



# RADON AWARENESS PROJECT

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Andrew Fuller  
Flintshire County Council



## **Radon Awareness Project – Partners**

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### **Welsh Assembly Government**

Housing Division sponsored project

Environment Division - technical control

### **Flintshire County Council**

### **Building Research Establishment**

### **Health Protection Agency**

*formally NRPB*



# Radon Awareness Project Today's Presentation

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Why Radon?

Radon, in Wales?

What did we plan?

What did we do?

What happened?

What do I think?

# Radon Awareness Project – Why Radon?

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- ❑ Naturally occurring
  - Uranium → Radium → Radon
  
- ❑ No taste, smell or colour
  
- ❑ Normally negligible risk



# Radon Awareness Project – Why Radon?

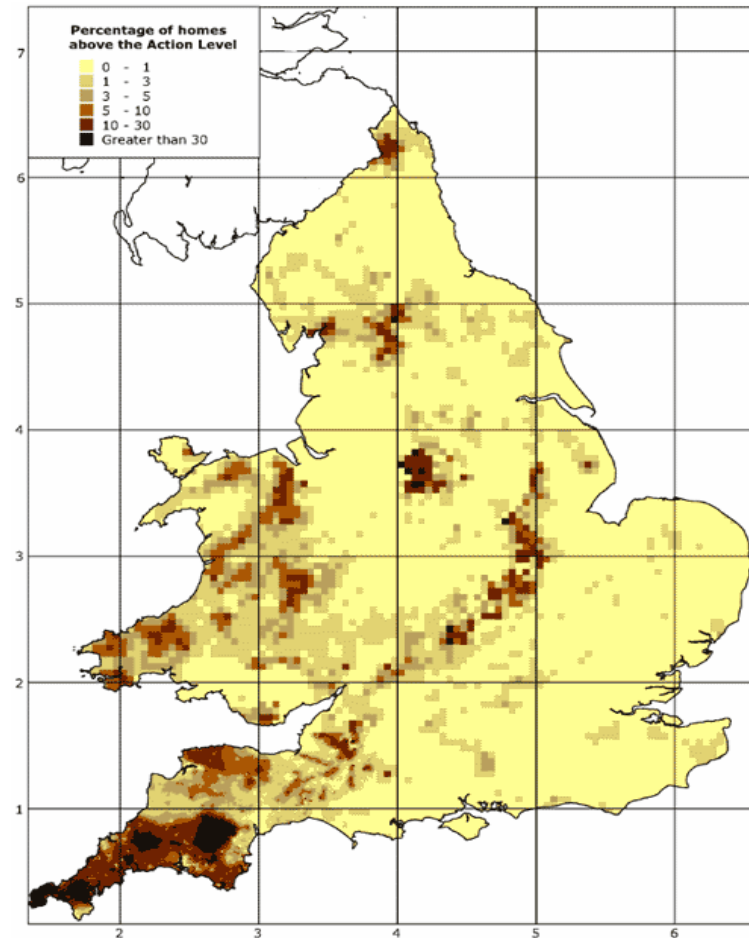
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- ❑ High levels of Radon in soil gas would normally disperse in air
- ❑ Air pressure difference – Draws Radon into buildings  
Indoor/Outdoor temperatures
- ❑ Highest Radon at night and in Winter



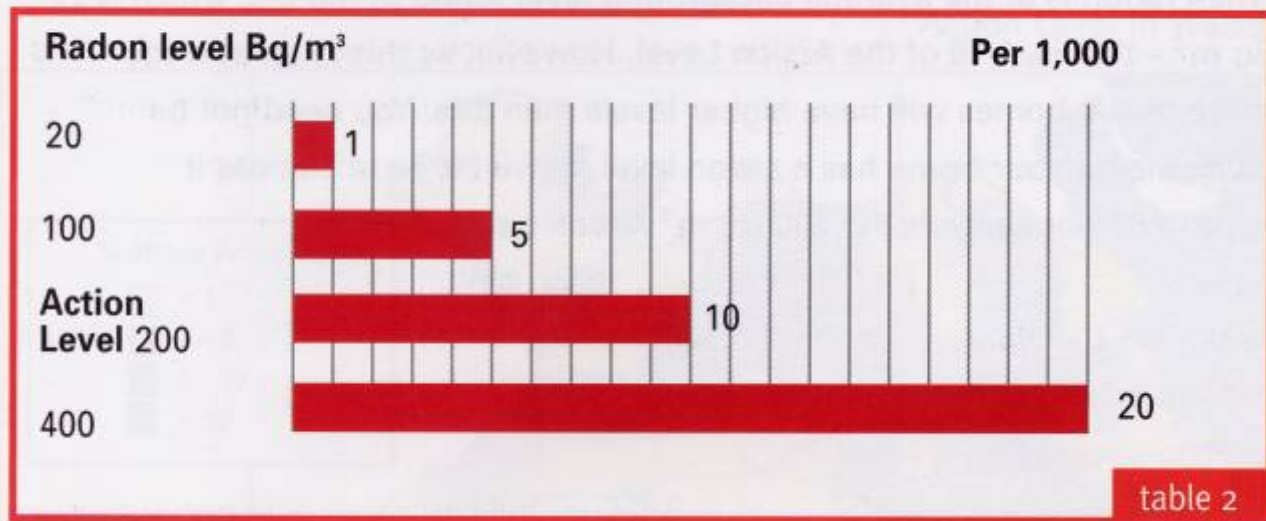
# Radon Awareness Project – Why Radon?

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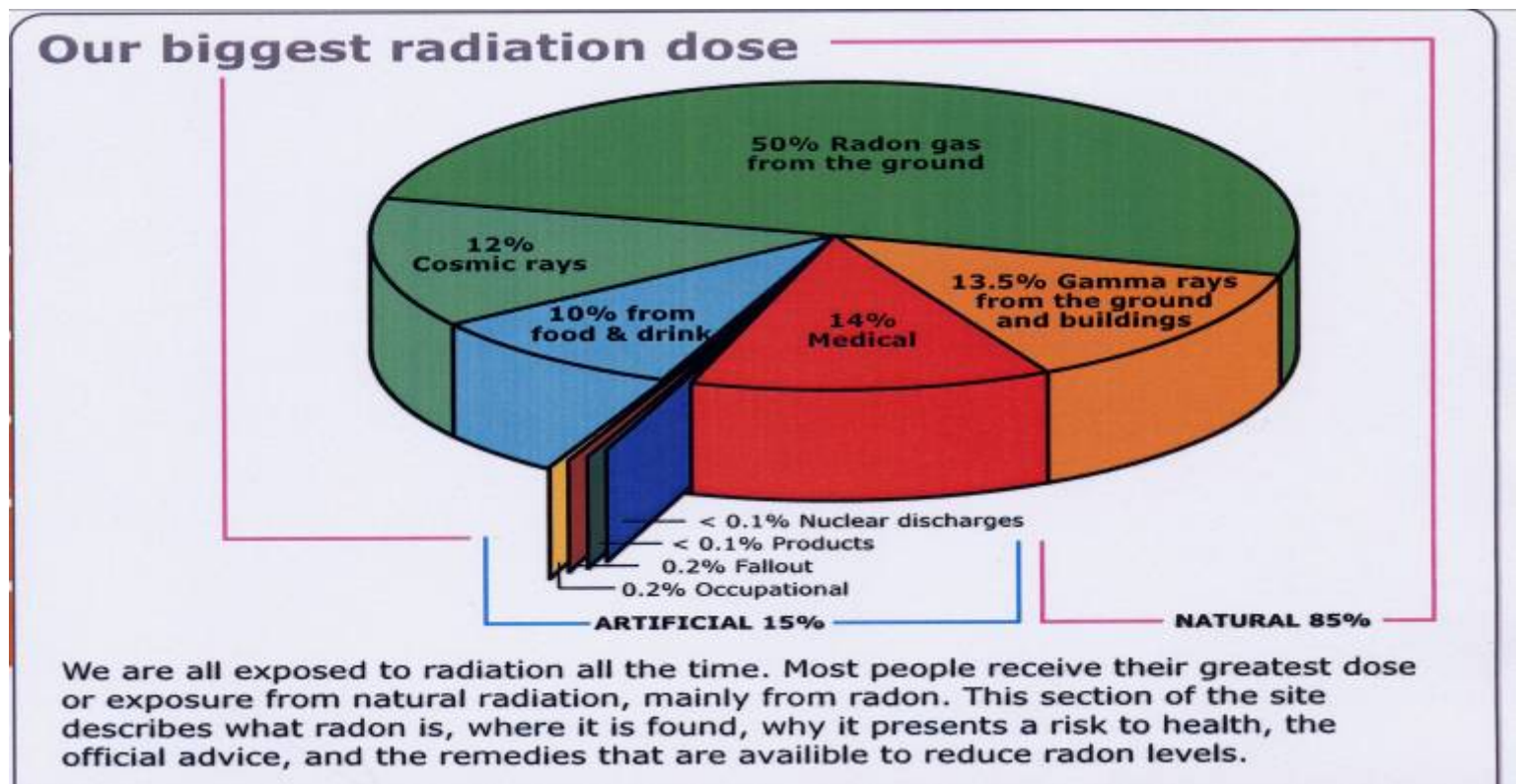


# Why Radon? Lung Cancer Risk

Lifetime risk of lung cancer potentially induced by radon (for non smokers)

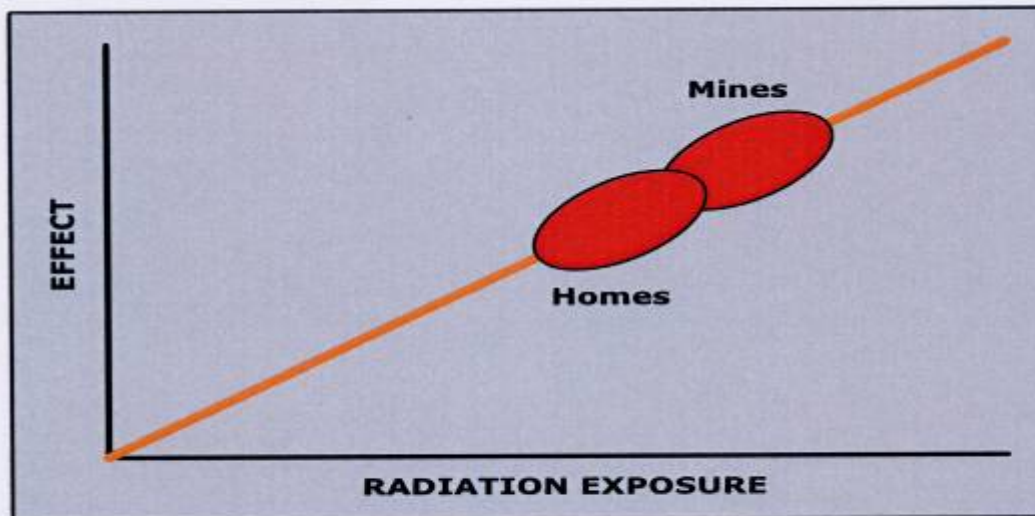


# Why Radon?– Radiation Doses



# Why Radon?– Radon Risks

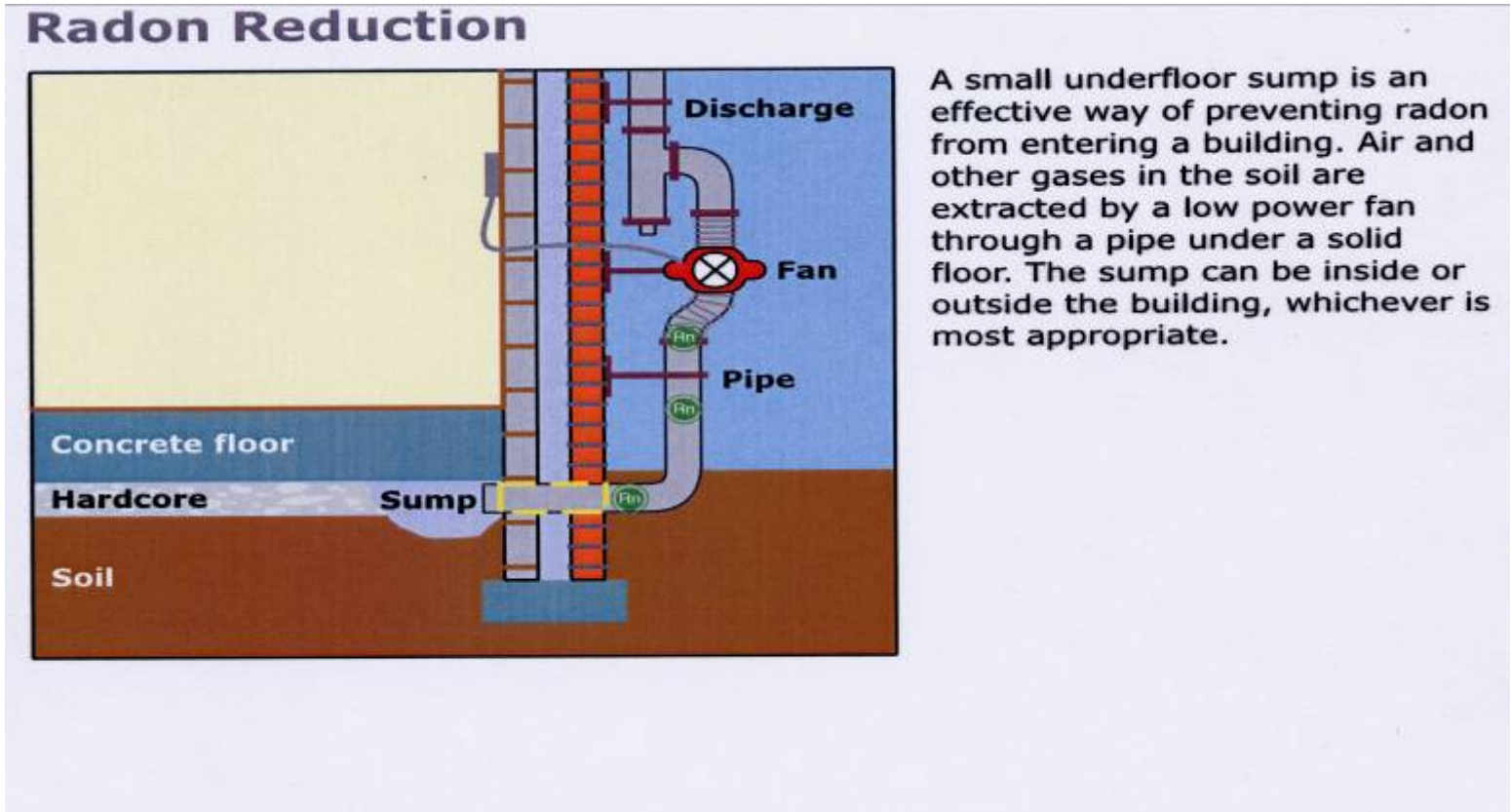
## Radon Risks



Our knowledge of risk from radon is based mainly on studies of uranium miners. Radon causes lung cancer among them and we assume there is a proportional risk from radon in other circumstances. A large study in Swedish homes supports this assumption. Radon exposures in many UK homes are close to those received by miners.

# Why Radon?

## Typical Remediation



Taken from the following HPA website, downloaded on 17th April 2007  
[http://www.hpa.org.uk/radiation/understand/at\\_a\\_glance/index.htm#radon](http://www.hpa.org.uk/radiation/understand/at_a_glance/index.htm#radon)

Radon Awareness Project – Why Radon?

# Radon Testing

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- ❑ Normal Testing Cost circa £38
- ❑ Two detectors placed in house for 3 months
- ❑ Recommended Action Level:  
  
Around or above 200 Bq m<sup>3</sup>



# Radon Awareness Project – Radon, in Wales?

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- ❑ **Welsh Office Interest from mid 1980s, surveys and reports**
- ❑ **1990 – NRPB Advice and Action Level “Radon affected areas”**
- ❑ **1996 – First maps of Radon probability in Wales – updated 1998**
- ❑ **2002 – Radon affected areas in Wales – map republished**



# Radon Awareness Project - Radon in Wales?

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## Welsh Assembly Aims

- ❑ To identify the majority of estimated 10,000 dwellings in Wales with Radon. Concentrations at or above the action level of 200 Bq m<sup>3</sup>.
- ❑ To encourage owner-occupiers or landlords as appropriate to reduce the Radon levels in these homes.



# Radon Awareness Project

## What did we plan?

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1. Planning
2. Preparation of material and data
3. Training
4. Awareness raising
5. Targeting first time testers
6. Targeting high testers
7. Provision of remediation advice
8. Remediation and retesting
9. Exit strategy



# Radon Awareness Project

-What did we plan?

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- ❑ Need for local contact point to increase testing take up (i.e. County Council)
- ❑ W.A.G. to support and coordinate
- ❑ BRE and NRPB – technical support



# Radon Awareness Project – What did we plan?

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- ❑ Fronted by L/A + partners
- ❑ Training, Resources and Literature provided by WAG
- ❑ Free measurement for untested in higher risk areas (10-30% expected to be above action level)
- ❑ Advice for high testers from this and previous surveys. (BRE & HPA roadshows)



# Radon Awareness Project - What did we plan?

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- ❑ Pre 2003; attempts by NRPB to gain more information and raise awareness not linked with L/A's
- ❑ W.A.G. sought a local authority for pilot study using a more coordinated approach
- ❑ Flintshire; The chosen ones



## Radon Awareness Project - What did we plan?

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- ❑ Reviewed previous measurements in Flintshire

Total Housing Stock	61,900
Measured	2,140
At or above Action Level	334



## Radon Awareness Project - What did we plan?

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Reviewed previous Data for Grid Squares in Flintshire with probability of 10% or over

Dwellings	9,200
Results	1,830
% Measured	20

At or > Action Level	No.	309
	%	17



## Radon Awareness Project - What did we plan?

### Response Expected: NRPB experience

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- ❑ Initial free test offer 15-20%
- ❑ Response rate to reminder 10-15%
- ❑ Total expected response 25%

*(basis for budgeting)*

# Radon Awareness Project

## What we did ?- **Communication Review**

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- ❑ First time testers – houses within 10% and above category
  
- ❑ Revision of Contact Letters
  - *Address specific invite – tear off slip*
  
  - *Letter to householder from Flintshire County Council Executive Member*
  
  - *Pre-paid envelope*
  
  - *Radon info leaflet*



# Radon Awareness Project - What did we do?

## Training

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- ❑ Initial training
  - Surveyors/Estate Agents/Solicitors-Builders-Council Officers/Housing Associations
  - Info about Radon from NRPB  
Info about Remediation from BRE
  - Free Seminars with food at nice hotel
  - Take up approximately 20-30  
disappointing from some areas e.g. solicitors



Radon Awareness Project - What did we do?

## Training

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- ❑ Shortage of builders:  
further training October 2005
- ❑ GP training: Summer 2005



Radon Awareness Project - What did we do?

## Publicity

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- Presentations to Environment Forum
  - Seeking approval
  - Member training
  - Assurances to members. *(The public won't panic)*



# Radon Awareness Project - What did we do?

## Publicity

# GAS ALERT IN COUNTY

## High risk homes to be sent health threat warnings

FLINTSHIRE is one of the worst affected areas in Wales for a radioactive, colourless gas that seeps into people's homes.

Ignorance about the effects of Radon gas is posing a health threat to thousands of people in the county.

The natural gas comes from the earth and is

all around us but scientists believe long-term exposure to high levels that can accumulate in people's homes can cause lung cancer.

This week, Flintshire Council will launch a campaign to raise awareness of the gas and its effects in people in the most affected areas.

People living near the Clwydian Range, such as the communities in the Mold area, are at the highest risk.

● CONTINUED ON PAGE 2

### ● FROM PAGE ONE

Within the next two weeks, residents living in these areas should be sent a letter urging them to take a free radon level test. The letter will also contain information about how to minimise the risk.

Andrew Fuller, Flintshire's pollution control manager, said: "Between 10 per cent to 30 per cent of homes in the worst affected areas are expected to have high radon levels. However, radon is

very easy to deal with."

Mr Fuller said people should first take the test, which takes three months, as radon levels differ from day to day, then home owners should have some building work done, like increasing house ventilation or building a sump.

He said: "It is not expensive; it should cost less than £1,000. And it will help selling your house as Flintshire comes up as a radon affected area. Having the work done can speed up the sale."

North Wales AM Brynle

Williams said he knew nothing about Flintshire's radon problem until he moved from his old farmhouse to a new bungalow on his land. The new house had radon protection measures, like all houses built after 2000. But Mr Williams knew nothing of the problem, despite living in the area all his life.

### Welcome

He said: "My age group is not aware of radon and its effect on health. I welcome the council's initiative in raising awareness of the situation

— but I would like other areas to do the same and I will be raising the matter at the National Assembly."

People who are not offered a free test but are still worried about radon levels can contact the council's environmental health department on 01352 703330 or email radon@flintshire.gov.uk. A test can be bought from the council at a discounted price.

● BBC Wales will screen an investigation into ignorance about the gas in its current affairs programme *Taro Nau* tomorrow on S4C, at 8.25pm.



# Radon Awareness Project - What did we do?

## Publicity



# Radon Awareness Project - What did we do?

## - Publicity

# Are you living in a death-trap?

CHRON  
5/11/05

LIVING in a home with a high radon gas level increases the risk of lung cancer – and Flintshire is one of the worst affected areas of Wales.

Now the county council is to lead a project aimed at raising the awareness of radon – a natural radioactive gas which can enter homes through the ground.

Flintshire's pollution control manager, Andrew Fuller, says indoor radon is responsible for the largest source of radiation exposure to the majority of the public.

He said: 'There are areas within Flintshire which potentially have high levels of radon.'

It's estimated that around 2,000 people become ill with lung cancer each year in the UK because of their exposure to indoor radon.

'Radon does not affect all homes in the same way. Two houses next to each other can have very different levels – that is why we strongly recommend that all homes in potentially affected areas are tested.'

The awareness project is promoted and funded by the Welsh Assembly and run in partnership with the National Radiological Protection Board and the Building Research Establishment.

Andrew Fuller said: 'This is the first campaign of its kind in Wales and Flintshire County Council has



**RADON ROADSHOW:** Cllr Aaron Shotton, Karen Chambers, Jane Bradley, Andrew Fuller and Chris Scivyer provide information on radon.

by **KEVIN HUGHES**

been asked to lead the pilot.

'The main part of the campaign will be the offer of free radon tests to 7,500 householders in Flintshire in areas currently considered to be at most risk.'

He added: 'A good response in terms of the take-up of this offer will not only give householders vital information about their property and any risks to health they may face, but will also give the National Radiological Protection Board a better picture of how the real situation compares with the

prediction based on geological surveys and less intense monitoring.'

Mr Fuller says the test for radon involves householders placing two small detectors in appropriate places in their home and, after three months, sending them in the pre-paid envelopes provided to the National Radiological Protection Board.

He said: 'After the detectors have been analysed, the results will be sent back with a full explanation of what they mean along with any appropriate advice.'

'Householders within Flintshire who are not offered a free test may still have the benefit of one at a

price reduction by contacting Flintshire's Pollution Control Department.'

Mr Fuller says remedial measures are simple and effective.

He said: 'The responsibility for undertaking any remedial works lies with the homeowner but this may be the landlord's responsibility in tenanted properties.'

'Upon completion of any remedial works, a second free test will be offered to ensure remediation work has been effective and that the risks to health have been reduced.'

'When initial test results are made known to the householder, approximately four months after the free test offer goes out, there will be opportunities for those with high test results to meet with experts from the Building Research Establishment, National Radiological Protection Board and Flintshire County Council.'

He added: 'This event will be held at local venues and hopefully advice can be sought by householders on a one-to-one basis.'

Further information can be sought from Flintshire County Council Pollution Control Section on 01352 703330 or by e-mail to radon@flintshire.gov.uk or in writing to The Environmental Health Department, County Hall, Mold, Flintshire CH7 6NH.

Radon Awareness Project - What did we do?

# Publicity

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- ❑ BBC TV programme for S4C



Radon Awareness Project - What did we do?

## Offers of Free Tests

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- ❑ Initially approached 7.5K (all higher risk area properties)
- ❑ Follow up chasing non-responders
- ❑ Cut price tests for other parts of Flintshire



Radon Awareness Project - What did we do?

## Advice for High Testers

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- ❑ Advisory meetings for high testers held at 3 venues initially (and another venue 6 months later)



# Radon Awareness Project - What did we do?

## Exit Strategy

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- ❑ End Date – March 2006 for free samples etc
- ❑ Consultants Review – W.A.G. have employed independent consultants to consider efficacy of pilot scheme methodology
- ❑ Final Costs and Review meeting?
- ❑ Repetition in other L/A's? presumably subject to review findings



Radon Awareness Project - What happened?

## Take up of Free Test Offer

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- ❑ 7.5K approached -30% take up,
- ❑ **>10%** higher than average
- ❑ Follow up, chasing non-responders, raised total to **40%**
- ❑ Total response in Flintshire including previous campaigns **>50%**



Radon Awareness Project - What happened?

## Take up of Free Test Offer

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- ❑ 3.5k detector kits sent out  
3k tested,
- ❑ 500 (17%) higher than action level.



Radon Awareness Project - What happened?

## Advice for High Testers

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- ❑ Advisory meetings for high testers  
Total 760 invited( inc previous high testers)
- ❑ Total attendance 205 (27%).
- ❑ 40 asked for retest.(5% of invitees)



Radon Awareness Project - What do I think?

# Results and Conclusions

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## Reminder of Aims

- ❑ To identify the majority of estimated 10,000 dwellings in Wales with Radon concentrations at or above the Action Level of 200 Bq m<sup>3</sup>
- ❑ To encourage owner-occupiers or landlords as appropriate to reduce the Radon levels in these homes



Radon Awareness Project - What do I think?

# Conclusions

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- ❑ Were the aims met?

Performance Measurement Exercise  
*(Based on personal opinion)*

Inputs

Outputs

Outcomes



# Radon Awareness Project - What do I think?

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## ❑ Inputs

- Over budget – sign of success?

## ❑ Outputs

- More tests than anticipated – success!
- Attendance at remediation sessions – success?
- Number of houses remediated – concern?

## ❑ Outcomes – Generally intangible

- Long term health risk reduced – potential success?
- Value of service (stakeholders perception) – success!



Radon Awareness Project - What do I think?

QUESTIONS and/or **Lunch**

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