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# Housing New Zealand Corporation

## Comprehensive Methamphetamine

### Assessment

6<sup>th</sup> August 2015



s 9(2)(a)



Auckland

s 9(2)(a)

– Key Technical Personnel

#### Sample Team and Authors

s 9(2)(a)



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**TABLE OF CONTENTS**

**1 SUMMARY ..... 1**

**2 DISCLAIMER..... 3**

**3 RECOMMENDATIONS..... 3**

**3.1 Reduce Surface Concentrations of Methamphetamine ..... 3**

**3.2 Decontamination..... 3**

**3.3 Decontamination Detail..... 4**

**3.4 Other Actions ..... 5**

**3.5 Roof and Underfloor Space ..... 5**

**3.6 Remove Contaminated Materials..... 5**

**3.7 Post-Remediation Sampling..... 5**

**4 SITE MAP ..... 6**

**5 RESULTS..... 8**

**5.1 Methamphetamine surface swabs ..... 8**

        5.1.1 Methamphetamine Surface Swabs Summary..... 9

**5.2 Individual Volatile Organic Compounds..... 9**

        5.2.1 Individual VOCs Summary ..... 9

**5.3 Trace Metal Swabs ..... 10**

        5.3.1 Trace Metal Swab Summary..... 10

**5.4 Surface pH Screen..... 11**

        5.4.1 Surface pH Screen Summary..... 11

**5.5 Site photos ..... 12**

        5.5.1 Upstairs Interior ..... 12

        5.5.2 Downstairs Interior..... 14

        5.5.3 Exterior..... 17

**6 SITE INFORMATION..... 17**

**6.1 Conditions of the Interior of the Dwelling ..... 17**

**6.2 Conditions of the Exterior and Grounds ..... 17**

**6.3 Glossary of Terms ..... 18**

**APPENDIX A. LAB REPORT ..... 19**

**A.1. Hills Lab Report ..... 20**

OFFICIAL INFORMATION ACT 1982

**INDEX OF TABLES AND FIGURES**

Figure 1 Site Map Detailing Ground Floor Sampling Locations ..... 6  
Figure 2 Site Map Detailing Top Floor Sampling Locations ..... 7  
  
Table 1: Results summary ..... 1  
**Table 2: Decontamination standards applied by Housing NZ Corporation** ..... 4  
Table 3: Guide to results..... 8  
Table 4: Methamphetamine swab results..... 8  
Table 5: Individual VOC concentrations ..... 9  
Table 6: Guide to results..... 10  
Table 7: Trace Metals Swab Result ..... 10  
Table 8: Guide to pH results..... 11  
Table 9: Surface pH results ..... 11

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## 1 SUMMARY

On the 6th of August 2015, a comprehensive site investigation for methamphetamine was undertaken at s 9(2)(a) Auckland. This was carried out after an initial investigation showed Methamphetamine was present in this dwelling.

Table 1: Results summary

Contaminant	Max. Limits	Location	Sampling Results	Discussion
			$\mu\text{g}/100\text{cm}^2$	
Methamphetamine	0.5 $\mu\text{g}/100\text{cm}^2$	Laundry Ceiling	0.58	Above acceptable levels
		Upstairs Kitchen/ Lounge Ceiling	0.78	
		Upstairs Bedroom 1 Ceiling	0.20	Precautionary remediation recommended
		Upstairs Bedroom 3 Ceiling	0.16	
		Upstairs Bathroom Ceiling	0.31	
		Downstairs Bedroom 4 Ceiling	0.20	
		Downstairs Bedroom 6 Ceiling	0.16	
		Laundry Wall	0.48	
		Downstairs Bathroom Ceiling	<0.02	Below limit – precautionary decontamination recommended
		Downstairs Bathroom Wall	0.06	
		Upstairs Bedroom 2 Ceiling	<0.02	
		Downstairs Bedroom 5 Ceiling	<0.02	
Lead	2.0	Laundry Floor Beside Stairs	16.6	Above Ministry of Health recommended guidelines
		Downstairs Bedroom 6	3.6	
		Downstairs Bathroom Floor	1.68	Action level
		Laundry Floor under Cupboard	1.2	
		Upstairs Kitchen Bench	0.17	Below limits
Mercury	35.0	All metal swab locations	<0.05	Results below detection limits No risk expected



Contaminant	Normal range	Location	Sampling Results	Discussion
Surface pH levels	pH 6-8	Kitchen Sink	5 pH	Too Low Mildly acidic surfaces Not considered normal for a domestic dwelling
		Upstairs Bathroom Bath	5 pH	
		Upstairs Bedroom 2 Windowsill	5 pH	
		Downstairs Bedroom 6 Windowsill	5 pH	
		Downstairs Bedroom 4	5 pH	
		Downstairs Laundry Sink	5 pH	
		Downstairs Bathroom Bath	5 pH	
		Downstairs Laundry Cupboard	6 pH	All within a normal range for a domestic dwelling Unlikely to be a health risk
		Downstairs Bedroom 5 Windowsill	6 pH	
		Upstairs Bedroom 1 Windowsill	6 pH	
		Upstairs Bedroom 3 Windowsill	6 pH	
		Lounge Windowsill	6 pH	
		Downstairs Bathroom Stainless Steel Tub	6 pH	
		Downstairs Bathroom Bath	7pH	
<b>Individual VOCs mg/m<sup>3</sup></b>				
Toluene	0.3	Bedroom 4	0.6	Above Acceptable level
		Kitchen	0.2	Action Level
Methanol	4.0	Kitchen	0.4	Below chronic exposure limits
		Upstairs Bathroom	0.8	
		Laundry	2.9	
		Bedroom 4	0.8	
Ethanol	n/a	Kitchen	1.4	
		Bedroom 4	3.2	
1-Methoxy-2-Propanol	7.0	Bedroom 4	0.4	

## 2 DISCLAIMER

Limited sampling was performed. Variations in surface contamination are possible. The results only present a snapshot of surface conditions.

While a high result may indicate there is a hazard that needs to be managed, a low result or a non-detect does not necessarily mean a complete absence of a hazard

## 3 RECOMMENDATIONS

### 3.1 Reduce Surface Concentrations of Methamphetamine

Remediation is recommended to lower surface concentrations of methamphetamine to as low as possible, the maximum level to be no higher than 0.5µg/100cm<sup>2</sup>.

The NZ Ministry of Health, '2010 Guidelines for the Remediation of Clandestine Methamphetamine Laboratory Sites' should be referred to for decontamination protocols.

### 3.2 Decontamination

It is recommended that the following areas where contamination was above the limit are decontaminated following the above guidelines:

- Upstairs kitchen/lounge
- Laundry

Precautionary cleaning is recommended in the following locations:

- Bedroom 1
- Bedroom 3
- Bedroom 4
- Bedroom 6
- Upstairs Bathroom

Decontamination should be carried out by professional experienced in clandestine drug decontamination.

### 3.3 Decontamination Detail

The following table details the recommended remediation plan for the areas that were sampled.

Table 2: Decontamination standards applied by Housing NZ Corporation

>0.03 µg/100cm <sup>2</sup>	0.03 – 0.49 µg/100cm <sup>2</sup>	0.5 - 4.0 µg/100 cm <sup>2</sup>	> 4µg /100 cm <sup>2</sup>
No actions required	For properties with tests in a 0.03ug to 0.49ug range (i.e. below the 'safe' threshold), it is at the discretion of HNZN for any precautionary remediation.	Triple wash of non-porous surfaces.  Remove, discard and reinstate porous materials	Full strip out and reinstatement  Mandatory for all locations with 4.0 µg/100cm <sup>2</sup> and above.

Area	Sample Location	Result	Action
Laundry	Ceiling	0.58µg/100cm <sup>2</sup>	<ul style="list-style-type: none"> <li>• Triple wash vinyl floor</li> <li>• Triple wash the painted walls and ceiling</li> <li>• Dispose of absorptive materials</li> </ul>
	Wall	0.48µg/100cm <sup>2</sup>	
Upstairs Kitchen/Lounge	Ceiling	0.78µg/100cm <sup>2</sup>	<ul style="list-style-type: none"> <li>• Dispose of carpet, curtains and other absorptive material</li> <li>• Flooring beneath should be vacuumed ideally with H13 rated vacuum cleaner.</li> <li>• Triple wash the painted walls and ceiling</li> <li>• Wash Vinyl floor</li> </ul>
Upstairs Bedroom 1	Ceiling	0.20µg/100cm <sup>2</sup>	<ul style="list-style-type: none"> <li>• Precautionary cleaning is recommended</li> </ul>
Upstairs Bedroom 3	Ceiling	0.16µg/100cm <sup>2</sup>	<ul style="list-style-type: none"> <li>• Precautionary cleaning is recommended</li> </ul>
Upstairs Bathroom	Ceiling	0.31µg/100cm <sup>2</sup>	<ul style="list-style-type: none"> <li>• Precautionary cleaning is recommended</li> </ul>
Downstairs Bedroom 4	Ceiling	0.20µg/100cm <sup>2</sup>	<ul style="list-style-type: none"> <li>• Precautionary cleaning is recommended</li> </ul>
Downstairs Bedroom 6	Ceiling	0.16µg/100cm <sup>2</sup>	<ul style="list-style-type: none"> <li>• Dispose of carpet, curtains and other absorptive material</li> <li>• Flooring beneath should be vacuumed ideally with H13 rated vacuum cleaner.</li> <li>• Triple wash painted walls and ceiling</li> </ul>

### 3.4 Other Actions

- Possessions outside the downstairs entry under the carport should be disposed of as absorptive material is expected to be positive.
- All areas of property need to be cleared
- Ceiling space see below.

### 3.5 Roof and Underfloor Space

The assessment team were unable to find the access to:-

- The roof space

If there is insulation material in the ceiling it would be prudent to replace. Any material under the house should be cleared out.

### 3.6 Remove Contaminated Materials

A precautionary approach to remediation is recommended by the MoH, as it is unlikely that all contaminants will be identified.

Some materials are best to be removed and disposed of. These are outlined in the NZ MoH Guidelines, and include:

- Materials that are:
  - Visibly stained
  - Emitting odours
  - Damaged
  - Thought to have been used in the manufacture process
- Porous materials such as:
  - Carpets
  - Thermal backed curtains
  - Soft furnishings like couches and mattresses
  - Wall paper
- Any materials that could come into contact with young children or babies.

### 3.7 Post-Remediation Sampling

Post-remediation sampling should be undertaken to ensure residual concentrations of methamphetamine and amphetamine are below the MoH guidelines for acceptable levels and that all surfaces have close to neutral pH levels (pH levels between 6 and 8).



#### 4 SITE MAP

The following is a map indicating where samples were collected from.

Note: This map is not to scale and is to be used as an indication only.



Figure 1 Site Map Detailing Ground Floor Sampling Locations

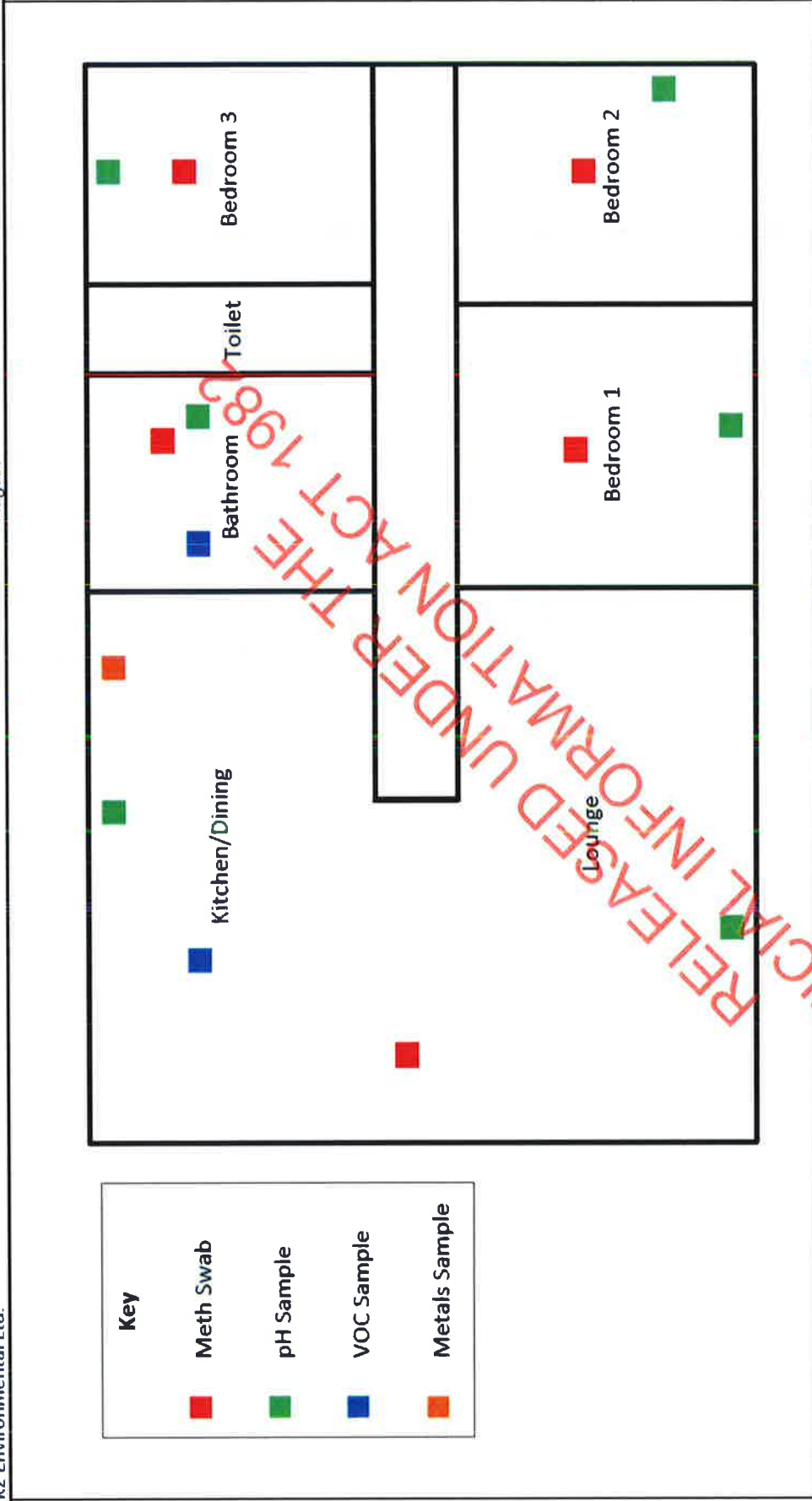


Figure 2 Site Map Detailing Top Floor Sampling Locations

## 5 RESULTS

### 5.1 Methamphetamine surface swabs

The following table details the results of Hills Laboratories Meth Test Kit surface swabs. These swabs were analysed by LC-MSMS, using a modified version of NIOSH 9111: Methamphetamine on wipes by LC/MS.

Table 3: Guide to results

>0.03 µg/100cm <sup>2</sup>	0.03 – 0.49 µg/100cm <sup>2</sup>	0.5 - 4.0 µg/100 cm <sup>2</sup>	> 4µg /100 cm <sup>2</sup>
No actions required	<b>Precautionary remediation recommended</b>	Triple wash of non-porous surfaces  Remove, discard and reinstate porous materials	Full strip out and reinstatement  Mandatory for all locations with 4.0 µg/100cm <sup>2</sup> and above.

Table 4: Methamphetamine swab results

Sample number	Location	Description	Results µg/100cm <sup>2</sup>
Q095-1	Downstairs Bathroom	Ceiling	<0.02
Q095-2	Downstairs Bathroom	Wall	<b>0.06</b>
Q095-3	Laundry	Ceiling	<b>0.58</b>
Q095-4	Laundry	Wall	<b>0.48</b>
Q126-10	Kitchen/Lounge	Ceiling	<b>0.78</b>
Q126-11	Upstairs Bedroom 1	Ceiling	<b>0.20</b>
Q126-12	Upstairs Bedroom 2	Ceiling	<0.02
Q126-13	Upstairs Bedroom 3	Ceiling	<b>0.16</b>
Q126-14	Upstairs Bathroom	Ceiling	<b>0.31</b>
Q126-15	Downstairs Bedroom 4	Ceiling	<b>0.20</b>
Q126-16	Downstairs Bedroom 5	Ceiling	<0.02
Q126-17	Downstairs Bedroom 6	Ceiling	<b>0.16</b>

### 5.1.1 Methamphetamine Surface Swabs Summary

Two out of twelve of the above swabs had Methamphetamine levels that were above the NZ Ministry of Health (MoH) recommended guidelines of  $0.5\mu\text{g}/100\text{cm}^2$ .

- Remediation to lower these levels is recommended.
- Precautionary cleaning is recommended in:
  - Bedroom 1
  - Bedroom 3
  - Bedroom 4
  - Bedroom 6
  - Upstairs Bathroom
  - Downstairs bathroom

Precautionary cleaning is recommended in all rooms where methamphetamine has been detected.

### 5.2 Individual Volatile Organic Compounds

The following results were obtained using charcoal VOC tubes. These were analysed using Gas chromatography–mass spectrometry.

Table 5: Individual VOC concentrations

Compound	Concentration (mg/m <sup>3</sup> )				Chronic exposure limits (mg/m <sup>3</sup> )
	Kitchen	Upstairs Bathroom	Laundry	Bedroom 4	
Methanol	0.37	0.8	2.9	0.8	4.3 <sup>1</sup>
Ethanol	1.4	ND	ND	3.2	-
Toluene	0.2	ND	ND	0.6	0.3 <sup>2</sup>
1-Methoxy-2-Propanol	ND	ND	ND	0.4	7.0 <sup>2</sup>

ND = Not detected, compound was below detection limit.

#### 5.2.1 Individual VOCs Summary

- Levels of toluene exceeded the MoH guidelines in Bedroom 4 and is above 25% of the limit in the kitchen.
- All other compounds were below chronic exposure guidelines.
- The above compounds are all used as solvents.

<sup>1</sup> Californian EPA Chronic Exposure Standard (24 hour exposure)



### 5.3 Trace Metal Swabs

The following table details the results of Hills Laboratories Meth Test Kit surface swabs. These swabs were analysed by LC-MSMS, using a modified version of NIOSH 9111: Methamphetamine on wipes by LC/MS.

Table 6: Guide to results

Max Concentrations mg/m <sup>3</sup>			
Lead		Mercury	
2.0		35.0	
Results below detection limits No risk expected	Below 25% of the Recommended guideline levels, Unlikely to be a health risk	<b>Action level</b> When a substance is present at levels above 25% of its maximum allowable level, it is recommended to take action to reduce the levels present	Above recommended guidelines Potential health risk Remediation recommended

Table 7: Trace Metals Swab Result

Location	Concentration µg/100cm <sup>2</sup>	
	Lead	Mercury
Downstairs Bedroom 6	3.6	<0.05
Laundry Floor Besides Stairs	16.6	<0.05
Laundry Floor under Cupboard	1.2	<0.05
Downstairs Bathroom Floor	1.68	<0.05
Upstairs Kitchen Bench	0.17	<0.05

#### 5.3.1 Trace Metal Swab Summary

- Mercury results for all tested rooms were below detection limit and are unlikely to be a risk.
- Lead results in all tested rooms were above 25% of the MoH guidelines.
  - The vinyl flooring of the laundry by the staircase was more than 8 times the limit,
  - The vinyl flooring of Bedroom 6 was nearly double the limit
  - The laundry was full of chemicals when the initial survey was conducted which could explain the high laundry results. It is unknown whether these were left behind by the tenants or were due to renovations happening on the property.

**5.4 Surface pH Screen**

The following table details the results of surface pH testing.

**Table 8: Guide to pH results**

Less than 6	6-8	Greater than 8
Too Low Acidic surface Corrosive substances may have been used Not considered normal for a domestic dwelling	MoH NZ guidelines Normal range for indoor surfaces	Too High Basic surface <sup>3</sup> Corrosive substances may have been used Not considered normal for a domestic dwelling

**Table 9: Surface pH results**

Location	Description	pH Reading
Kitchen	Sink	5
Lounge	Windowsill	6
Bedroom 1	Windowsill	6
Bedroom 2	Windowsill	5
Bedroom 3	Windowsill	6
Upstairs Bathroom	Bath	5
Bedroom 4	Windowsill	5
Bedroom 5	Windowsill	6
Bedroom 6	Windowsill	5
Laundry	Sink	5
	Cupboard	6
Downstairs Bathroom	Bath	5
	Sink	7
	Stainless Steel Tub	6

**5.4.1 Surface pH Screen Summary**

- Half of the tested surfaces tested below the neutral pH range, with a pH of 5.
- Corrosive products could have been used on these surfaces.
- The remaining surfaces in this dwelling are within a normal pH range for a domestic dwelling.

**5.5 Site photos**

**5.5.1 Upstairs Interior**

	
<p><b>Q095 Lounge</b></p>	<p><b>Q126 Lounge</b></p> <ul style="list-style-type: none"> <li>• Renovations were mostly finished in the lounge since the initial survey.</li> </ul>
	
<p><b>Q126 Lounge</b></p> <ul style="list-style-type: none"> <li>• Majority of the windows in the house were open on the second visit.</li> </ul>	<p><b>Q095 Kitchen</b></p>





**Q126 Kitchen VOC Sample**

- Kitchen had been cleaned since the initial survey.



**Q095 Bathroom**

- Bathroom had extensive mould on the ceiling on both visits.





**Q126 Toilet**




**Q126 Bedroom 1**

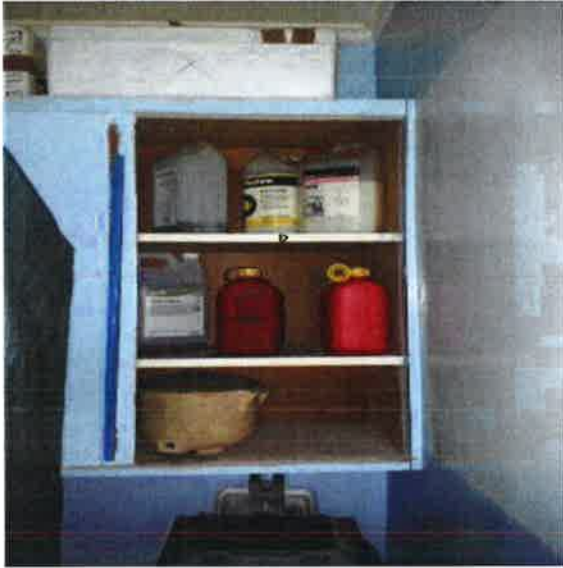
- Extensive staining on the carpets.
- Windows open.



	
<p><b>Q126 Bedroom 2</b></p> <ul style="list-style-type: none"><li>• Extensive staining on the carpets.</li><li>• Windows open.</li></ul>	<p><b>Q126 Bedroom 3</b></p> <ul style="list-style-type: none"><li>• Extensive staining on the carpets.</li><li>• Windows open.</li></ul>

**5.5.2 Downstairs Interior**

	
<p><b>Q095 Laundry</b></p>	<p><b>Q095 Laundry</b></p> <ul style="list-style-type: none"><li>• Robond Emulsion tank found in the laundry.</li><li>• Large amounts of paint, floor cleaner and odd material stored in here.</li></ul>



**Q095 Laundry Cupboard**

- A mixture of chemicals found in the laundry.
- Only some of them are household chemicals



**Q126 Laundry, Back door side**

- Laundry empty on second visit



**Q126 Laundry, staircase side**



**Q126 Bedroom 4 carport side**

- Two broken windows in this room
- Carpet stained the worst in this room



**Q126 Bedroom 4 wardrobe side**



**Q126 Bedroom 4 Broken Windows**



**Q126 Bedroom 5**

- Staining on the carpet
- Windows open
- Walls newly painted



**Q126 Bedroom 6**

- Flooring here is vinyl, not carpet.
- Staining on floor suggests room was used for storage



### 5.5.3 Exterior

	
<p style="text-align: center;"><b>Exterior</b></p> <ul style="list-style-type: none"> <li>• Exterior of property relatively tidy.</li> </ul>	<p style="text-align: center;"><b>Exterior</b></p> <ul style="list-style-type: none"> <li>• Strange black residue on soffit outside kitchen window</li> </ul>

## 6 SITE INFORMATION

### 6.1 Conditions of the Interior of the Dwelling

- All carpets in the bedrooms had extensive staining on them.
- The living room and bedrooms 5 and 6 all looked as though their walls had been recently painted.
- The majority of windows were open throughout the house.
- All possessions that were present in the house in the initial site investigation had been removed by the time comprehensive investigation was completed.
- There was obvious staining on the vinyl in the laundry and in bedroom 6 were large items had been stored.

### 6.2 Conditions of the Exterior and Grounds

- Lawns overgrown in some places.
- Pile of possessions under the carport.
- Strange black residue on soffit outside the kitchen window.



### 6.3 Glossary of Terms

The following terms are used in this report:

<p><b>Exposure Standard</b></p>	<p>An exposure standard represents an airborne concentration of a particular substance in the workers breathing zone, exposure to which, according to current knowledge, should not cause adverse health effects nor cause undue discomfort to nearly all workers.</p> <p>Compliance with the designated value does not, however, guarantee protection from discomfort or possible ill-health outcomes for all workers. The range of individual susceptibility is wide and it is possible that workers will experience discomfort or develop occupational illness from exposure to substances at levels below the exposure standards.</p>
<p><b>Action Level</b></p>	<p>It is good practice to reduce the levels of contaminants when the exposure level is greater than 25% of the recommended standard or guideline level. This minimises the risk of exceeding the guidance level, due to variation.</p> <p>The sampling method for methamphetamine used in this report samples an area of 100cm<sup>2</sup>. The concentrations can vary across the room.</p>
<p><b>LC-MSMS</b></p>	<p>Liquid chromatography– Tandem mass spectrometry (LC-MSMS)) is an analytical chemistry technique that is used for a variety of outcomes, including quantifying the amount of a compound present in a sample.</p>
<p><b>Chronic Exposure</b></p>	<p>Chronic exposure is a state of continuous or recurring contact with toxic substances over a long period of time (3 months or more).</p> <p>A chronic exposure is 24 hours a day where a person does not have an opportunity to recover from the exposure.</p> <p>As a result chronic exposure limits are lower than acute exposure limits.</p>
<p><b>Acute Exposure</b></p>	<p>Acute exposure refers to a single exposure (not lasting longer than a day) to a substance(s) that causes severe harm, or even death. Applicable to workers exposed in an eight or 12 hour day.</p> <p>This type of exposure differs from chronic exposure, which occurs over a long period of time, and negative health effects are cumulative.</p> <p>As a result acute exposure limits are higher than chronic exposure limits.</p>

**APPENDIX A. LAB REPORT**

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A.1. Hills Lab Report



**Hill Laboratories**  
BETTER TESTING BETTER RESULTS

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**ANALYSIS REPORT** Page 1 of 1

<b>Client:</b> K2 Environmental Limited	<b>Lab No:</b> 1451095	SPV1
<b>Contact:</b> s 9(2)(a)	<b>Date Registered:</b> 16-Jul-2015	
C/- K2 Environmental Limited	<b>Date Reported:</b> 22-Jul-2015	
PO Box 28147	<b>Quote No:</b> 60737	
Beckenham	<b>Order No:</b> Q095	
CHRISTCHURCH 8242	<b>Client Reference:</b> Q095	
	<b>Submitted By:</b> s 9(2)(a)	

Sample Type: Miscellaneous Wipe				
Sample Name:	Q095-1 Downstairs Bathroom, Ceiling 15-Jul-2015	Q095-2 Downstairs Bathroom, Wall 15-Jul-2015	Q095-3 Laundry, Ceiling 15-Jul-2015	Q095-4 Laundry, Wall 15-Jul-2015
Lab Number:	1451095 1	1451095 2	1451095 3	1451095 4
Methamphetamine Including Precursors on Wipes by LCMSMS				
Amphetamine	µg/sample < 0.02	< 0.02	< 0.02	< 0.02
Ephedrine	µg/sample < 0.02	< 0.02	< 0.02	< 0.02
Methamphetamine	µg/sample < 0.02	0.06	0.58	0.48
Pseudoephedrine	µg/sample < 0.02	< 0.02	< 0.02	< 0.02

**SUMMARY OF METHODS**

The following table(s) gives a brief description of the methods used to conduct the analysis for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available or if the matrix requires that dilutions be performed during analysis.

Sample Type: Miscellaneous Wipe			
Test	Method Description	Default Detection Limit	Sample No
Methamphetamine Including Precursors on Wipes by LCMSMS	Description with 0.1M Sulphuric by shaking, LCMSMS analysis. (modified NIOSH9111)	0.02 µg/sample	1-4

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

This report must not be reproduced, except in full, without the written consent of the signatory.

s 9(2)(a)



Client Services Manager - Environmental Division

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**A2: Flinders Cook Results**

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## Housing New Zealand Corporation

### Initial Methamphetamine Assessment

July 2015

s 9(2)(a)



s 9(2)(a) – Key Technical Personnel

Sample Team and Authors

s 9(2)(a)

Job Number: Q095

Issue: 1

Report Date: 31<sup>st</sup> July 2015

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# TABLE OF CONTENTS

**1 EXECUTIVE SUMMARY..... 3**

**1.1 Sampling information..... 4**

**2 RECOMMENDATIONS ..... 4**

**2.1 Reduce surface concentrations of Methamphetamine ..... 4**

**2.2 Decontamination ..... 4**

**2.3 Remove Porous Materials ..... 5**

**2.4 Post-Remediation Sampling..... 5**

**2.5 Disclaimer..... 5**

**3 SITE MAP ..... 6**

**4 RESULTS..... 8**

**4.1 Methamphetamine surface swabs ..... 8**

        4.1.1 Methamphetamine Surface Swabs Summary..... 8

**4.2 Surface pH Screen ..... 9**

        4.2.1 Surface pH Screen Summary ..... 9

**4.3 Site photos ..... 10**

        4.3.1 Upstairs..... 10

        4.3.2 Downstairs and Exterior..... 11

**4.4 Site notes..... 13**

        4.4.1 Conditions of the Exterior and Grounds ..... 13

        4.4.2 Conditions of the Interior of the Dwelling ..... 13

**4.5 Glossary of Terms ..... 13**

**APPENDIX A. LAB REPORT..... 14**

**A.1. Hills lab report ..... 14**

OFFICIAL INFORMATION ACT 1982



## INDEX OF TABLES AND FIGURES

Figure 1 Site Map Ground Floor Detailing Sampling Locations.....	6
Figure 2 Site Map Top Floor Detailing Sampling Locations.....	7
Photo 1: Bedroom .....	10
Photo 2: Bathroom .....	10
Photo 3: Lounge .....	10
Photo 4: Kitchen .....	10
Photo 5: Laundry .....	11
Photo 6: Bathroom .....	11
Photo 7: Laundry .....	11
Photo 8: Bedroom .....	11
Photo 9: Bedroom .....	12
Photo 10: Laundry Cupboard .....	12
Photo 11: Bathroom .....	12
Photo 12: Exterior.....	12
Table 1: Results summary – Meth Swabs.....	3
Table 2: Results summary – pH Screening .....	4
Table 3: Guide to results .....	8
Table 4: Methamphetamine Swab Results .....	8
Table 5: Guide to pH results .....	9
Table 6: Surface pH results.....	9

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1 EXECUTIVE SUMMARY

Table 1: Results summary – Meth Swabs

Contaminant	Guideline Limits (µg/100cm <sup>2</sup> )	Location	Sampling Results µg/100cm <sup>2</sup>	Discussion
Methamphetamine	0.5	Downstairs Bathroom Ceiling	<0.02	All within a normal level for a domestic dwelling - Unlikely to be a health risk
		Downstairs Bathroom Wall	0.06	
		Laundry Ceiling	0.58	Above MoH Guideline levels - decontamination recommended
		Laundry Wall	0.43	
Amphetamine	*0.5 <sup>2</sup>	Downstairs Bathroom Ceiling	<0.02	All within a normal level for a domestic dwelling. Unlikely to be a health risk
		Downstairs Bathroom Wall		
		Laundry Ceiling		
		Laundry Wall		
Ephedrine and Pseudoephedrine	0.5	Living Room Wall	<0.02	All of the results were below the detection limits for Ephedrine and Pseudoephedrine.
		Dining Ceiling		
		Dining Wall		
		Main Bedroom		

\* There is no limit set for amphetamine on surfaces. For the purposes of this report the estimated maximum limit has been set at the same value as the Ministry of Health (MoH) limit for methamphetamine.

Table 2: Results summary – pH Screening

Contaminant	Guideline Limits (pH)	Location	Sampling Results (pH)	Discussion
Surface pH levels	pH 6-8	Bathroom Sink	7	Normal level for a domestic dwelling
		Bathroom Tub	6	
		Bathroom Bath	5	Too Low. Mildly acidic surfaces Cleaning products are usually high pH
		Laundry		

### 1.1 Sampling information

On the 15<sup>th</sup> of July 2015, an initial site investigation for methamphetamine was undertaken at s 9(2)(a) in Auckland.

Sampling was undertaken to determine if the dwelling has any level of methamphetamine contamination present and if so what level.

## 2 RECOMMENDATIONS

### 2.1 Reduce surface concentrations of Methamphetamine

The NZ Ministry of Health, '2010 Guidelines for the Remediation of Clandestine Methamphetamine Laboratory Sites' should be referred to for decontamination. Not all rooms were swabbed as the request was only for an initial investigation. Rooms expected to be contaminated were targeted. Consideration to more extensive swab sampling should be considered if a full decontamination is to occur.

### 2.2 Decontamination

Based on the methamphetamine results detected, it is recommended that the laundry room are decontaminated using the above guidelines. This is an initial investigation. A full decontamination plan has not been provided.

### 2.3 Remove Porous Materials

Some porous materials may require discarding as cleaning is unlikely to be able to remove the hazard.

These materials are likely to include:

- Carpets
- Heat pump
- Curtains
- Wall paper
- Textured ceilings

The Ministry of Health guidelines detail the appropriate methods for decontamination and these should be referred to when deciding what to discard and what to keep.

### 2.4 Post-Remediation Sampling

Post-remediation sampling should be undertaken to ensure residual concentrations of methamphetamine and amphetamine are below the MoH guidelines for acceptable levels and that all surfaces have close to neutral pH levels (pH levels between 6 and 8).

### 2.5 Disclaimer

Limited initial sampling was performed. Variations in surface contamination are possible. The results only present a snapshot of surface conditions.

While a high result may indicate there is a hazard that needs to be managed, a low result or a non-detect does not necessarily mean a complete absence of a hazard.

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**3 SITE MAP**

The following is a map indicating where samples were collected from.

*Note: This map is not to scale and is to be used as an indication only.*



Figure 1 Site Map Detailing Ground Floor Sampling Locations



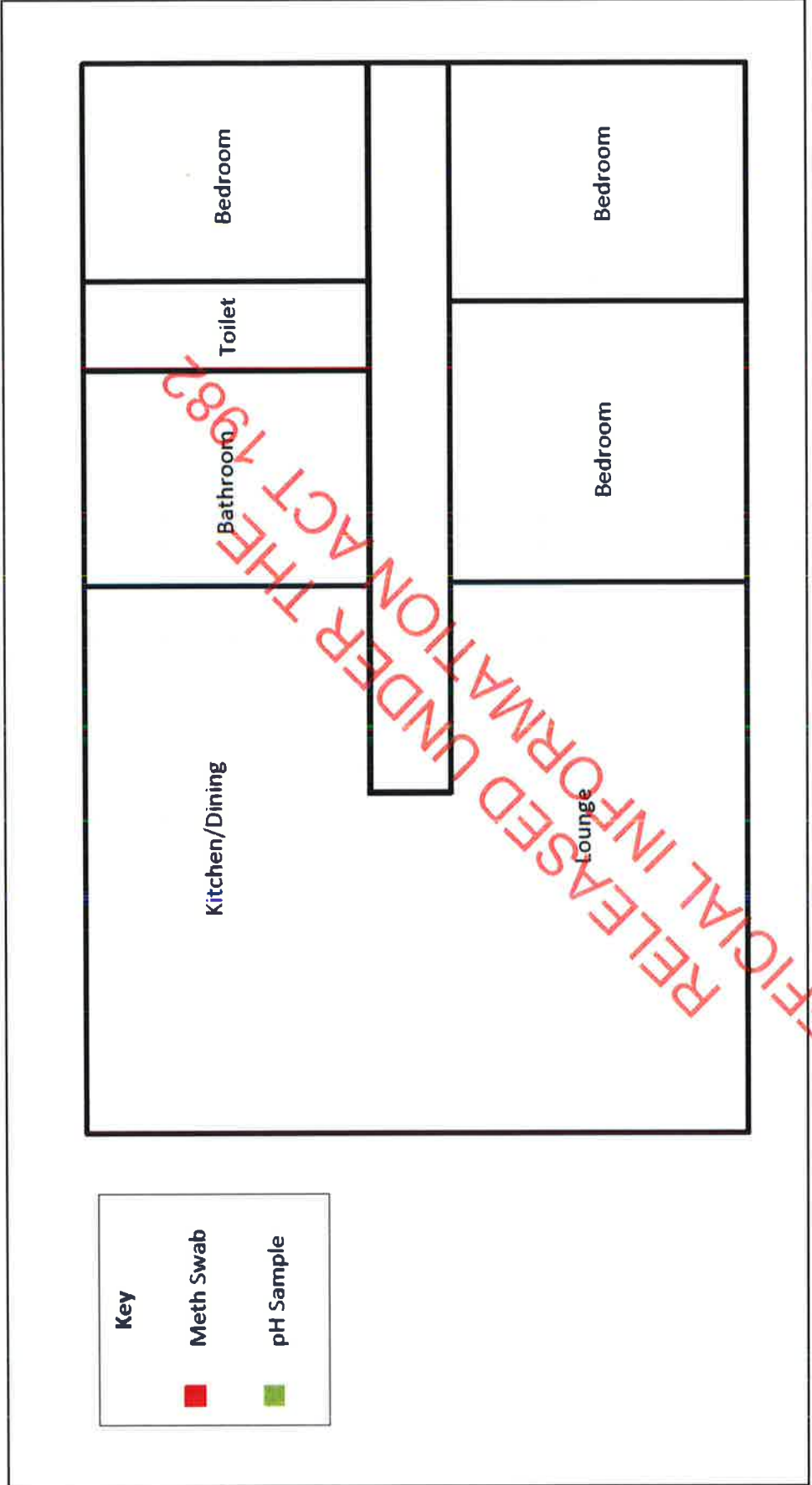


Figure 2 Site Map Detailing Top Floor Sampling Locations

## 4 RESULTS

### 4.1 Methamphetamine surface swabs

The following table details the results of Hills Laboratories Meth Test Kit surface swabs. These swabs were analysed by LC-MSMS, using a modified version of NIOSH 9111: Methamphetamine on wipes by LC/MS.

Table 3: Guide to results

Less than 0.02 µg/100cm <sup>2</sup>	Up to 0.125 µg/100cm <sup>2</sup>	Between 0.125 µg/100cm <sup>2</sup> and 0.5 µg/100cm <sup>2</sup>	Greater than 0.5µg/100cm <sup>2</sup>
Results below detection limits No risk expected	Below 25% of the Recommended guideline levels, Unlikely to be a risk	<b>Action level</b> When a substance is present at levels above 25% of its exposure standard (or recommended guidelines), but below the maximum level, it is recommended to take action to reduce these levels	Above Ministry of Health recommended guidelines Potential health risk Remediation recommended

Table 4: Methamphetamine Swab Results

Sample Number	Location	Description	Results (µg/100cm <sup>2</sup> )
Q095-1	Downstairs Bathroom	Ceiling	<0.02
Q095-2	Downstairs Bathroom	Wall	0.06
Q095-3	Laundry	Ceiling	0.58
Q095-4	Laundry	Wall	0.48

\*See Hills report number 1449889 in section A.1 below.

#### 4.1.1 Methamphetamine Surface Swabs Summary

The laundry ceiling swab had Methamphetamine levels that were above the NZ Ministry of Health (MoH) recommended guidelines of 0.5µg/100cm<sup>2</sup>.

The swab of the laundry wall was so close to reaching the high risk level that it should also be treated as highly dangerous and the entire laundry should be decontaminated.

- This dwelling must not be occupied.
- Remediation to lower Methamphetamine levels to below the MoH NZ guidelines must take place prior to re-occupation.

Amphetamine, Ephedrine and Pseudoephedrine do not have recommended guidelines or exposure standards to compare levels to, so these have been compared to the MoH guidelines for methamphetamine on surfaces.

- Amphetamine, Ephedrine and Pseudoephedrine levels in all four samples, were below the detection limits.

#### 4.2 Surface pH Screen

The following table details the results of surface pH testing.

Table 5: Guide to pH results

Less than 6	6-8	Greater than 8
<p>Too Low Acidic surface Corrosive substances may have been used Not considered normal for a domestic dwelling</p>	<p>MoH NZ guidelines Normal range for indoor surfaces</p>	<p>Too High Basic surface Corrosive substances may have been used Not considered normal for a domestic dwelling</p>

Table 6: Surface pH results

Location	Description	pH Reading
Bathroom	Sink	7
Bathroom	Bath	5
Bathroom	Stainless Steel Tub	6
Laundry	Sink	5

##### 4.2.1 Surface pH Screen Summary

The above results for the bathroom bath and laundry sink are outside what is considered a normal range for a domestic dwelling. These results may be from methamphetamine related contamination.





**4.3 Site photos**

**4.3.1 Upstairs**

	
<p style="text-align: center;">Photo 1: Bedroom</p> <ul style="list-style-type: none"> <li>• This bedroom is empty.</li> <li>• No staining on walls or ceiling.</li> </ul>	<p style="text-align: center;">Photo 2: Bathroom</p> <ul style="list-style-type: none"> <li>• Very untidy compared with that of the bathroom downstairs.</li> <li>• Mould on the ceiling.</li> </ul>
	
<p style="text-align: center;">Photo 3: Lounge</p> <p>Interior of the house has repairs being done to it. These repairs are being carried out by the tenants themselves.</p>	<p style="text-align: center;">Photo 4: Kitchen</p> <p>Nothing appears to be out of the ordinary here.</p>



**4.3.2 Downstairs and Exterior**

	
<p align="center"><b>Photo 5: Laundry</b></p> <p>A swab was taken from the wall and ceiling in the laundry.</p>	<p align="center"><b>Photo 6: Bathroom</b></p> <p>A swab was taken from the ceiling and wall in the downstairs bathroom.</p>
	
<p align="center"><b>Photo 7: Laundry</b></p> <ul style="list-style-type: none"> <li>• Large amounts of paint, floor cleaner and odd material stored in here.</li> <li>• Could be for painters doing renovations?</li> </ul>	<p align="center"><b>Photo 8: Bedroom</b></p> <p>Robond Emulsion tank found in the laundry.</p>

	
<p>Photo 9: Bedroom</p> <ul style="list-style-type: none"><li>• Multiple broken windows.</li><li>• Bed and drawers are the only pieces of furniture left in this room.</li></ul>	<p>Photo 10: Laundry Cupboard</p> <ul style="list-style-type: none"><li>• A mixture of chemicals found in the laundry.</li><li>• Only some of them are household chemicals.</li></ul>
	
<p>Photo 11: Bathroom</p> <p>The downstairs bathroom appeared very clean compared to the rest of the house</p>	<p>Photo 12: Exterior</p> <p>Exterior of property appeared relatively tidy.</p>

#### 4.4 Site notes

##### 4.4.1 Conditions of the Exterior and Grounds

Exterior of the property appeared to be relatively tidy.

##### 4.4.2 Conditions of the Interior of the Dwelling

- Interior dwellings appear to be under repair by the tenants
- Nothing appears to be out of the ordinary in the kitchen upstairs.
- Bedroom upstairs is completely empty – no apparent staining on the walls or ceiling.
- Bathroom upstairs appeared untidy with mould on the ceiling.
- Laundry had large amounts of paint, floor cleaner, etc on the ground.
- Broken windows in the bedroom downstairs – only one has been boarded up.
- Only the bed and the drawers in the downstairs bedroom are left.
- Bathroom downstairs appeared to be extremely tidy compared to the rest of the house.

#### 4.5 Glossary of Terms

The following terms are used in this report.

<p><b>Exposure Standard</b></p>	<p>An exposure standard represents an airborne concentration of a particular substance in the workers breathing zone, exposure to which, according to current knowledge, should not cause adverse health effects nor cause undue discomfort to nearly all workers.</p> <p>Compliance with the designated value does not, however, guarantee protection from discomfort or possible ill-health outcomes for all workers. The range of individual susceptibility is wide and it is possible that workers will experience discomfort or develop occupational illness from exposure to substances at levels below the exposure standards.</p>
<p><b>Action Level</b></p>	<p>It is good practice to reduce the levels of contaminants when the exposure level is greater than 25% of the recommended standard or guideline level. This minimises the risk of exceeding the guidance level, due to variation.</p> <p>The sampling method for methamphetamine used in this report samples an area of 100cm<sup>2</sup>. The concentrations can vary across the room.</p>



# APPENDIX A. LAB REPORT

## A.1. Hills lab report



**Hill Laboratories**  
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited  
1 Clyde Street  
Private Bag 3205  
Hamilton 3240, New Zealand  
Tel: +64 7 858 2000  
Fax: +64 7 858 2001  
Email: mail@hill-labs.co.nz  
Web: www.hill-labs.co.nz

### ANALYSIS REPORT Page 1 of 1

<b>Client:</b> K2 Environmental Limited	<b>Lab No:</b> 1451095	SPV1
<b>Contact:</b> s 9(2)(a)	<b>Date Registered:</b> 16-Jul-2015	
C/- K2 Environmental Limited	<b>Date Reported:</b> 22-Jul-2015	
PO Box 28147	<b>Quote No:</b> 60737	
Beckenham	<b>Order No:</b> Q095	
CHRISTCHURCH 8242	<b>Client Reference:</b> Q095	
	<b>Submitted By:</b> s 9(2)(a)	

Sample Type: Miscellaneous Wipe					
Sample Name:	Q095-1	Q095-2	Q095-3	Q095-4	
	Downstairs Bathroom, Ceiling	Downstairs Bathroom, Wall	Laundry, Ceiling	Laundry, Wall	
	15-Jul-2015	15-Jul-2015	15-Jul-2015	15-Jul-2015	
<b>Lab Number:</b>	1451095.1	1451095.2	1451095.3	1451095.4	
Methamphetamine Including Precursors on Wipes by LCMSMS					
Amphetamine	µg/sample	< 0.02	< 0.02	< 0.02	< 0.02
Ephedrine	µg/sample	< 0.02	< 0.02	< 0.02	< 0.02
Methamphetamine	µg/sample	< 0.02	0.03	0.58	0.48
Pseudoephedrine	µg/sample	< 0.02	< 0.02	< 0.02	< 0.02

### SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Miscellaneous Wipe			
Test	Method Description	Default Detection Limit	Sample No
Methamphetamine Including Precursors on Wipes by LCMSMS	Description: With 0.1M Sulphuric by shaking, LCMSMS analysis. (modified NIOSH 114)	0.02 µg/sample	1-4

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

This report must not be reproduced, except in full, without the written consent of the signatory.

s 9(2)(a)

Client Services Manager - Environmental Division



**IANZ**  
ACCREDITED LABORATORY

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \*, which are not accredited.

Client Services Manager - Environmental Division



