

## AIDE MEMOIRE

### Update on development of methamphetamine testing and remediation standard (NZS 8510)

Date:	19 June 2017	Priority:	Medium
Security Classification:	In Confidence	Tracker number:	3967 16-17

Information for Minister(s)	
Hon Jacqui Dean Minister of Commerce and Consumer Affairs	

Contact for telephone discussion (if required)			
Name	Position	Telephone	1st contact
Carmen Mak	Manager, Standards New Zealand	04 901 3817	✓
Bruce Taylor	Principal Advisor, Standards New Zealand	04 901 1641	

The following departments/agencies have been consulted [double click box & click 'checked']					
<input checked="" type="checkbox"/> Treasury	<input type="checkbox"/> MoJ	<input type="checkbox"/> NZTE	<input type="checkbox"/> MSD	<input type="checkbox"/> TEC	<input type="checkbox"/> MoE
<input checked="" type="checkbox"/> MFAT	<input type="checkbox"/> MPI	<input type="checkbox"/> MfE	<input type="checkbox"/> DIA	<input type="checkbox"/> TPK	<input type="checkbox"/> MoH
<input checked="" type="checkbox"/> Other:		HNZC/Housing/MoH/Building and Housing			

Minister's office to complete:

- |   |  |
|---|--|
| <input type="checkbox"/> Approved             | <input type="checkbox"/> Declined            |
| <input type="checkbox"/> Noted                | <input type="checkbox"/> Needs change        |
| <input type="checkbox"/> Seen                 | <input type="checkbox"/> Overtaken by Events |
| <input type="checkbox"/> See Minister's Notes | <input type="checkbox"/> Withdrawn           |

Comments:

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## AIDE MEMOIRE

### Update on development of methamphetamine testing and remediation standard (NZS 8510)

Date:	19 June 2017	Priority:	Medium
Security Classification:	In Confidence	Tracker number:	3967 16-17

#### Purpose

To provide you with an update on the development of the standard on methamphetamine testing and remediation, in advance of your meeting with other Ministers on this topic on 21 June 2017.

We recommend that you forward a copy of this aide-memoire to other interested Ministers, including the Minister of Health and the Associate Minister of Health.

Carmen Mak

Manager, Standards New Zealand

T:

Ministry of Business, Innovation and Employment

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#### Progress to date and expected publication date

##### Progress to date on consensus

1. Officials had previously advised that the draft standard for the testing and decontamination of methamphetamine-contaminated properties (NZS 8510) was circulated for a second round of balloting, given that the results from the first balloting round did not meet the consensus requirement for the standard.
2. All standards need to meet the consensus requirement which is consistent with international principles and the provisions of the Standards and Accreditation Act 2015. The Standards Approval Board needs to have regard to consensus when considering the approval of the standard.
3. The results from the second round of balloting meet the consensus requirement for the standard. All 21 committee members voted and 18 voted positively. We have been working with the three members who have voted negatively in order to resolve the underlying reasons for the negative votes. This is desirable to try to ensure that the standard receives as much support as possible ahead of being finalised.
4. The committee members who have voted negatively are a scientist from a sampling and testing firm, a property manager, and a decontamination contractor. The sampling and testing firm is unlikely to vote positively for the standard. We have now successfully resolved the issues raised by the property manager, and will continue to engage with the decontamination contractor. This means that we have to date 19 positive votes and two negative votes.

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In-Confidence



### Approval and publication of standard

5. The Standards Approval Board will hold an out-of-session meeting on 22 June to consider the approval of the standard.
6. We will then proceed to publish NZS 8510 in the week of 26 June 2017. We will liaise with your office in advance on the exact date and the detailed communications plan for the publication.
7. We are currently liaising with the Construction and Housing Policy team in MBIE and with the Ministry of Health (MoH) on an arrangement where MBIE and MoH would provide funding to enable staff of local councils, industry and the public to access a PDF copy of standard free online. This will increase the reach of the standard to users.

### Background on scope and timeframes for NZS 8510

#### Scope of standard

8. The scope of NZS 8510 covers:
  - a. guidance on methods of screening, sampling and testing of properties to assess the extent of methamphetamine contamination by ensuring that sampling is representative, and that testing methods produce reliable and repeatable results, whether using qualitative or quantitative methods, and a consistent approach to reporting test results
  - b. measures to manage risks to health, well-being, safety, and the environment from methamphetamine-contaminated material and chemicals used to manufacture methamphetamine
  - c. best practice procedures and criteria, for decontaminating methamphetamine-contaminated properties and their contents, and methods of disposing of materials that cannot be decontaminated
  - d. guidance on post-decontamination actions, including sampling and testing for the purpose of verifying whether decontamination of properties has been achieved and meets the appropriate limits in this standard
  - e. reporting and documentation requirements to confirm the decontamination of a property
  - f. information and certification that supports processes, such as validation or auditing, which provide assurance that screening, sampling, testing, risk assessment, decontamination of properties, and disposal of contaminated materials have been effective, and comply with this standard and any relevant legislation or local authority requirements.
9. The standard adopts a single level of 1.5 µg/100 cm<sup>2</sup> (1.5 micrograms of methamphetamine per 100 square centimetres of surface sampled) that 'high use areas' of affected properties should be decontaminated to, regardless of whether the properties were involved in the production or use of methamphetamine. High use areas are defined in the standard as those areas that can be easily accessed and are regularly used by adults and children.
10. The Ministry of Health's representative on the standards committee verified with Institute of Environmental Science and Research's experts that this single level would provide appropriate public health protection.
11. The standard introduces a two-stage process for sampling and testing for methamphetamine contamination. The first stage involves a 'screening assessment' to determine whether methamphetamine is present or not. Screening samplers are expected to have received some basic training in the proper use of screening tests, and screening test methods used by screening samplers are expected to be independently validated.
12. The second stage, which includes the option of skipping the first stage, is a 'detailed assessment' involving sampling by an accredited sampler and lab-based analysis to determine the level of methamphetamine that may be present. Once a contaminated property is decontaminated, an accredited sampler would carry out post-decontamination sampling to determine whether decontamination of the property meets at least the limits in the standard.



13. The standard enables decontamination to be carried out room by room, that is only those rooms found to be contaminated to be decontaminated. This will help avoid unnecessary costs and disruption for residents and home owners.
14. During the development of NZS 8510, the committee acknowledged that there are some provisions that will require a lead-in time to implement. These provisions include requirements such as accreditation of those who carry out sampling for detailed assessments, or training courses for screening samplers or decontamination operators.
15. However, the committee also decided that it was important to clearly signal in this standard the need to ensure that those who work in methamphetamine testing and decontamination should have the necessary skills and experience to undertake the work and provide the level of service required by owners or managers of affected properties.

#### Timeframes to date

16. We had previously advised that the estimated timeframe for the publication of NZS 8510 would be April 2017. This had to be revised to June 2017 to take into account the work required by the standards development committee to review and address the high volume of public comments received during the public consultation period between December 2016 and February 2017.
17. Our current timeframes for the development of this standard would be 12 months (July 2016 to June 2017). This is relatively short compared to the average timeframes for standards development by other national standards bodies and the International Organisation for Standardisation (ISO).
18. For example, if we apply Standards Australia's project complexity matrix to the methamphetamine testing standard, the standard would be categorised as a 'Large or Complex' standard. The target average project duration for the development of the standard would be 24 or 32 months.

#### Communications plan

19. The MBIE communications team has drafted a communications strategy to support the release of NZS 8510. This is being finalised and will be ready to share with your office as soon as possible.
20. We understand the importance of having a cohesive and coordinated approach to the release, so prior to the standard being released, we will share communications with the Ministry of Health, Housing New Zealand Corporation, and Local Government New Zealand, all of which are represented on the committee, to ensure an integrated approach. We will also share communications with the Ministry of Social Development, who have expressed an interest in being kept informed. This includes a copy of the communications plan, key messages, Q&As and an embargoed copy of the Standards NZ media release.
21. Once the standard is released, we will encourage these agencies to share information through their communication channels about the new standard being available. We will request that all communications direct people back to the Standards NZ website to download a copy of the standard.
22. Your office will be kept well-informed of progress, and encouraged to update other interested Ministers.
23. The draft action plan for the release of the standard is as follows:
  - a. As soon as possible, the MBIE Communications team will provide your office with the communications plan, key messages, Q&As, an embargoed copy of the Standards NZ media release, and a suggested Ministerial media release for your consideration.
  - b. 48 hours prior to the release of NZ 8510, an embargoed copy of the standard, and a synopsis, will be provided to your office.
  - c. Three hours prior to the release of NZ 8510, your office provides an embargoed copy of NZS 8510, and a synopsis, to interested Ministers offices, including Minister Bennett, Minister Adams, Minister Ngaro, Minister Smith and Minister Coleman.
  - d. Three hours prior to the release of NZ 8510, the MBIE Communications team will provide an embargoed copy of NZS 8510, and a synopsis, to communications people from the Ministry of Health, Housing New Zealand Corporation, the Ministry of Social Development, and Local Government New Zealand.



- e. A media release will be sent by Standards NZ, as soon as the new standard is available on the Standards NZ website. This can be immediately followed by a supporting release from your office, if you choose.
- f. The media releases will be followed by a special edition of Standards New Zealand's e-newsletter, Touchstone being sent, and promotion via MBIE social media channels.

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OFFICIAL INFORMATION ACT



Sent by:  
Adrian.Portis@parliament.govt.nz

To: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>,  
cc:  
bcc:

26/06/2017 04:27 p.m.

Subject: RE: MBIE's Ministerial aide-memoire on meth testing standard

Thanks Sally

**From:** sally\_gilbert@moh.govt.nz [mailto:sally\_gilbert@moh.govt.nz]  
**Sent:** Monday, June 26, 2017 1:06 PM  
**To:** Adrian Portis  
**Cc:** Michael Johnson; Sarah\_Reader@moh.govt.nz; peter\_abernethy@moh.govt.nz; Sally\_Giles@moh.govt.nz; stewart\_jessamine@moh.govt.nz  
**Subject:** MBIE's Ministerial aide-memoire on meth testing standard

Hi Adrian

As discussed, I have followed up on the aide memoire about the meth decontamination standard.

MBIE advised us on 22 June that "I can confirm that the aide memoire was circulated to both the Minister of Health and Associate Minister of Health. However we don't know who attended the Ministerial meeting itself. I understand it was held in Minister Bennett's office [on 21 June 2017]. "

I have therefore taken the liberty of attaching the aide memoire as it appears to have gone astray but should have come to you. I note this version still has a 'draft' watermark but I assume there were no significant changes as we were not consulted after this version. We were not sent the final version that went to Minister Dean. I was not able to contact the MBIE person but have left her a voicemail message advising her our Minister's office hadn't received it and so I was sending it to our Minister's office directly)

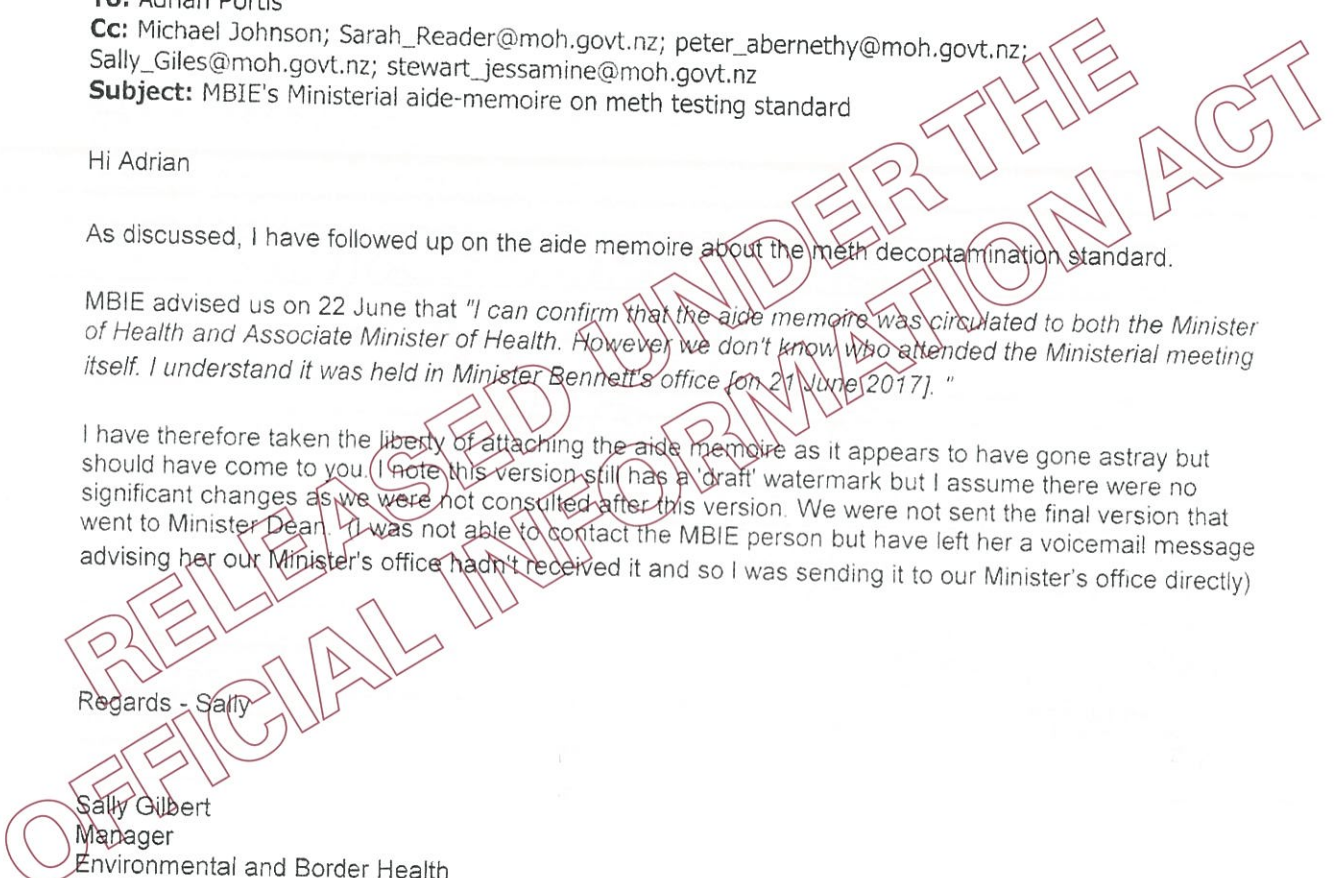
Regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 4345  
Mobile:

<http://www.health.govt.nz>

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Statement of confidentiality: This e-mail message and any accompanying attachments may contain information that is IN-CONFIDENCE and subject to legal privilege.







Sent by: Stewart Jessamine/MOH  
23/11/2016 02:40 p.m.

To: Adrian Portis/MOH@MOH, "Michael Johnson" <Michael.Johnson@parliament.govt.nz>  
cc:  
bcc:

Subject: MBIE briefing on Methamphetamine standard

Paul Prendergast Stewart and Sally - below is the advi... 23/11/2016 09:34:31 a.m.

From: Paul Prendergast/MOH  
To: Stewart Jessamine/MOH@MOH, Sally Gilbert/MOH@MOH,  
Date: 23/11/2016 09:34 a.m.  
Subject: NZ Standard for the Remediation of Methamphetamine contaminated Properties

Adrian and Michael

MBIE have prepared a briefing for the Minister's of Consumer Affairs, Housing and Building to up-date those Ministers with progress on developing the new Standard. I have asked that this briefing also be forwarded to Ministers Coleman and Dunne. This briefing is due to go to the Minister of Consumer Affairs at mid-day to-day and be forwarded straight onto other Ministers

On 26 October the Ministry released an ESR toxicological review of the existing Ministry of Health Guidelines for Methamphetamine (link to press release below):  
<http://www.health.govt.nz/news-media/media-releases/recommendations-methamphetamine-contamination-clean>

The recommended guideline levels for methamphetamine identified in the report are:

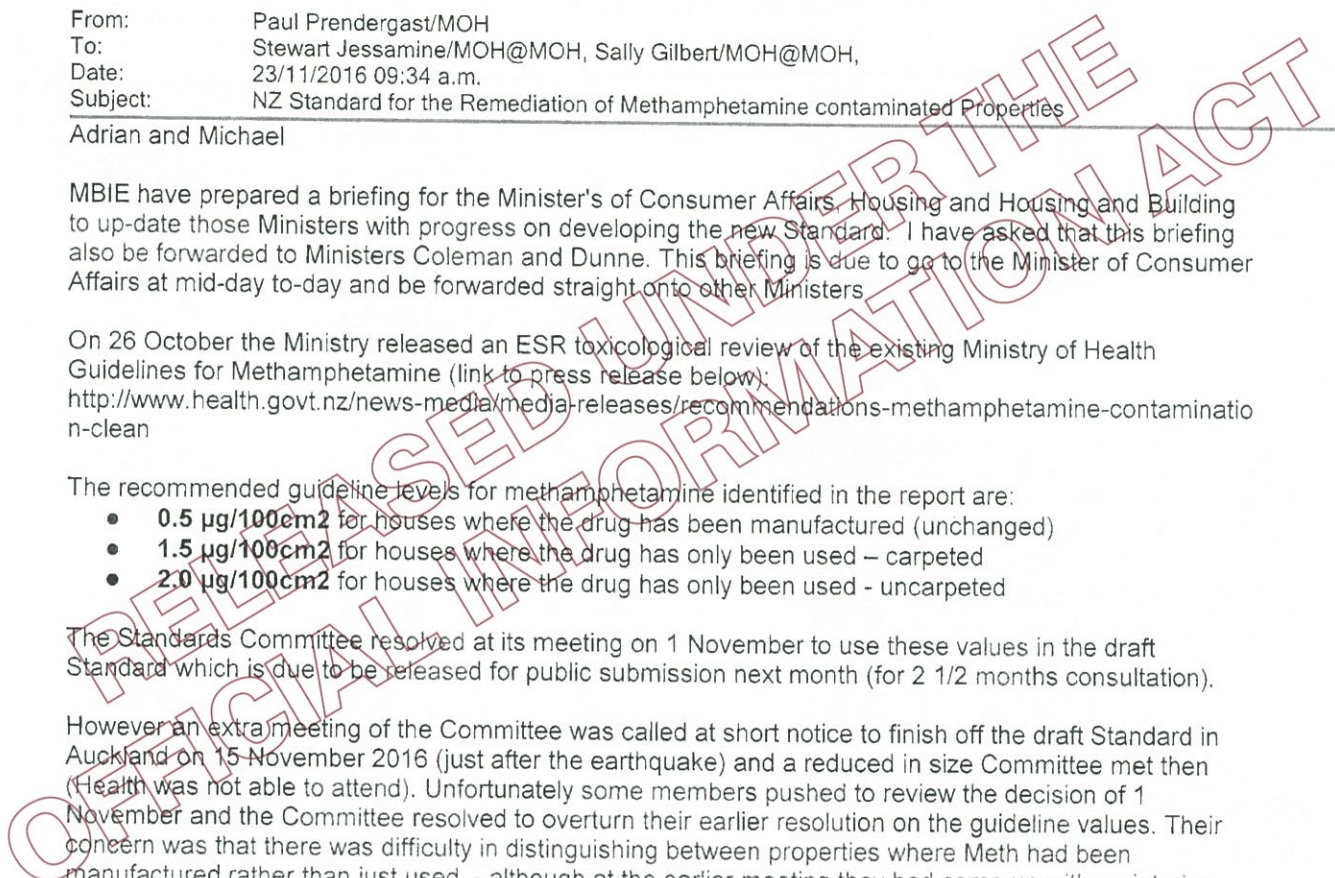
- **0.5 µg/100cm<sup>2</sup>** for houses where the drug has been manufactured (unchanged)
- **1.5 µg/100cm<sup>2</sup>** for houses where the drug has only been used – carpeted
- **2.0 µg/100cm<sup>2</sup>** for houses where the drug has only been used - uncarpeted

The Standards Committee resolved at its meeting on 1 November to use these values in the draft Standard which is due to be released for public submission next month (for 2 1/2 months consultation).

However an extra meeting of the Committee was called at short notice to finish off the draft Standard in Auckland on 15 November 2016 (just after the earthquake) and a reduced in size Committee met then (Health was not able to attend). Unfortunately some members pushed to review the decision of 1 November and the Committee resolved to overturn their earlier resolution on the guideline values. Their concern was that there was difficulty in distinguishing between properties where Meth had been manufactured rather than just used - although at the earlier meeting they had come up with an interim definition that it would be assumed meth was not manufactured (98% of the situation) at the property unless there were obvious signs such as equipment, Police bust etc. The Committee then resolved to recommend a new guideline level of 1.5 µg/100cm<sup>2</sup> for all situations and that carpet must be removed. This is contrary to the scientific advice in the ESR report and changes the recommended safe reference exposure dose.

This raises two issues:

- 1 - increased risk where manufacture of meth has been taking place, - however this would be rare as ESR Forensics advises that 98% of meth positive tests will be for properties where meth was only used
- 2 - unnecessary levels of cleaning of houses that are uncarpeted or have contaminated carpet removed, at a level of 1.5 µg/100cm<sup>2</sup> when the ESR report indicates this would be accepted as safe at levels of up to 2.0 µg/100cm<sup>2</sup>



A single level of 1.5 µg/100cm<sup>2</sup> and insisting carpets are lifted, is what we recommend for use where the carpet is allowed to remain in the house.

This will result in higher remediation costs than necessary for the recommended safe exposure limits.

Ministry of Health and Housing NZ Corporation raised strong objections when advised of this by Standards NZ and stated they could not support the draft Standard with those amended values.

Yesterday Ministry of Health officials took part in a telephone conference with Local Government New Zealand (LGNZ), the Chair of the Standards Committee and the committee members from Auckland City and Lower Hutt in an attempt to find a solution so that the draft Standard could go out for consultation and not be delayed further. It was decided, in order to proceed to consultation, that a dual option for guideline values will be included: the Ministry recommended values and the alternative majority committee recommended values. Submitters will be asked to comment on the options. It is to be made clear that any change to the Ministry recommended values is to be evidence and science based.

The above is fully covered in the briefing you are about to receive from MBIE. The Ministry's recommended guideline values remain the authoritative recommendation at this time.

Regards

Stewart

Stewart Jessamine  
Director of Protection, Regulation and Assurance  
Acting Director of Public Health  
Ministry of Health  
DDI: 04 816 4366

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## BRIEFING

### Progress report on development of standard for methamphetamine testing and remediation in residential properties

<b>Date:</b>	23 November 2016	<b>Priority:</b>	Medium
<b>Security classification:</b>	In Confidence	<b>Tracking number:</b>	0641 16-17

Action sought		
	Action sought	Deadline
Hon Paul Goldsmith Minister for Commerce and Consumer Affairs	Agree to forward a copy of this briefing to the Minister responsible for Housing New Zealand Corporation, the Minister for Social Housing, the Minister of Health, the Minister for Building and Housing, and the Associate Minister of Health	25 November 2016

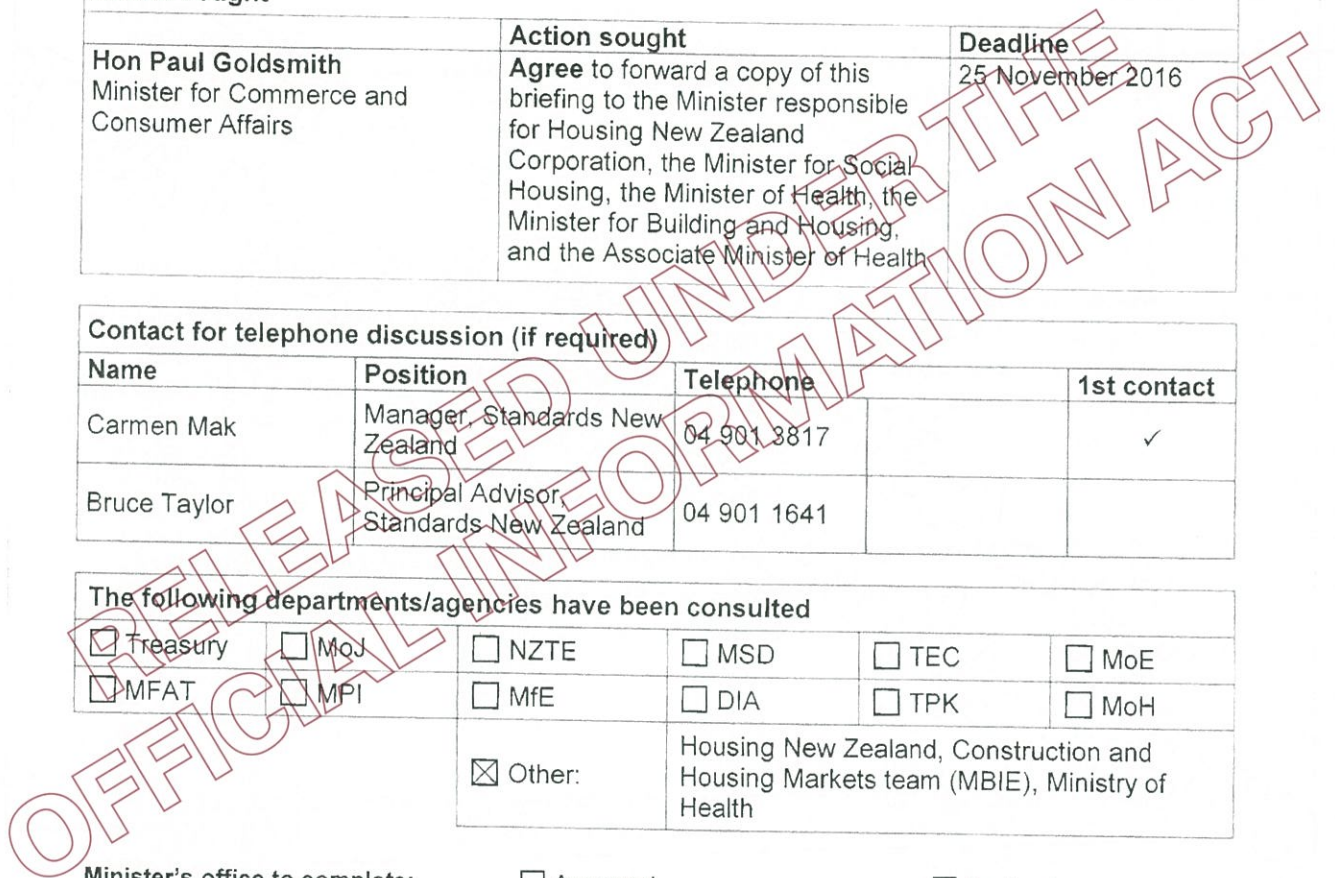
Contact for telephone discussion (if required)			
Name	Position	Telephone	1st contact
Carmen Mak	Manager, Standards New Zealand	04 901 3817	✓
Bruce Taylor	Principal Advisor, Standards New Zealand	04 901 1641	

The following departments/agencies have been consulted					
<input checked="" type="checkbox"/> Treasury	<input type="checkbox"/> MoJ	<input type="checkbox"/> NZTE	<input type="checkbox"/> MSD	<input type="checkbox"/> TEC	<input type="checkbox"/> MoE
<input checked="" type="checkbox"/> MFAT	<input type="checkbox"/> MPI	<input type="checkbox"/> MfE	<input type="checkbox"/> DIA	<input type="checkbox"/> TPK	<input type="checkbox"/> MoH
<input checked="" type="checkbox"/> Other:		Housing New Zealand, Construction and Housing Markets team (MBIE), Ministry of Health			

Minister's office to complete:

- |   |  |
|---|--|
| <input type="checkbox"/> Approved             | <input type="checkbox"/> Declined            |
| <input type="checkbox"/> Noted                | <input type="checkbox"/> Needs change        |
| <input type="checkbox"/> Seen                 | <input type="checkbox"/> Overtaken by Events |
| <input type="checkbox"/> See Minister's Notes | <input type="checkbox"/> Withdrawn           |

Comments:



# BRIEFING

## Progress report on development of standard for testing and remediation of methamphetamine contamination in residential properties (NZS 8510)

Date:	23 November 2016	Priority:	Medium
Security classification:	In Confidence	Tracking number:	0641 16-17

### Purpose

To update you on progress of the standards development committee's work on the development of a standard for the testing and remediation of methamphetamine contamination in residential properties, and to recommend that you forward this update to other key Ministers.

### Recommended action

The Ministry of Business, Innovation and Employment recommends that you:

- a) **Agree** to forward this briefing to the Minister responsible for Housing New Zealand Corporation Hon Bill English, the Minister for Social Housing Hon Paula Bennett, the Minister of Health Hon Jonathan Coleman, the Minister for Building and Housing Hon Dr Nick Smith, and the Associate Minister of Health Hon Peter Dunne, given their interest in the standard.

*Agree / Disagree*

- b) **Note** that there is ongoing discussion amongst members of the standards development committee on the appropriate approach to take in the draft standard in relation to how many clean-up (decontamination) levels to include, which has an impact on timeframes for releasing the draft for public consultation.

*Noted*

- c) **Note** the release of the draft standard has been delayed by two weeks from our original timeframes, and is now expected to be released for public consultation for two and a half months in early December 2016.

*Noted*



Carmen Mak  
**Manager, Standards New Zealand**  
Consumer Protection and Standards, MBIE

..... / ..... / .....

Hon Paul Goldsmith  
**Minister for Commerce and Consumer  
Affairs**

..... / ..... / .....

## **Background to the standard**

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1. Standards New Zealand is currently managing the development of a standard on the testing and remediation of properties used for the manufacture or use of methamphetamine.
2. The standard is being developed by a standards development committee representing a balance of relevant stakeholder interests. The committee is required by the Standards and Accreditation Act 2015 and by international rules to develop the standard using a consensus process. Under the Act, 'consensus' is defined as unanimity, or general agreement characterised by the absence of sustained opposition on any substantial issue.
3. The standard is aimed at addressing a need for guidance on methodologies, procedures, and other supporting material that will ensure a consistent and effective approach to managing the testing and remediation of affected properties and contents including:
  - guidance on testing properties and contents for contamination
  - methods of assessing risks to health, safety, and the environment from meth-related chemicals and contaminated material
  - best practice procedures for decontamination and remediation of properties and contents to acceptable levels
  - methods of disposal of materials that cannot be decontaminated
  - information that supports auditing processes, which provide assurance that testing, risk assessment, decontamination and remediation of properties, and disposal of contaminated materials have been effective, and comply with legislative requirements.

## **Progress of the standards development committee**

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4. The release of the draft standard for public consultation was originally due for release in late November. The release has now been deferred to early December. This delay has resulted because the standards development committee has had to have further discussions and do further work on the approach to be taken in the draft standard, particularly for the clean-up (decontamination) levels.
5. A critical outstanding item of discussion by the committee is the appropriate approach to be taken in the draft standard on clean-up levels. The last committee meeting held on 14-15

November made a decision to include a single level of decontamination in the draft. The Ministry of Health (MoH) and New Zealand Housing (NZH) have subsequently raised a concern with the decision taken.

6. MoH has now discussed their concern further with some committee members, including Local Government New Zealand (the chair of the committee) and members from local councils. The agreed approach at this stage is to release the draft standard for consultation, with two different approaches being consulted on. The two approaches are:
  - The draft to include three levels of decontamination, as proposed by the toxicology report commissioned by the MoH. It will be made clear in the draft that scientific evidence is required for MoH to change their views.
  - The draft to include a single level of decontamination, as discussed further in the briefing below.
7. The deferral of the release date for public consultation is required to address this concern and provide the committee with sufficient time to ensure that they are able to arrive by consensus on a draft standard that is robust and enables effective feedback from the public.
8. The key points of discussion and decision at the last two committee meetings are provided in the section below.

*Key points discussed at committee meeting on 1 November*

9. The standards development committee has met every month since July 2016, with its last two meetings held on 1 November, and on 14 – 15 November.
10. At the meeting on 1 November, the committee received a presentation from Dr Jeff Fowles, the lead author of a report commissioned by the Ministry of Health. The report was a review of the Ministry's 2010 guideline values for cleaning up former clandestine methamphetamine laboratories and was provided by Environmental Science and Research Ltd (ESR), a Crown research institute. Dr Fowles is Staff Toxicologist at the Environmental Health Investigation Branch, California Department of Public Health.
11. The report's recommendations cover properties used for manufacturing methamphetamine (clandestine laboratories), and provide additional advice on clean-up levels in properties where methamphetamine has been used, but not manufactured.
12. The report recommends the following three levels of decontamination:
  - Where a property has been used as a clandestine laboratory, the existing maximum residue level of 0.5 µg/100cm<sup>2</sup> in the Ministry of Health's 2010 guidelines is retained. The ESR report recommends no change to this guideline level.
  - For non-clandestine labs (for example, where methamphetamine has not been manufactured but may have been smoked), which are not currently covered by the



Ministry of Health's 2010 guidelines, either of the following maximum residue levels are recommended:

- 2.0 µg/100 cm<sup>2</sup> for properties without carpet
- 1.5 µg/100 cm<sup>2</sup> for properties with carpet.

13. The committee acknowledged the ESR advice and at that stage agreed to support the recommended three levels for decontamination as an interim measure while the standard was being developed.

*Key points discussed at committee meeting on 14-15 November*

14. The committee met in Auckland on 14 – 15 November to review the current draft standard on a clause-by-clause basis to prepare it for release for public comment. Not all members of the committee were able to attend.
15. At the meeting, the committee discussed at length the decontamination levels that should be included in the draft standard, with particular reference to the ESR recommendations to the Ministry of Health.
16. The committee's discussion indicated that the implications of applying three levels of clean-up has created some uncertainty, particularly among some local authorities, decontamination operators and their clients, and testers.
17. Key concerns expressed by the committee about the three-level approach are:
- identifying whether a property has been used as a lab (in the absence of clear evidence), and therefore which of the three clean-up levels should apply
  - whether carpets and other soft furnishings should remain in a contaminated property, given the difficulty of measuring and assessing contamination levels in carpets and soft furnishings, and the difficulty of cleaning them. The chemicals are absorbed not just by the carpet, but also the underlay. Contaminated carpet is also a hazard to crawling babies.
18. The committee agreed that a practical solution would be for the standard to focus on the clean-up of methamphetamine contamination, irrespective of the source of that contamination (whether a lab or use), and apply just a single level of methamphetamine residue that should not be exceeded.
19. The committee indicated two main reasons in support for a single-level approach:
- It is not possible to determine the source of contamination (lab or use) based solely on the level of contamination present on surfaces. A property may have been used as a lab, but all equipment, chemicals and other evidence of manufacture may have been removed, making it difficult for local authorities to justify requiring clean-up to 0.5 µg/100 cm<sup>2</sup>.
  - Having two levels of decontamination for non-lab situations, depending on whether carpet is removed, adds further uncertainty. The committee considers that, because it is difficult to remove methamphetamine contamination from carpets and other soft

furnishings, these materials should be removed from properties that have contamination levels of 1.5 µg/100 cm<sup>2</sup> or greater as a precautionary measure.

20. The committee agreed at the meeting that the draft standard that is released for public comment will recommend a single level of 1.5 µg/100 cm<sup>2</sup> methamphetamine residue (irrespective of source) that should not be exceeded. This recognises the need to identify and reduce risks of exposure to methamphetamine, improve testing procedures, and help guide and provide certainty in the decontamination of properties. Previous Ministry of Health guidelines had recommended a level of 1.5 µg/100 cm<sup>2</sup>.
21. The committee considered that a single level of 1.5 µg/100 cm<sup>2</sup> (rather than including the three levels above) takes into account the ESR risk assessment recommendations, and is the level currently applied in California and Colorado.
22. Since the methods of manufacturing and processing of methamphetamine varies, the committee considered that if a property is identified as a meth lab, then the single clean-up level of 1.5 µg/100 cm<sup>2</sup> for methamphetamine residue should apply, and any contamination by other hazardous chemicals should be assessed and dealt with depending on the chemicals and methods of manufacture used.
23. The committee is also considering a separate level for 'limited exposure areas', such as uninhabited roof spaces and crawl spaces, where likely exposure to any methamphetamine contamination is low, but which may become reservoirs of recontamination. A clean-up level of 4 µg/100 cm<sup>2</sup> is being recommended for such spaces, based on the approach taken under Colorado Regulations.

#### *Risks identified by MoH and HNZ*

24. MoH and HNZC have identified a reputational and perception risk should the committee arrive at a decision with regard to the draft standard that departs from the ESR report which has formed the basis of interim guidelines for MoH. This risk relates to potential questioning of the decision arrived at by the committee and risks for MoH and HNZ who have faced significant scrutiny on the application of the MoH Guidelines.

#### **Next steps**

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25. Standards New Zealand will continue to work with the chair and members of the committee to arrive at a draft standard which the committee is comfortable with and can be released for public comment.
26. The draft standard will then be released for two and a half months for public comment. We are intending to extend the public comment period from two months to two and a half months to take into account the Christmas break and to ensure that submitters will have sufficient opportunity to comment.
27. When the draft standard is released for public comment, it will highlight matters that the committee wants feedback on. This will include the decontamination levels and how they should be applied.



28. The committee will then review the received public comments and decide on any changes needed before the final standard is considered by the Standards Approval Board for approval. The time frame required for the committee to review the public comments is dependent on the number of comments received and the complexity of the issues raised.
29. The committee is aiming to have the standard ready for publication in April 2017.

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Sent by: Sally Gilbert/MOH  
21/02/2018 01:09 p.m.

To: Anne Bardsley <  
cc:  
bcc:

Subject: Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Excellent, thanks Anne

You will see I have emailed Chris with a little bit of background, and copied you in so you have each other's email addresses.

Regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 1245  
Mobile: :

<http://www.health.govt.nz>

Anne Bardsley    Hi Sally Thanks for getting back to me...    21/02/2018 12:42:38 p.m.

From: Anne Bardsley <a  
To: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>,  
Date: 21/02/2018 12:42 p.m.  
Subject: Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Sally

Thanks for getting back to me, and for the information about the (lack of) notifications.

I have read the ESR report you sent, and in fact have some questions that Chris Nokes can probably answer. If you can put me in touch with him that would be great.

Many thanks  
Anne

Anne Bardsley, PhD  
Research Analyst

**From:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
**Date:** Wednesday, 21 February 2018 at 12:36 PM  
**To:** Anne Bardsley <>  
**Cc:** "Richard\_Taylor@MOH.govt.nz" <Richard\_Taylor@MOH.govt.nz>  
**Subject:** Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure



risks in residential properties

Hi Anne

Sorry for the delay replying!

Yes, I can help you with the report:

We have not received any notifications of poisoning arising from chemical contamination of the environment under the Health Act 1956 nor of hazardous substances injuries under the HSNO Act because of exposures to methamphetamine contaminated dwellings. We are aware of media reports of people complaining of headaches and other ill effects but we have no reports of whether those people sought medical attention and, if so, what the diagnosis was.

Unfortunately I already have meetings tomorrow afternoon and almost all of Friday morning but it may actually be best for you to talk to Dr Chris Nokes at ESR. Chris provided the scientific advice used by the Standards Committee in developing the Standard, and reviewed the proposed approach after the Committee completed its consultation. Chris worked with Dr Jeff Fowles, a US-based toxicologist experienced in public health toxicological risk assessments to prepare ESR's advice.

Would you like me to join you up with Chris?

Kind regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 4345  
Mobile: 1

<http://www.health.govt.nz>

From: Anne Bardsley <>  
To: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>,  
Cc: "Richard\_Taylor@MOH.govt.nz" <Richard\_Taylor@MOH.govt.nz>  
Date: 21/02/2018 12:08 p.m.  
Subject: Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

---

Hi Sally

I'm just following up on Richard's message from Monday, which indicated that you are the best person to speak with at the Ministry of Health regarding methamphetamine contamination in residential properties.

I will be in Wellington tomorrow and Friday and would welcome the opportunity to speak with you. Do you have any time available tomorrow afternoon or Friday morning?

I am also looking for access to the following report, which was prepared by ESR for the Ministry:

Cressey P, Horn B. 2016. *New Zealand Exposure Factors Handbook: Recommended Values*. Report to the Ministry of Health, Client Report No. FW16002 Christchurch: Institute of Environmental Science and Research.

Many thanks,  
Anne

Anne Bardsley, PhD  
Research Analyst

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**From:** Anne Bardsley <anne.bardsley@mo.govt.nz>  
**Date:** Monday, 19 February 2018 at 1:47 PM  
**To:** "Richard\_Taylor@MOH.govt.nz" <Richard\_Taylor@MOH.govt.nz>, "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
**Subject:** Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Many thanks Richard.

Sally, do you any time to meet briefly on Thursday or Friday this week when I am in Wellington? I have some time on Thursday afternoon until ~4:30 and Friday morning.

Cheers  
Anne

Anne Bardsley, PhD  
Research Analyst

---

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**From:** "Richard\_Taylor@MOH.govt.nz" <Richard\_Taylor@MOH.govt.nz>  
**Date:** Monday, 19 February 2018 at 1:14 PM  
**To:** Anne Bardsley <anne.bardsley@mo.govt.nz>  
**Cc:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
**Subject:** Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Anne

Thanks for your email. Yes, my team looks after AOD treatment services, which includes methamphetamine. However there is work going on across the Ministry on various AOD-related issues, and the environmental health team's Manager Sally Gilbert (cc'ed) is the person you're after regarding the report by Cressey and Horn and probably meth and houses.

Sally is that correct?

Kind regards,



Richard Taylor | Manager | Addictions  
System Outcomes  
Service Commissioning | Ministry of Health  
p: 64 4 816 3437 | m: ( Richard\_Taylor@moh.govt.nz



From: Anne Bardsley <[anne.bardsley@moh.govt.nz](mailto:anne.bardsley@moh.govt.nz)>  
To: "richard\_taylor@moh.govt.nz" <[richard\\_taylor@moh.govt.nz](mailto:richard_taylor@moh.govt.nz)>  
Date: 19/02/2018 12:03 p.m.  
Subject: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

---

Dear Richard,

I have been given your name and contact by Arati Waldegrave as a contact at MoH for issues relating to methamphetamine – is this correct?

I am working on a report on behalf of the Prime Minister's Chief Science Advisor, Sir Peter Gluckman, on exposures and risk associated with living in properties that have been used for methamphetamine production and/or smoking. The report was requested by the Minister of Housing (Phil Twyford).

I'm hoping you can help me with a few queries.

The first is a request for a report produced in 2016 for MoH by ESR, that is referenced in the 2016 ESR report 'Review of Remediation Standards for Clandestine Methamphetamine Laboratories: Risk Assessment recommendations for a New Zealand Standard'

The paper refers to New Zealand-specific exposure parameters for methamphetamine.  
The reference is:

Cressey P, Horn B. 2016. *New Zealand Exposure Factors Handbook: Recommended Values*. Report to the Ministry of Health, Client Report No. FW16002 Christchurch: Institute of Environmental Science and Research.

We are also interested in any data that the Ministry has on adverse health effects (illnesses, hospitalisations, deaths) relating to *residing* in a house in which methamphetamine has been smoked. Is there anything in National Minimum Dataset? I believe that Dr Philippa Howden-Chapman (University of Otago, Wellington) did some work on this a few years ago and did not find any data on effects of secondary/tertiary exposure.

I will be in Wellington on Thursday and Friday this week and welcome the opportunity to discuss these points and the Ministry's perspective on the recent changes to the remediation standards for methamphetamine-impacted houses.





**From:** "Arati Waldegrave [DPMC]" <Arati.Waldegrave@dpmc.govt.nz>  
**Date:** Friday, 26 January 2018 at 4:16 PM  
**To:** Anne Bardsley <  
**Cc:** "Grace Gilfillan [DPMC]" <Grace.Gilfillan@dpmc.govt.nz>  
**Subject:** RE: PMCSA report on methamphetamine exposure risks in residential properties

[UNCLASSIFIED]

Hi Anne

I am so sorry to only just get back to you. Grace will be able to find a time when you're next in Wellington or for us to talk over the phone ☺

Cheers

A

**From:** Anne Bardsley [mailto:  
**Sent:** Friday, 26 January 2018 8:44 a.m.  
**To:** Arati Waldegrave [DPMC] <Arati.Waldegrave@dpmc.govt.nz>  
**Subject:** PMCSA report on methamphetamine exposure risks in residential properties

Hi Arati

I have started some work on the methamphetamine report. I am in Wellington today and wondered if you are available for a quick chat about it?

I have a meeting at Bowen House finishing at noon and am free after that. Let me know if you have any time.

Many thanks

Anne

Anne Bardsley, PhD  
Research Analyst

**From:** Anne Bardsley <  
**Date:** Thursday, 14 December 2017 at 1:46 PM  
**To:** "Arati Waldegrave [DPMC]" <Arati.Waldegrave@dpmc.govt.nz>  
**Subject:** Possible PMCSA report on methamphetamine exposure risks in residential properties

Hi Arati

Following a discussion between Sir Peter Gluckman and Minister Twyford, I've been asked to prepare a brief proposal for a report on exposure and risk associated with living in properties that have been used for methamphetamine production and/or smoking, and the appropriateness of testing and remediation standards in the New Zealand context.

Peter suggested I contact you to get your insight into the most important questions - I do not know if you are already aware of these discussions?

I have been doing some background information gathering, but have only skimmed most of references at this point. It appears that the Standards published this year (NZS 8510:2017) are based in large part on a review by ESR in Oct 2016 commissioned by the Ministry of Health ([http://www.moh.govt.nz/NoteBook/nbbooks.nsf/0\\_31691254.AC7E94227CC2584612006716AD5516\\_methamphetamine-remediation-report-oct2016.pdf](http://www.moh.govt.nz/NoteBook/nbbooks.nsf/0_31691254.AC7E94227CC2584612006716AD5516_methamphetamine-remediation-report-oct2016.pdf)). However the Standards adopt a single level of 'acceptable' methamphetamine detection ( $1.5 \mu\text{g}/100 \text{ cm}^2$ ) after remediation, whereas the ESR review suggested differences for meth labs vs properties where meth was only smoked.

I am also aware of a brief Regulatory impact statement from MBIE (Nov 2016) on 'Protection of tenants and landlords from the effects of methamphetamine contamination' relating to rights of entry for testing and for tenancy termination, based on the Standard – but which also emphasises differences between property contamination through usage vs manufacture of methamphetamine.

I am trying to get a clear picture of what is needed in a review from our office. Peter has promised Minister Twyford a proposal by the beginning of next week, so I have limited time to get my head around all of the details before putting this together.

If you have any recommendations or insight I would most appreciate a chat about the best way to approach this.

My number is ( ) you have any time today or tomorrow it would be great to hear from you.

Many thanks,  
Anne

Anne Bardsley PhD  
Research Analyst

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Sent by: Sally Gilbert/MOH  
26/02/2018 05:10 p.m.

To: Anne Bardsley  
cc:  
bcc:

Subject: Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Anne

I am out of the office tomorrow and Wednesday. Unfortunately I already have meetings scheduled between 10.15 and noon on Thursday. I can do before 9am (I start at 6.30am so happy to meet for morning coffee?) Otherwise I can meet between 2.30 and 3.30? I could see if our rep on the Stds Committee is available if that would be useful?

Regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 4345  
Mobile:

<http://www.health.govt.nz>

Anne Bardsley Hi Sally I will be back in Wellington... 26/02/2018 03:05:01 p.m.

From: Anne Bardsley <[redacted]>  
To: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
Date: 26/02/2018 03:05 p.m.  
Subject: Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Sally

I will be back in Wellington this week Wednesday and Thursday and am wondering if you by chance have any time to meet?

I would like to have a chat to better understand the Ministry of Health's perspective on the 2016 ESR report (the review of the MoH 2010 guidelines), and on the new remediation standard from a health risk perspective.

I am still waiting to hear from Chris Nokes – and in fact having a little difficulty getting responses from ESR at the moment (though have met with their clan lab team leader, Erina Mayo). We have been asked to speed up our review to coincide with the report-back on the Residential Tenancies Amendment Bill – due 16 April, so we are under a bit of pressure.

It would be great if you (or another appropriate representative from MoH) have time to meet either Wednesday (sometime between 12pm and 2pm, or after 3pm) or Thursday morning between 10:15am and noon.

Regards,  
Anne

**From:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
**Date:** Wednesday, 21 February 2018 at 1:09 PM  
**To:** Anne Bardsley <a.bardsley@auckland.ac.nz>  
**Subject:** Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Excellent, thanks Anne

You will see I have emailed Chris with a little bit of background, and copied you in so you have each other's email addresses.

Regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 4345  
Mobile:

<http://www.health.govt.nz>

**From:** Anne Bardsley <a.bardsley@auckland.ac.nz>  
**To:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
**Date:** 21/02/2018 12:42 p.m.  
**Subject:** Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

---

Hi Sally

Thanks for getting back to me, and for the information about the (lack of) notifications.

I have read the ESR report you sent, and in fact have some questions that Chris Nokes can probably answer. If you can put me in touch with him that would be great.

Many thanks  
Anne

Anne Bardsley, PhD  
Research Analyst

---

**From:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>



Peter suggested I contact you to get your insight into the most important questions - I do not know if you are already aware of these discussions?

I have been doing some background information gathering, but have only skimmed most of references at this point. It appears that the Standards published this year (NZS 8510:2017) are based in large part on a review by ESR in Oct 2016 commissioned by the Ministry of Health ([http://www.moh.govt.nz/NoteBook/nbbooks.nsf/0/3169D54AC7E94227CC25806D006716AD/\\$file/methamphetamine-remediation-report-oct2016.pdf](http://www.moh.govt.nz/NoteBook/nbbooks.nsf/0/3169D54AC7E94227CC25806D006716AD/$file/methamphetamine-remediation-report-oct2016.pdf)). However the Standards adopt a single level of 'acceptable' methamphetamine detection ( $1.5 \mu\text{g}/100 \text{ cm}^3$ ) after remediation, whereas the ESR review suggested differences for meth labs vs properties where meth was only smoked.

I am also aware of a brief Regulatory impact statement from MBIE (Nov 2016) on 'Protection of tenants and landlords from the effects of methamphetamine contamination' relating to rights of entry for testing and for tenancy termination, based on the Standard - but which also emphasises differences between property contamination through usage vs manufacture of methamphetamine.

I am trying to get a clear picture of what is needed in a review from our office. Peter has promised Minister Twyford a proposal by the beginning of next week, so I have limited time to get my head around all of the details before putting this together.

If you have any recommendations or insight I would most appreciate a chat about the best way to approach this.

My number is [redacted]. If you have any time today or tomorrow it would be great to hear from you.

Many thanks.  
Anne

Anne Bardsley, PhD  
Research Analyst

[redacted]  
[redacted]

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Sent by

16/03/2018 04:10 p.m.

To: ' >, >  
cc: Chris Nokes < >, >  
<sally\_gilbert@moh.govt.nz>, F- >  
bcc: >

Subject: FW: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Dear Dr Fowles,

I received your contact email from Dr Chris Nokes at ESR, following discussions we have been having around methamphetamine contamination in houses and health risks to occupants. You have kindly provided answers to some previous questions we had regarding your 2016 report '*Review of Remediation Standards for Clandestine Methamphetamine Laboratories: Risk Assessment recommendations for a New Zealand Standard*'.

My colleague Dr Felicia Low and I have a couple of additional questions we hope you can answer.

Firstly, your report states that the guideline for carpeted houses was based on a calculation of a maximum surface load of  $1.4 \mu\text{g}/100 \text{ cm}^2$ , and in response to our earlier questions, you indicated that the calculations are linearly scalable with surface loadings. Based on this, we would like to confirm whether we can again assume a linear scalability and do a similar extrapolation from the Colorado HBEV - i.e.:

$0.3 \mu\text{g}/\text{kg bw}/\text{d}$  (California ref dose) results from a surface load of  $1.4 \mu\text{g}/100 \text{ cm}^2$

So  $5 \mu\text{g}/\text{kg bw}/\text{d}$  (Colorado) will result from a surface load of  $23 \mu\text{g}/100 \text{ cm}^2$ ?

Also, your report makes a specific recommendation to test for lead and mercury contamination when a clandestine lab is suspected, but according to information we have received from ESR, there is little to no evidence for contamination by these two substances in clan labs in New Zealand. Given the changing nature of methamphetamine manufacture in New Zealand (predominant use of containment vessels – "Parr bombs"), we are wondering about the basis for this recommendation?

I am also interested to know from your experience in the US what the general thinking is around the dangers of 'third-hand' exposure to low-level methamphetamine residues (not chemicals from manufacture). Do you know of any documentation of health effects from the levels of exposure people might encounter from living in houses where it has previously been smoked? Have any instances of reported effects been confirmed as being related to low-level, indirect methamphetamine exposure (aside from those encountered in active or recently active labs)? I am unaware of any such notifications in New Zealand, where there is a particularly heightened perception of the risks around this issue.

Dr Sally Gilbert from the NZ Ministry of Health suggested that it may be useful to speak to you directly about these issues, and I would welcome the opportunity to do so. Please let me know if you are amenable to a phone call (possibly next week?), and if so, the phone number and best time to reach you.

Kind regards,  
Anne

Anne Bardsley, PhD



Research Analyst

Office of the Prime Minister's Chief Science Advisor | 85 Park Road | Grafton | Auckland 1023 | New Zealand  
Phone | | Mobile | | [www.pmcasa.org.nz](http://www.pmcasa.org.nz)

**From:** Chris Nokes <[chris.nokes@pmc.govt.nz](mailto:chris.nokes@pmc.govt.nz)>

**Date:** Thursday, 1 March 2018 at 11:28 AM

**To:** Anne Bardsley <[anne.bardsley@pmc.govt.nz](mailto:anne.bardsley@pmc.govt.nz)>

**Cc:** "sally\_gilbert@moh.govt.nz" <[sally\\_gilbert@moh.govt.nz](mailto:sally_gilbert@moh.govt.nz)>, Felicia Low

<[felicia.low@moh.govt.nz](mailto:felicia.low@moh.govt.nz)>, Kevan Walsh <[kevan.walsh@moh.govt.nz](mailto:kevan.walsh@moh.govt.nz)>

**Subject:** RE: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Anne

I've received Jeff Fowles' answers to your questions and identified them in red.

1. Can you clarify why p 25 reports exposure dose for 1-2 year old, at a surface load of 0.1, is 0.021  $\mu\text{g}/\text{kg bw}/\text{d}$ ; but p 41 reports that the dose is 0.025  $\mu\text{g}/\text{kg bw}/\text{d}$ ?

Section 4.3 (p. 25) does seem to cite total exposure from both hard and soft surfaces despite saying that we had eliminated consideration of carpeting. So that is unclear from the wording of the report. The numbers on page 41 are hard floor only which were the basis for the proposed standard. The calculated standard is unaffected.

2. Can you provide further detail on how the recommendation of 1.5  $\mu\text{g}/100\text{ cm}^2$  for carpeted, non-lab houses was arrived at? Is it simply following the CEHHA guideline, i.e. no specific modelling work with NZ data?

We calculated 1.4  $\mu\text{g}/100\text{ cm}^2$  clean up level for hard+carpeted floor scenario. This value was, in our opinion and as I explained during the Standards NZ meeting, practically indistinguishable from the CEHHA value of 1.5. The two methods used gave essentially the same result, which is encouraging. We did use NZ-specific data in place of some standard defaults used in generic risk assessments. This is shown in Table A2 with the Cressey and Horn 2016 citation.

3. Important: Can we assume that the model used gives relatively linear results for the surface load/exposure dose relationship? That is:
  - a. 0.015  $\mu\text{g}/\text{kg bw}/\text{d}$  dose resulted from surface load of 0.1;
  - b. And the RfD of 0.3 was modelled to result from surface load of 2;
  - c. Can we reasonably extrapolate this, so the Colorado HBEV of 5 will be reached at a surface load of 33?

Yes. The calculations are linearly scaleable with surface loading. Changing the MA surface concentration from 0.1  $\mu\text{g}/100\text{ cm}^2$  to 33  $\mu\text{g}/100\text{ cm}^2$  does result in a calculated young child total intake (hard floor only) of around 5  $\mu\text{g}/\text{kg}\cdot\text{day}$ .

I hope these answers are satisfactory.

I understand from Kevan Walsh that you would like to contact Jeff directly. Because of time differences and Jeff's other commitments, I suggest you contact him by email first to arrange a

convenient time for a call, should it be necessary. His email address is: \_

Regards  
Chris

**From:** Chris Nokes  
**Sent:** Wednesday, 21 February 2018 2:37 p.m.  
**To:** 'Anne Bardsley' <  
**Cc:** sally\_gilbert@moh.govt.nz; iz>  
**Subject:** RE: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Anne

Thanks for your email. I've asked the report's authors for answers to your questions, and will get back you once I hear from them.

Regards  
Chris

---

Chris Nokes PhD  
Senior Lecturer, Risk and Response, Dr. Jane  
Institute of Environmental Science and Risk  
University of Waikato, Hamilton, New Zealand  
Chris.nokes@waikato.ac.nz

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**From:** Anne Bardsley [mailto:  
**Sent:** Wednesday, 21 February 2018 1:24 p.m.  
**To:** Chris Nokes <  
**Cc:** sally\_gilbert@moh.govt.nz; Felicia Low <  
**Subject:** Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Chris,

Further to Sally's message, I am hoping you might be able to answer a few questions that we have regarding the 2016 ESR review by Fowles et al. My colleague, Dr Felicia Low, is helping with the report and has been going over the various models with a fine-toothed comb so that we can fully understand and explain the basis for the decontamination levels in relation to health risks and likely exposures.

We have a few specific questions:

1. Can you clarify why p 25 reports exposure dose for 1-2 year old, at a surface load of 0.1, is 0.021  $\mu\text{g}/\text{kg bw}/\text{d}$ ; but p 41 reports that the dose is 0.015  $\mu\text{g}/\text{kg bw}/\text{d}$ ?



2. Can you provide further detail on how the recommendation of 1.5 µg/100 cm<sup>2</sup> for carpeted, non-lab houses was arrived at? Is it simply following the OEHHA guideline, i.e. no specific modelling work with NZ data?
3. Important: Can we assume that the model used gives relatively linear results for the surface load/exposure dose relationship? That is:
  - a. 0.015 µg/kg bw/d dose resulted from surface load of 0.1;
  - b. And the RfD of 0.3 was modelled to result from surface load of 2;
  - c. Can we reasonably extrapolate this, so the Colorado HBEV of 5 will be reached at a surface load of 33?

Many thanks for your help!

Regards,  
Anne

Anne Bardsley, PhD  
Research Analyst

Office of the Environmental Protection Authority, 4th Floor, 100 The Quadrant, Auckland, New Zealand  
Phone: +64 9 308 4700 Fax: +64 9 308 4701 Email: [enquiries@epa.govt.nz](mailto:enquiries@epa.govt.nz) Website: [www.epa.govt.nz](http://www.epa.govt.nz)

**From:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>

**Date:** Wednesday, 21 February 2018 at 1:08 PM

**To:** \_\_\_\_\_

**Cc:** Anne Bardsley <\_\_\_\_\_@epa.govt.nz>

**Subject:** Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Chris

This email is to introduce you to Anne Bardsley.

Anne is working on a report on behalf of the Prime Minister's Chief Science Advisor, Sir Peter Gluckman, on exposures and risk associated with living in properties that have been used for methamphetamine production and/or smoking. The report was requested by the Minister of Housing (Phil Twyford).

Anne has the 2016 ESR report '*Review of Remediation Standards for Clandestine Methamphetamine Laboratories; Risk Assessment recommendations for a New Zealand Standard*': We have provided a copy of the following report, referenced in ESR's 2016 Review: Cressey P, Horn B. 2016. *New Zealand Exposure Factors Handbook: Recommended Values*. Report to the Ministry of Health, Client Report No. FW16002 Christchurch: Institute of Environmental Science and Research.

Anne has also asked for any data that the Ministry has on adverse health effects (illnesses, hospitalisations, deaths) relating to *residing* in a house in which methamphetamine has been smoked. I advised Anne that we have not received any notifications of poisoning arising from chemical contamination of the environment under the Health Act 1956 nor of hazardous substances injuries under the HSNO Act because of exposures to methamphetamine contaminated dwellings. We are aware of media reports of people complaining of headaches and other ill effects but we have no reports of whether those people sought medical attention and, if so, what the diagnosis was.

I hope this is helpful but will leave you and Anne to discuss further....

Kind regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 4345  
Mobile:

\*\*\*\*\*

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Sent by:

20/03/2018 08:18 a.m.

To: Anne Bardsley <...>  
cc: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>, Felicia Low

bcc:

Subject: RE: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hello Anne

I've attached a copy of a letter to the Ministry of Health on the topic of heavy metals, which may throw further light on the matter. I sent the letter soon after the report was originally prepared, following discussions with our forensic colleagues.

Regards  
Chris

**From:** Anne Bardsley [mailto:...]  
**Sent:** Friday, 16 March 2018 4:10 p.m.  
**To:** j...  
**Cc:** Chris Nokes <...>; sally\_gilbert@moh.govt.nz; Felicia Low

**Subject:** FW: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Dear Dr Fowles,

I received your contact email from Dr Chris Nokes at ESR, following discussions we have been having around methamphetamine contamination in houses and health risks to occupants. You have kindly provided answers to some previous questions we had regarding your 2016 report '*Review of Remediation Standards for Clandestine Methamphetamine Laboratories: Risk Assessment recommendations for a New Zealand Standard*'.

My colleague Dr Felicia Low and I have a couple of additional questions we hope you can answer.

Firstly, your report states that the guideline for carpeted houses was based on a calculation of a maximum surface load of  $1.4 \mu\text{g}/100 \text{ cm}^2$ , and in response to our earlier questions, you indicated that the calculations are linearly scalable with surface loadings. Based on this, we would like to confirm whether we can again assume a linear scalability and do a similar extrapolation from the Colorado HBEV - i.e.:

$0.3 \mu\text{g}/\text{kg bw}/\text{d}$  (California ref dose) results from a surface load of  $1.4 \mu\text{g}/100 \text{ cm}^2$   
So  $5 \mu\text{g}/\text{kg bw}/\text{d}$  (Colorado) will result from a surface load of  $23 \mu\text{g}/100 \text{ cm}^2$ ?

Also, your report makes a specific recommendation to test for lead and mercury contamination when a clandestine lab is suspected, but according to information we have received from ESR, there is little to no evidence for contamination by these two substances in clan labs in New Zealand. Given the changing nature of methamphetamine manufacture in New Zealand (predominant use of containment vessels – "Parr bombs"), we are wondering about the basis for this recommendation?

I am also interested to know from your experience in the US what the general thinking is around the dangers of 'third-hand' exposure to low-level methamphetamine residues (not chemicals from manufacture). Do you know of any documentation of health effects from the levels of exposure people might encounter from living in houses where it has previously been smoked? Have any instances of reported effects been confirmed as being related to low-level, indirect methamphetamine exposure (aside from those encountered in active or recently active labs)? I am unaware of any such notifications in New Zealand, where there is a particularly heightened perception of the risks around this issue.

Dr Sally Gilbert from the NZ Ministry of Health suggested that it may be useful to speak to you directly about these issues, and I would welcome the opportunity to do so. Please let me know if you are amenable to a phone call (possibly next week?), and if so, the phone number and best time to reach you.

Kind regards,  
Anne

Anne Bardsley, PhD  
Research Analyst

**From:** Chris Nokes <chris.nokes@ecdc.europa.eu>

**Date:** Thursday, 1 March 2018 at 11:28 AM

**To:** Anne Bardsley <anne.bardsley@ecdc.europa.eu>

**Cc:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>, Felicia Low <felicia.low@ecdc.europa.eu>, Kevan Walsh <kevan.walsh@ecdc.europa.eu>

**Subject:** RE: Prime minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Anne

I've received Jeff Fowles' answers to your questions and identified them in red.

1. Can you clarify why p 25 reports exposure dose for 1-2 year old, at a surface load of 0.1, is 0.021  $\mu\text{g}/\text{kg bw}/\text{d}$ , but p 41 reports that the dose is 0.015  $\mu\text{g}/\text{kg bw}/\text{d}$ ?

Section 4.2 (p. 25) does seem to cite total exposure from both hard and soft surfaces despite saying that we had eliminated consideration of carpeting. So that is unclear from the wording of the report. The numbers on page 41 are hard floor only which were the basis for the proposed standard. The calculated standard is unaffected.

2. Can you provide further detail on how the recommendation of 1.5  $\mu\text{g}/100 \text{ cm}^2$  for carpeted, non-lab houses was arrived at? Is it simply following the OEHHA guideline, i.e. no specific modelling work with NZ data?

We calculated 1.4  $\mu\text{g}/100 \text{ cm}^2$  clean up level for hard-carpeted floor scenario. This value was, in our opinion and as I explained during the Standards NZ meeting, practically indistinguishable from the OEHHA value of 1.5. The two methods used gave essentially the



same result, which is encouraging. We did use NZ-specific data in place of some standard defaults used in generic risk assessments. This is shown in Table A2 with the Cressey and Horn 2016 citation.

3. Important: Can we assume that the model used gives relatively linear results for the surface load/exposure dose relationship? That is:
  - a. 0.015 µg/kg bw/d dose resulted from surface load of 0.1;
  - b. And the RfD of 0.3 was modelled to result from surface load of 2;
  - c. Can we reasonably extrapolate this, so the Colorado HBEV of 5 will be reached at a surface load of 33?

Yes. The calculations are linearly scaleable with surface loading. Changing the MA surface concentration from 0.1 ug/100 cm<sup>2</sup> to 33 ug/100 cm<sup>2</sup> does result in a calculated young child total intake (hard floor only) of around 5 ug/kg-day.

I hope these answers are satisfactory.

I understand from Kevan Walsh that you would like to contact Jeff directly. Because of time differences and Jeff's other commitments, I suggest you contact him by email first to arrange a convenient time for a call, should it be necessary. His email address is:

Regards  
Chris

**From:** Chris Nokes  
**Sent:** Wednesday, 21 February 2018 2:37 p.m.  
**To:** 'Anne Bardsley' <>  
**Cc:** [sally\\_gilbert@moh.govt.nz](mailto:sally_gilbert@moh.govt.nz); Felicia Low <>  
**Subject:** RE: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Anne

Thanks for your email. I've asked the report's authors for answers to your questions, and will get back you once I hear from them.

Regards  
Chris

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Chris Nokes

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E

≡ / S / R

**From:** Anne Bardsley [mailto:[anne.bardsley@moh.govt.nz](mailto:anne.bardsley@moh.govt.nz)]  
**Sent:** Wednesday, 21 February 2018 1:24 p.m.  
**To:** Chris Nokes <[chris.nokes@moh.govt.nz](mailto:chris.nokes@moh.govt.nz)>  
**Cc:** [sally\\_gilbert@moh.govt.nz](mailto:sally_gilbert@moh.govt.nz); Felicia Low <[felicia.low@moh.govt.nz](mailto:felicia.low@moh.govt.nz)>  
**Subject:** Re: Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Chris,

Further to Sally's message, I am hoping you might be able to answer a few questions that we have regarding the 2016 ESR review by Fowles et al. My colleague, Dr Felicia Low, is helping with the report and has been going over the various models with a fine-toothed comb so that we can fully understand and explain the basis for the decontamination levels in relation to health risks and likely exposures.

We have a few specific questions:

1. Can you clarify why p 25 reports exposure dose for 1-2 year old, at a surface load of 0.1, is 0.021  $\mu\text{g}/\text{kg bw}/\text{d}$ ; but p 41 reports that the dose is 0.015  $\mu\text{g}/\text{kg bw}/\text{d}$ ?
2. Can you provide further detail on how the recommendation of 1.5  $\mu\text{g}/100\text{ cm}^2$  for carpeted, non-lab houses was arrived at? Is it simply following the OEHHA guideline, i.e. no specific modelling work with NZ data?
3. Important: Can we assume that the model used gives relatively linear results for the surface load/exposure dose relationship? That is:
  - a. 0.015  $\mu\text{g}/\text{kg bw}/\text{d}$  dose resulted from surface load of 0.1;
  - b. And the RfD of 0.3 was modelled to result from surface load of 2;
  - c. Can we reasonably extrapolate this, so the Colorado HBEV of 5 will be reached at a surface load of 33?

Many thanks for your help!

Regards,  
Anne

Anne Bardsley, PhD  
Research Analyst

**From:** "[sally\\_gilbert@moh.govt.nz](mailto:sally_gilbert@moh.govt.nz)" <[sally\\_gilbert@moh.govt.nz](mailto:sally_gilbert@moh.govt.nz)>  
**Date:** Wednesday, 21 February 2018 at 1:08 PM  
**To:** ' >  
**Cc:** Anne Bardsley <[anne.bardsley@moh.govt.nz](mailto:anne.bardsley@moh.govt.nz)> <[anne.bardsley@moh.govt.nz](mailto:anne.bardsley@moh.govt.nz)>  
**Subject:** Prime Minister's Chief Science Advisor's report on methamphetamine exposure risks in residential properties

Hi Chris

This email is to introduce you to Anne Bardsely.



Anne is working on a report on behalf of the Prime Minister's Chief Science Advisor, Sir Peter Gluckman, on exposures and risk associated with living in properties that have been used for methamphetamine production and/or smoking. The report was requested by the Minister of Housing (Phil Twyford).

Anne has the 2016 ESR report '*Review of Remediation Standards for Clandestine Methamphetamine Laboratories: Risk Assessment recommendations for a New Zealand Standard*': We have provided a copy of the following report, referenced in ESR's 2016 Review: Cressey P, Horn B. 2016. *New Zealand Exposure Factors Handbook: Recommended Values*. Report to the Ministry of Health, Client Report No. FW16002 Christchurch: Institute of Environmental Science and Research.

Anne has also asked for any data that the Ministry has on adverse health effects (illnesses, hospitalisations, deaths) relating to *residing* in a house in which methamphetamine has been smoked. I advised Anne that we have not received any notifications of poisoning arising from chemical contamination of the environment under the Health Act 1956 nor of hazardous substances injuries under the HSNO Act because of exposures to methamphetamine contaminated dwellings. We are aware of media reports of people complaining of headaches and other ill effects but we have no reports of whether those people sought medical attention and, if so, what the diagnosis was.

I hope this is helpful but will leave you and Anne to discuss further....

Kind regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 4345  
Mobile:

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Sent by:

11/04/2018 06:10 p.m.

To: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>,  
 cc: "Katherine.Slaney2@mbie.govt.nz" <Katherine.Slaney2@mbie.govt.nz>,  
 "Arati Waldegrave [DPMC]" <Arati.Waldegrave@dpmc.govt.nz>, Claire  
 Leadbetter <Claire.Leadbetter@mbie.govt.nz>,  
 bcc:

Subject: Re: PMCSA methamphetamine report

Hi Sally,

Thanks for sending the comments from Jeff Fowles.

Can I assume that he has commented on the earlier version of the report sent to Katherine last Friday? Some changes have already been made, but I will go through the report again with an eye to his comments and see what further changes may be needed.

All of Jeff's points are well founded from a toxicologist's viewpoint, and I am not surprised by any of them. But I do not think we are taking a *lack of evidence as equating to evidence of absence*. It is of course not possible to prove a negative.

As you are aware, there a large number of factors to take into account when considering a risk-based approach. It was not the intention of this report to rewrite the standards for testing or remediation, but to consider the overall risks and whether the current approach was commensurate with them. The 15 µg/100 cm<sup>2</sup> cut-off test suggested as being useful for initial screening should not be taken as a suggestion for a new 'standard'.

There is of course much work to do to determine the best way forward in terms of testing and targeted remediation, and comments to this effect are being added to the latest version. ESR's work to identify factors that distinguish clan labs from use sites is critical to this, although from what I understand (and is conveyed in the report), there is little difference to the risks if the most commonly used methods are 'clean' and the methamphetamine levels are low.

Thanks again, and regards,  
 Anne

**From:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>

**Date:** Wednesday, 11 April 2018 at 4:45 PM

**To:** Anne Bardsley ·

**Cc:** "Katherine.Slaney2@mbie.govt.nz" <Katherine.Slaney2@mbie.govt.nz>, "Arati Waldegrave [DPMC]" <Arati.Waldegrave@dpmc.govt.nz>, Claire Leadbetter <Claire.Leadbetter@mbie.govt.nz>, "Sarah\_Reader@moh.govt.nz" <Sarah\_Reader@moh.govt.nz>, "stewart\_jessamine@moh.govt.nz" <stewart\_jessamine@moh.govt.nz>, "Caroline\_McElnay@moh.govt.nz" <Caroline\_McElnay@moh.govt.nz>

**Subject:** Re: PMCSA methamphetamine report



Dear Anne

Many thanks for the opportunity to provide comment on the methamphetamine report. In my view, the findings provide useful context and reassurance that the current clean up levels in NZS 8510:2017 protect public health, including the most vulnerable people (pregnant women, foetuses, and infants). However, the report argues that the clean up levels are overly precautionary and may create unwarranted public concern and incur unnecessary decontamination costs. If the report is finalised in its current form, it may require a review of the NZS 8510:2017

I have sought advice from ESR (Chris Nokes and Jeff Fowles) and from Matt Allen, our representative on the Standards Committee. In the interest of time, I have attached Jeff's comments on the report. I consider that Jeff has provided a very considered assessment of the report, despite the tight timeframe for responding. As you know, Jeff is a very experienced toxicologist and I hope you find his comments helpful.

In addition, Chris Nokes has advised that Erina Mayo, ESR forensic scientist on the Standards New Zealand Committee, is happy with the content in relation to the discussions she has had with you and the references made to the Clan Lab's work.

Matt has advised that *"I find it hard to disagree with pretty much anything in the report. However the issue of the 1.5 level not being ideally universally applied was of course something [the Standards Committee] discussed with the ideal of having a split for houses with just smoking versus suspected clan labs BUT... what objective criteria can be set to determine what category a house falls into.... I can't comment on the composite sample issues- I deferred to the ESR rep on the standards committee on that issue."*

I would add that the advice we received was that trying to determine what was a lab and what was a property where meth had been used is highly problematic and risked home owners and residents defaulting to the clan lab standards as a precautionary measure. This is also why levels were provided for non-habitable spaces - to prevent people applying the 1.5 to every space in the house, even attics and basements...

I hope this is helpful. If you wish to discuss Jeff's comments further with him, please feel free to contact Chris to arrange further discussions (if you have lost their contact details I am happy to re-send them).

Kind regards - Sally

Sally Gilbert  
Manager  
Environmental and Border Health  
Public Health  
Protection Regulation and Assurance  
Ministry of Health  
DDI: 04 816 4345  
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From: Anne Bardsley  
To: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
Date: 10/04/2018 02:20 p.m.  
Subject: PMCSA methamphetamine report

Hi Sally

I understand that Katherine Slaney forwarded a draft of our report to you on Friday(?) and that you would be sending it on to others (I'm not sure who).

We would greatly appreciate your input if you have any comments. I have made some changes since Friday and a newer version is attached (though this is obviously still a draft). If you and/or your team have already started commenting on the previous version, that is fine.

Many thanks!

Anne

Anne Burdzy, PhD

Research Analyst

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 PM office report comments jf[1].docx

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J. Fowles, Ph.D.  
Tox-Logic Consulting  
Santa Rosa, CA

09 April, 2018

**Comments on draft report entitled: Methamphetamine contamination in residential properties: Exposures, risk, levels, and interpretation of standards, by Professor Sir Peter Gluckman**

Comments:

- 1) This draft report makes the assertion, in several places, that no evidence exists for the toxicity of MA at the low doses that result from the residue levels contained in the proposed MA standard. While this is true on face value, it is also misleading. A common misconception in public health or in toxicological risk assessment, is that *'Lack of evidence equates to evidence of absence'*. The MA standard is derived to protect infants and toddlers' developing nervous systems from potential low dose effects of MA. Since there have been no studies on post-natally exposed infants and toddlers with low doses of MA, it stands to reason that there would be no (direct) evidence, since any effect would be subtle, likely non-specific, and behavioural in nature. Thus, the only possible data source for "evidence" would arise from clinical case reports or notifications of injury as a result of chemical contamination of the environment. However, since we are not talking about acute life-threatening poisonings, or overt effects like seizures, it is highly unlikely that a parent would think to associate a toddler's restless sleep patterns, nervousness, or behavioural change with exposure to a residual contamination of the walls of their home, much less notify a doctor or local health authorities about it.

This use of standard conservative default assumptions in the face of uncertainty is not unusual in toxicological risk assessment. The exception to the rule lies in the case of a vast and robust data base that exists from which to derive precise risk based values, such as in the case of blood lead or mercury levels, having decades of studies and thousands of human subjects followed longitudinally. Methamphetamine residue exposures have nothing even remotely approaching such a data base. Therapeutic histories of MA use in adults and older children do not provide a comfortable basis to assume that very young infants would not be more susceptible to neurological effects.

- 2) The report appears to take no position on the qualitatively different starting points of departure used by the states of California and Colorado for their respective toxicological risk assessment (human vs rat), and concludes that they are equally valid since the same margin of safety (300) is applied in both instances. However, as discussed in the ESR 2016 report and confirmed by peer review, the rat is not recommended as a suitable experimental basis for quantitative risk assessment, due to the clearly greater sensitivity of humans to MA.

*“Foremost among these is the large species-dependent disparity in sensitivity to the drug, with laboratory animals (particularly rats and mice) generally being much less sensitive to MA than humans. For example, in characterizing the cognitive effects of postnatal exposure to MA in mice, Acevedo et al. (2007) utilized a daily dose of 5 mg/kg. In an adult human, this would be equivalent to a total dose of 300-350 mg, which would be potentially life-threatening. In addition, the pharmacokinetics of MA in laboratory animals and humans differ substantially. As Cho et al. (2001) point out, the elimination half-life of MA is 70 minutes in rats and 12 hours in humans. Thus, these data alone support the use of the 10X safety factor to account for the extrapolation of toxicity data from the results of studies conducted in animals for use in the application to humans..” (ESR, 2016).*

Dr David Morgott, an experienced toxicologist and risk assessor echoed these concerns in his peer-review comments of the ESR report:

*“In my opinion, the only technically supportable value that should be used in the exposure analysis is the value of 0.3 µg/kg-day proposed by OEHHA. This value should be used to the exclusion of all others because it is based on the results obtained in a repeated-dose study with humans. A comparison of the blood half-life values for methamphetamine in rats and humans produced  $t_{1/2}$  values of 70 min and 12 hrs, respectively.<sup>1</sup> This is a very large difference and indicates a potential for day-to-day accumulation in humans, but not in rats. Since it takes 5-6 half-lives for a substance to be eliminated from the body to an appreciable extent, daily administration to humans will result in an increased body burden on each successive day of the exposure regimen. In contrast, elimination from rats will only require about 7 hrs, which is a short enough time interval to prevent day-to-day accumulation from occurring. As such, the body burdens achieved in rats are not representative of those that will be found in humans following repeated administration, and any RfD that is based on the results from a study rats should be abandoned in favor of those based on human data.”*

The current report later tabulates the various rodent studies. However, the sheer number of rat studies does not outweigh the fact that the rat is known to be less sensitive to MA than humans, nor the fact that no studies account for the complete lack of data on human infants and toddlers.

3) It is not a correct statement in Table 2 that the NZ standard is the only non-risk based assessment. The ESR 2016 report is a human health risk assessment, using deterministic values as applied in a standard risk assessment context.

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<sup>1</sup> Cho, A.K., Melega, W.P., Kuczenski, R., and Segal, D.S. (2001). Relevance of pharmacokinetic parameters in animal models of methamphetamine abuse. Synapse 39, 161-166.



- 4) On page 12, the alternative calculation presented uses the Colorado rat-based reference value, which we do not support for reasons explained above.
- 5) The second paragraph on page 14 once again states that there is no evidence for an adverse effect from residues on surfaces, when in fact there have been no studies to examine this assertion one way or another. The third paragraph uses the lack of MoH notifications of poisoning to bolster the argument that there are no adverse effects from MA residues. For reasons explained above, this is an unlikely source of accurate data on subtle, behavioural health effects.
- 6) Therapeutic doses of many drugs also carry risks of side effects. Thus, the statement on page 15, paragraph 2, that MA could not be toxic at low doses because it has been approved as a medicine, is not accurate. All pharmaceuticals undergo risk/benefit assessments. There is no benefit to involuntary environmental exposures to MA.
- 7) The statement on page 16 that “..the effects of low-level exposure... are likely to be transient – so generally the consequences are also low”, requires revision. The 2016 assessment assumed daily exposures, not a single exposure. Also, as mentioned in the Cho et al (2001) paper, the half-life of methamphetamine in humans means that daily exposures have the potential to accumulate. Also, *in utero* MA exposures are reported to have associated long-term neurodevelopmental consequences later in life (Smith et al., 2015<sup>1</sup>; Chakraborty et al., 2015)<sup>2</sup>. The kinds of effects that these studies identify include such endpoints as “Global Motion Perception”. These are not the sorts of effects that could be easily identified by a typical parent or even a clinician. Again, we do not know if the low dose exposures in post-natally exposed infants or toddlers may be significant in terms of neurodevelopment, or not. There simply are not studies that inform the answer to that question.
- 8) I tend to agree with the concern over composite sampling, but this should be the subject of a considered statistical assessment.
- 9) The conclusions reiterate and intensify the terms “conservative” to “very conservative”, and “very large” safety margins. These margins are, in fact, completely in line with many US EPA and other international standards. The magnitude of the margins reflect the data gaps that exist and that are acknowledged.
- 10) The mention of the value of 15 ug/100 cm<sup>2</sup> as an alternative level which would not cause health effects, comes subjectively and without any calculated quantitative justification, and thus seems arbitrary.
- 11) The proposed alternative standard of 15 ug/100 cm<sup>2</sup> would place NZ as the highest acceptable MA residue exposures globally. Perhaps this would still be protective, but in any event such a value is not supported by conventional risk assessment parameters, and thus to adopt such a standard would necessitate support for undertaking epidemiological and/or biomonitoring studies for MA exposures and effects in young children reoccupying such houses.

<sup>1</sup>Smith L, Diaz S, LaGasse L, Wouldes T, Derauf C, Newman E, Arria A, Huestis M, Haning W, Strauss A,

Della Grotta S, Dansereau L, Neal C, Lester B. 2015. Developmental and behavioral consequences of prenatal methamphetamine exposure: A review of the Infant Development, Environment, and Lifestyle (IDEAL) study. *Neurotoxicology and Teratology* 15, 35-44.

<sup>2</sup>Chakraborty A, Anstice N, Jacobs R, LaGasse L, Lester B, Wouldes T, and Thompson B. 2015. Prenatal exposure to recreational drugs affects global motion perception in preschool children. *Scientific Reports* 5:16921

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Sent by:  
a.bardsley

13/04/2018 02:17 p.m.

To: "jfowles  
cc: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>, Chris Nokes  
Felicia Low  
Peter  
Gluckman  
bcc:

Subject: Re: PMCSA methamphetamine report

Dear Dr Fowles,

Thank you for your very helpful comments on our draft report on methamphetamine contamination. It has helped highlight to us areas that could benefit from further explanation or clarification.

We appreciate your and Dr Morgott's viewpoint on the relative merits of the California and the Colorado risk assessments. We do not suggest that a new standard should be developed based on the Colorado health-based reference value. Instead, we have aimed to show how reframing the question of safety ('*At what level of surface contamination might adverse health effects become plausible in the most sensitive individuals?* ') could lead to different threshold levels being determined. California's approach is, of course, more precautionary, but part of our brief is to consider what level of caution would be commensurate with the overall risks posed by third-hand exposure, particularly in light of additional data from ESR.

We do note in the report that rodents metabolise methamphetamine much more quickly than humans. At the same time, we've also borne in mind that Colorado did incorporate a 10x safety factor to account for human-animal differences, and that multiple animal studies can give a range of BMDL10s, unlike a single, small, human study that reports on a biological (not adverse) effect. We are aware that children appear to have lower sensitivity than adults to methamphetamine; this makes it unlikely that young infants would be *more* sensitive than adults, but this is conservatively assumed in all assessments. We also appreciate that daily accumulation in humans is theoretically possible, but it is unclear whether this translates specifically to the low levels involved in third-hand exposures.

Again, with respect to third-hand exposure levels, the data on the consequences of prenatal exposure are not straightforward to interpret as they involve much higher doses. Indeed, one of the papers you referred us to (the IDEAL study, involving NZ children - Chakraborty et al, 2015) concludes that prenatal exposure does not affect visual cortex function, an area of the brain thought to be particularly sensitive to abnormal neurodevelopment. Those children had prenatal meth exposure verified by meconium testing, and were assessed for global perception functions at 4.5 years of age. A separate assessment of the IDEAL study cohort observed subtle effects on fine-motor performance at 1 year (mostly in heavily exposed individuals) that mostly resolved by 3 years of age (see Smith LM, et al. *Motor and cognitive outcomes through three years of age in children exposed to prenatal methamphetamine* . *Neurotoxicology and Teratology*. 2011;33(1):176-84).

We will clarify the wording as relates to your points 3 and 6, and will reinsert discussion (inadvertently omitted from previous drafts) noting that *absence of evidence of an effect* does not equate to *evidence of absence of an effect* . We also wish to emphasise that 15 µg/100 cm<sup>2</sup> is not a proposed alternative standard, and will endeavour to make this clearer. This level is discussed for its



potential utility in initial screening assessments, and is based on the availability of rapid tests with this level of sensitivity that could identify the specific areas where further testing and cleanup may be needed. We are comfortable with the statement that the risks from third-hand methamphetamine exposure below this level are very low, and enforcing a lower level of detection and remediation across the board is not warranted given what we know about patterns of methamphetamine manufacture and use in New Zealand.

Once again, thank you for your input. In view of your time and effort, **please let us know if you are happy to be listed as one of the peer reviewers for our report?**

Kind regards,

Anne Bardsley and Felicia Low, on behalf of Sir Peter Gluckman

---

**From:** "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>

**Date:** Wednesday, 11 April 2018 at 4:45 PM

**To:** Anne Bardsley

**Cc:** "Katherine.Slaney2@mbie.govt.nz" <katherine.Slaney2@mbie.govt.nz>, "Arati Waldegrave [DPMC]" <Arati.Waldegrave@dpmc.govt.nz>, Claire Leadbetter <Claire.Leadbetter@mbie.govt.nz>, "Sarah\_Reader@moh.govt.nz" <Sarah\_Reader@moh.govt.nz>, "stewart\_jessamine@moh.govt.nz" <stewart\_jessamine@moh.govt.nz>, "Caroline\_McElnay@moh.govt.nz" <Caroline\_McElnay@moh.govt.nz>

**Subject:** Re: PMCSA methamphetamine report

Dear Anne

Many thanks for the opportunity to provide comment on the methamphetamine report. In my view, the findings provide useful context and reassurance that the current clean up levels in NZS 8510:2017 protect public health, including the most vulnerable people (pregnant women, foetuses, and infants). However, the report argues that the clean up levels are overly precautionary and may create unwarranted public concern and incur unnecessary decontamination costs. If the report is finalised in its current form, it may require a review of the NZS 8510:2017

I have sought advice from ESR (Chris Nokes and Jeff Fowles) and from Matt Allen, our representative on the Standards Committee. In the interest of time, I have attached Jeff's comments on the report. I consider that Jeff has provided a very considered assessment of the report, despite the tight timeframe for responding. As you know, Jeff is a very experienced toxicologist and I hope you find his comments helpful.

In addition, Chris Nokes has advised that Erina Mayo, ESR forensic scientist on the Standards New Zealand Committee, is happy with the content in relation to the discussions she has had with you and the references made to the Clan Lab's work.

Matt has advised that *"I find it hard to disagree with pretty much anything in the report. However the issue of the 1.5 level not being ideally universally applied was of course something [the Standards Committee] discussed with the ideal of having a split for houses with just smoking versus suspected clan labs BUT... what objective criteria can be set to determine what category a house falls into.... I can't comment on the composite sample issues- I deferred to the ESR rep on the standards committee on that issue."*



I would add that the advice we received was that trying to determine what was a lab and what was a property where meth had been used is highly problematic and risked home owners and residents defaulting to the clan lab standards as a precautionary measure. This is also why levels were provided for non-habitable spaces - to prevent people applying the 1.5 to every space in the house, even attics and basements...

I hope this is helpful. If you wish to discuss Jeff's comments further with him, please feel free to contact Chris to arrange further discussions (if you have lost their contact details I am happy to re-send them).

Kind regards - Sally

Sally Gilbert  
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From: Anne Bardsley  
To: "sally\_gilbert@moh.govt.nz" <sally\_gilbert@moh.govt.nz>  
Date: 10/04/2018 02:20 p.m.  
Subject: PMCSA methamphetamine report

Hi Sally

I understand that Katherine Slaney forwarded a draft of our report to you on Friday(?) and that you would be sending it on to others (I'm not sure who).

We would greatly appreciate your input if you have any comments. I have made some changes since Friday and a newer version is attached (though this is obviously still a draft). If you and/or your team have already started commenting on the previous version, that is fine.

Many thanks!  
Anne

Anne Bardsley, PhD  
Research Analyst

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