAD OUT

Environmental Health & Safety
Kansas State University

Prior to November 2008, many automobile tape brands such as Fordwired, 3M, Froggys, Shaverco, and VWR (Canada) contained lead levels that exceed the hazardous waste disposal limits.

CHECK

Check the inside of your automobile tape if you are ending use of the inside metal headliner. Most tapes with origins at an angle contain lead. If it has very faint text "AUTOCLEAR" most likely it's lead free.

DISPOSE

Dispose of your lead automobile tape as hazardous waste, please do not throw it away. If you are unsure, call your local waste management authority for disposal instructions.

REPLACE

Replace lead-containing auto tape with a lead-free alternative before or through your job site representatives. Some examples of lead-free automobile tapes are:

- VWR Automotive Indicator Tape (VWR: T3300-06)
- VWR Automotive Indicator Tape from ThermoFisher Scientific (4421-7-334, 132494-038, 121494-038)
- 3M Redline Labels, Lead Free Series Indicator Tape (3M Redline 121-046, 121-046)
- Automotive Indicator Tape Product 4 (30996208, 30996209, 40996208, 40996209, 40996210, 40996211, 40996212, 40996213)



Health Canada Proposal

- In considering both treatment and analytical achievability and the health risks associated with exposure to lead from drinking water, the Federal-Provincial-Territorial Committee on Drinking Water has proposed a MAC of 0.005 mg/L (5 µg/L) for total lead in drinking water, based on a sample of water taken at the consumer's tap, using the appropriate protocol for the type of building being sampled.
- As this value exceeds the drinking water concentration associated with neurodevelopmental effects in children, every effort should be made to maintain lead levels in drinking water as low as reasonably achievable (or ALARA).
- Public Consultation Period: January 2017 to March 15, 2017

ODWAC's Review

ODWAC is undertaking a comprehensive review of HC's proposal and Ontario's regulatory framework and experience to date including:

- Review of science policy approach for setting a standard for a non-threshold neurodevelopmental toxicant such as lead
- Review of ALARA and appropriate risk reduction measures for lead in drinking water:
 - Corrosion control for municipal drinking water systems
 - Lead Service Line Replacement as part of urban infrastructure renewal
 - Use of Point of Use filters
- Review of Ontario's current regulatory approach for requiring development of lead reduction strategies by municipalities, schools and day nurseries

Health Effects of Lead

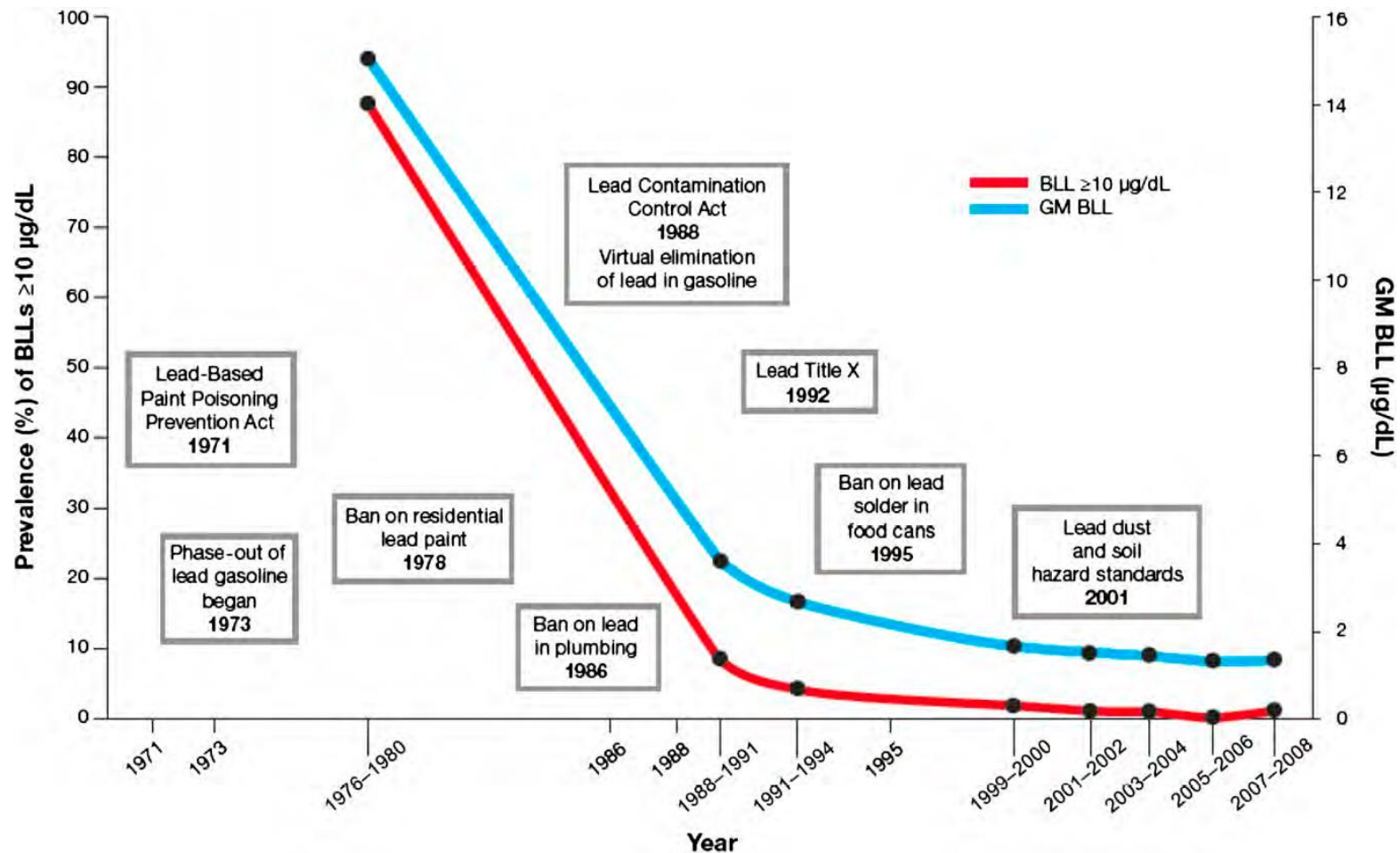
(from Health Canada, 2017)

- inorganic lead compounds classified as probably carcinogenic to humans, based on experimental animals. Cancer effects not main health effects of concern in humans
- toxicity of lead extensively documented in humans, based on blood lead levels (BLLs)
- effects studied include reduced cognition, increased blood pressure and renal dysfunction in adults, as well as adverse neurodevelopmental and behavioural effects in children
- strongest association observed to date is between increased BLLs in children and reductions in intelligence quotient (IQ) scores
- the threshold below which lead is no longer associated with adverse neurodevelopmental effects cannot be identified

Sources of Lead

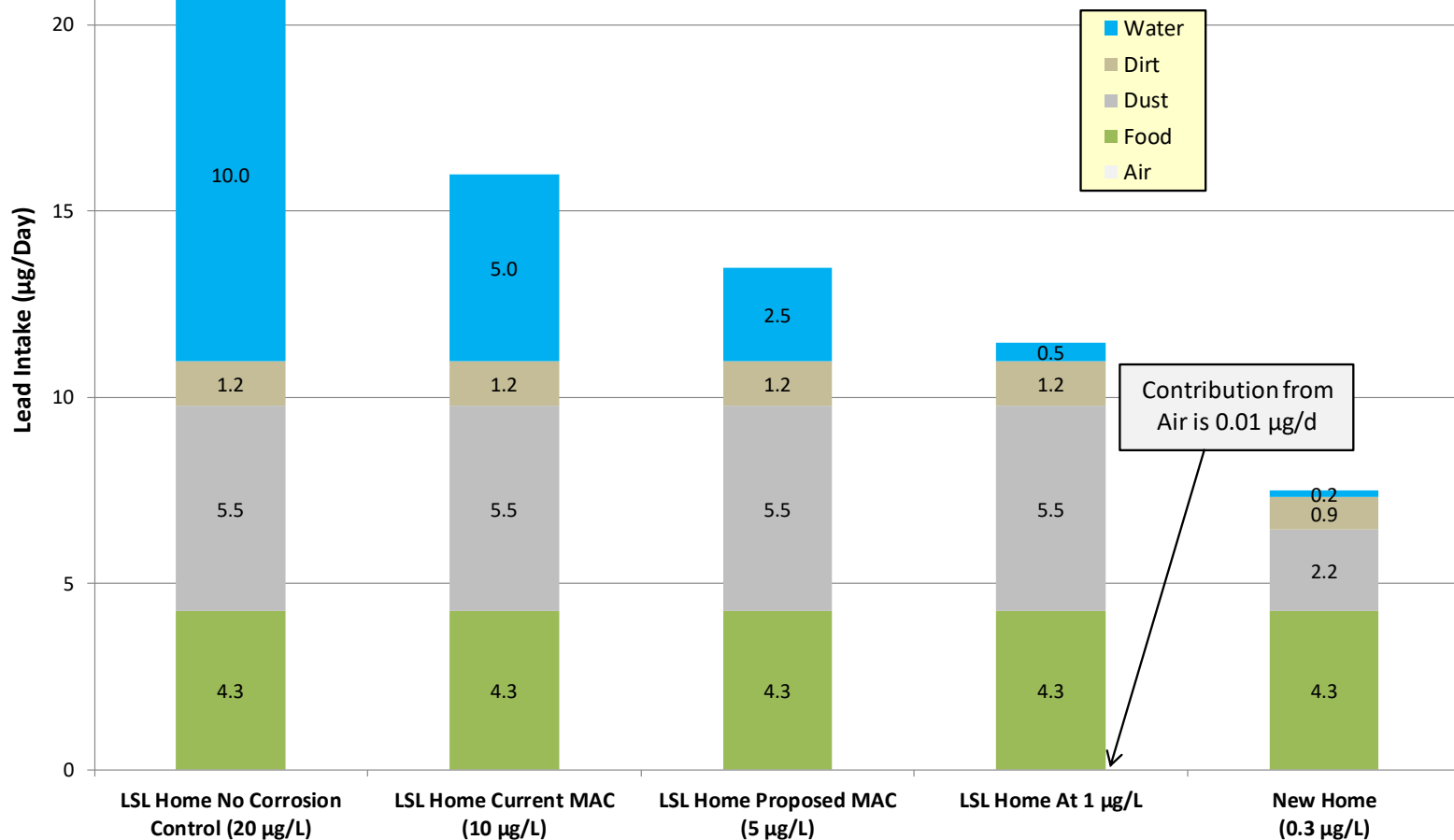
- **Air:** A key source of lead used to be the exhaust from gasoline that used lead as its anti-knock agent; now it is industrial discharges in some areas
- **Drinking Water:** Dissolution of lead due to corrosion of components is largely responsible for lead content (eg lead service lines, brass fixtures)
- **Food:** All foods are expected to contain lead in trace amounts
- **Soil:** Lead levels in soil are related to the history of the soil and/or proximity to industrial sources
- **Consumer Products:** Jewellery, art supplies, ceramic glazes, toys, electronics, batteries

Timeline of lead poisoning prevention policies and blood lead levels in children aged 1–5 years, 1971–2008, USA.



Estimated Daily Lead Intake of Lead From All Sources For A 5 Year Old

Air, Food and Dirt Data From Health Canada State of the Science 2013 Report
except New Home with Copper Service, Dust from P.E.Rassmussen 2011
Canadian House Dust Study



Courtesy of Ian Douglas, ODWAC Member

Next Steps

- ODWAC develops interim advice to Minister MOECC - Summer 2017
 - need for additional technical work by MOECC
 - need for focussed or broader consultation with stakeholders?
- Health Canada to finalize guideline – timing TBD
- ODWAC provides final advice to Minister MOECC – timing TBD
- MOECC determines next steps including posting of proposed Standard on Environmental Bill of Rights Registry – timing TBD

Acknowledgements and Contact Information

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P. Huck, S. Andrews, M. Giddings, I. Douglas – ODWAC members

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Thank You



Questions