



Housing Health and Safety Rating System (HHSRS)

Case Studies

Group B
Physiological
Requirements

Hazard B12
Lead

Example B12.1
1920-45
Semi-detached
House
(Non-HMO)

Vulnerable Group
All persons aged 3 years
and under

Multiple Locations
Yes

Related Hazards
No

Dwelling

Description

The property is a semi-detached house built in the 1920s.

There have been a few improvements and alterations to the house since it was built. The original wood windows and doors are still in place throughout. Redecoration of both internal and external woodwork has resulted in layers of paint building up: none of the original paint has been removed.



1

Front exterior

Deficiencies

Description of Deficiencies

Lead pipes:

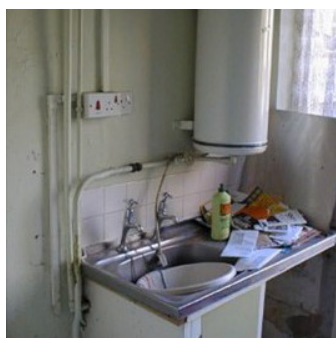
Sections of the original lead pipework between the stop tap, kitchen sink and the electric water heater are still in place. The house is located in South Wales where the water is known to be plumbosolvent because it is soft water, so slightly more acidic (see map below).

Lead paint:

Much of the internal woodwork (windows and doors, window sills, bannisters, etc.) are worn, chipped or peeling, especially in the bedrooms, where condensation on the single-glazed windows is causing the sills to rot and the paint to flake.



2
Original lead pipe at
stoptap



3
Original lead pipes to
water heater



4
Flaking paint on wooden
sg windows

Relevant Baseline Indicators

0

Satisfactory
or N/A

1

Not
Satisfactory

2

Defective

3

Seriously
Defective

Subject

Score

BI

Baseline Indicators

There are no relevant baseline indicators for this scenario

Relevant Matters

0

Satisfactory or N/A

1

Not Satisfactory

2

Defective

3

Seriously Defective

Score					Matters affecting Likelihood of Harm
0	1	2	3		Paintwork
0	1	2	3		Paintwork repairs
0	1	2	3		Lead pipework
0	1	2	3		Plumbosolvent water
0	1	2	3		Soil contamination

Score					Matters affecting Harm Outcomes
0	1	2	3		Paintwork
0	1	2	3		Paintwork repairs
0	1	2	3		Lead pipework
0	1	2	3		Plumbosolvent water
0	1	2	3		Soil contamination

Likelihood of Harm

Scale Points	
Likelihood of harm from this hazard over the next twelve months	
Very Likely	1 in 1
	1 in 2
	1 in 3
	1 in 5
Likely	Example Dwelling 1 in 10
	1 in 20
	1 in 30
	1 in 50
Unlikely	1 in 100
	1 in 200
	1 in 300
	1 in 500
Very Unlikely	1 in 1,000
	1 in 2,000
	1 in 3,000
	National Average 1 in 5,000

Score

1 in 10

Justification of Scoring

The water supply is likely to be contaminated with lead due to the house being in an area of plumbosolvency with soft, acidic water.

The likelihood of harm occurring is increased due to the old flaking paintwork, particularly in the bedrooms where the vulnerable group (under 3-year-olds) are likely to spend the majority of their time when considering their sleep is likely to include day time naps as well as overnight and play as well.

Harm Outcomes

Extreme		Severe		Serious		Moderate	
		Heart attack, serious fractures, etc.		Chronic stress, severe concussion, etc.		Broken fingers, moderate cuts, etc.	
Very Likely	50.0	Very Likely	50.0	Very Likely	50.0	Example Dwelling	89.0
	30.0		30.0		30.0		National Average
	20.0		20.0		20.0		89.0
Likely	10.0	Likely	10.0	Example Dwelling + National Average	10.0	These scores are simply calculated as the sum of the other three harm outcomes subtracted from 100%	
	5.0		5.0		5.0		
	2.0		2.0		2.0		
Unlikely	1.0	Example Dwelling + National Average	1.0	Unlikely	1.0		
	0.5		0.5		0.5		
	0.2		0.2		0.2		
Very Unlikely	0.1	Very Unlikely	0.1	Very Unlikely	0.1		
Example Dwelling + National Average	0.0		0.0		0.0		
Score		Score		Score		Score	
0.0%		1.0%		10.0%		89.0%	

Justification of Scoring

There is no reason to believe the potential spread of harm outcomes will be any different from the national average.

Safety Ratings

Scenario 1
As described in this document

Key

Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
	Low	100

Likelihood of Harm			
1 in 10			
Extreme	Severe	Serious	Moderate
0.0%	1.0%	10.0%	89.0%
Category	Band	Score	
1 Legal duty to take action	High	10,000	
2 Discretion to take action	Medium	1,000	489
		489	
	Low	100	
National Average		1	
Score	489		

Scenario 2

After works meeting baseline indicators

Likelihood of Harm
1 in 10

Extreme	Severe	Serious	Moderate
0.0%	1.0%	10.0%	89.0%

Category	Band	Score
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1 Legal duty to take action	High	10,000
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2 Discretion to take action	Medium	1,000
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**Example
Dwelling**

	Low	100
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Score	National Average	1
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489

Scenario 3

After further improvements

Likelihood of Harm
1 in 5,000

Extreme	Severe	Serious	Moderate
0.0%	1.0%	10.0%	89.0%

Category	Band	Score
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1 Legal duty to take action	High	10,000
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2 Discretion to take action	Medium	1,000
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	Low	100
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Score	Example Dwelling + National Average	1
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1

Justification of Scoring

After works meeting baseline indicators

There are no relevant baseline indicators for this hazard

Justification of Scoring

After further improvements

Works required to reduce the hazard would include complete removal and replacement of the lead pipework between the stop tap, kitchen sink and electric water heater and replacement with copper or plastic pipes.

Necessary works would also include removal of loose and flaking original paintwork with a liquid paint stripper and appropriate PPE to avoid generating dust. Any rotten or damaged timber should be removed/replaced and redecorated. All original worn-but-sound paintwork should be painted over to seal the surface.

Other Relevant Legislation and Guidance

Updates

Matters for consideration listed in this section were correct at the time of publication. For the most up-to-date legislation and guidance in these areas, please visit the [gov.uk](https://www.gov.uk) website